Organization 47th World Congress of Surgery WCS 2017

Basel, Switzerland, 13 – 17 August 2017

held by the

INTERNATIONAL SOCIETY OF SURGERY ISS/SIC
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<table>
<thead>
<tr>
<th>Society</th>
<th>Name</th>
<th>Country</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAS</td>
<td>Association for Academic Surgery</td>
<td>USA</td>
<td><a href="http://www.aasurg.org">www.aasurg.org</a></td>
</tr>
<tr>
<td>AAST</td>
<td>American Association for the Surgery of Trauma</td>
<td>USA</td>
<td><a href="http://www.aast.org">www.aast.org</a></td>
</tr>
<tr>
<td>ACS</td>
<td>American College of Surgeons</td>
<td>USA</td>
<td><a href="http://www.facs.org">www.facs.org</a></td>
</tr>
<tr>
<td>APIMSF</td>
<td>The Ambroise Paré International Military Surgery Forum</td>
<td>Germany</td>
<td><a href="http://www.apimsf.org">www.apimsf.org</a></td>
</tr>
<tr>
<td>AWS</td>
<td>Association of Women Surgeons</td>
<td>USA</td>
<td><a href="http://www.womensurgeons.org">www.womensurgeons.org</a></td>
</tr>
<tr>
<td>EAES</td>
<td>European Association for Endoscopic Surgery</td>
<td>Spain</td>
<td><a href="http://www.eaes-eur.org">www.eaes-eur.org</a></td>
</tr>
<tr>
<td>FELAC</td>
<td>Federación Latinoamericana de Cirugía</td>
<td>Chile</td>
<td><a href="http://www.felacred.org">www.felacred.org</a></td>
</tr>
<tr>
<td>IASSS</td>
<td>International Association of Student Surgical Societies</td>
<td>South Africa</td>
<td><a href="http://www.iasss.org">http://www.iasss.org</a></td>
</tr>
<tr>
<td>ISBI</td>
<td>International Society for Burn Injuries</td>
<td>USA</td>
<td><a href="http://www.worldburn.org">www.worldburn.org</a></td>
</tr>
<tr>
<td>WOFAPS</td>
<td>World Federation of Associations of Pediatric Surgeons</td>
<td>Ireland</td>
<td><a href="http://www.wofaps.org">www.wofaps.org</a></td>
</tr>
</tbody>
</table>

d) Local Participating Societies
and their Representatives in the Program Committee of WCS 2017

<table>
<thead>
<tr>
<th>Society</th>
<th>Name</th>
<th>Country</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGACT</td>
<td>Schweizerische Gesellschaft für Allgemein chirurgie und Traumatologie</td>
<td>Switzerland</td>
<td><a href="http://www.sgact.ch">http://www.sgact.ch</a></td>
</tr>
<tr>
<td>SGC</td>
<td>Schweizerische Gesellschaft für Chirurgie</td>
<td>Switzerland</td>
<td><a href="http://sgc-ssc.ch/">http://sgc-ssc.ch/</a></td>
</tr>
<tr>
<td>SGVC</td>
<td>Schweizerische Gesellschaft für Viszeralchirurgie</td>
<td>Switzerland</td>
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</tr>
<tr>
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<td>Switzerland</td>
<td><a href="http://www.smob.ch">www.smob.ch</a></td>
</tr>
</tbody>
</table>
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The Authors’ Index lists the presenting authors of the submitted Abstracts and indicates the Session Numbers where the presentation is given (e.g. 18.17 refers to Session Number 18, Presentation Number 17). PE… refers to abstracts included in the Poster Exhibition of the Congress but not presented within a regular Session. The Congress Handbook WCS 2017 lists all presentations by the session numbers which serve as a reference to the Abstract. Poster Exhibition presentations are listed at the end of the volume.

### Authors’ Index

<table>
<thead>
<tr>
<th>AAA</th>
<th>Baregiam N., United States</th>
<th>PE089</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbasy J., Pakistan</td>
<td>Bates M., United States</td>
<td>PE094</td>
</tr>
<tr>
<td>Abdel Hadi M., Saudi Arabia</td>
<td>Baxi K., India</td>
<td>209.05</td>
</tr>
<tr>
<td>Abdutraheem N., Nigeria</td>
<td>Bendjaballah A., Algeria</td>
<td>PE015, PE173, PE221, PE222, PE381</td>
</tr>
<tr>
<td>Abu-Zidan F., UAE</td>
<td>18.04, 18.70, 18.75, 18.77, 200.01, 200.02, 200.03</td>
<td></td>
</tr>
<tr>
<td>Agarwal A., India</td>
<td>PE103</td>
<td></td>
</tr>
<tr>
<td>Agrawal V., United States</td>
<td>18.82</td>
<td></td>
</tr>
<tr>
<td>Aguilar Nascimento J.E., Brazil</td>
<td>69.01, 159.04</td>
<td></td>
</tr>
<tr>
<td>Ahmad A., India</td>
<td>126.04, PE158, PE178</td>
<td></td>
</tr>
<tr>
<td>Ahmed L., United States</td>
<td>PE101</td>
<td></td>
</tr>
<tr>
<td>Ahmed N., United States</td>
<td>18.29, 18.30, 18.64</td>
<td></td>
</tr>
<tr>
<td>Akhtar N., India</td>
<td>176.07, 209.10, PE322</td>
<td></td>
</tr>
<tr>
<td>Akranurakul P., Thailand</td>
<td>PE029</td>
<td></td>
</tr>
<tr>
<td>Akula B., India</td>
<td>PE297</td>
<td></td>
</tr>
<tr>
<td>Al Dossary I.M., Saudi Arabia</td>
<td>18.74</td>
<td></td>
</tr>
<tr>
<td>Albaraesi M.N., Libya</td>
<td>18.25</td>
<td></td>
</tr>
<tr>
<td>Alhajri K., Saudi Arabia</td>
<td>PE102</td>
<td></td>
</tr>
<tr>
<td>Allaix M.E., Italy</td>
<td>36.04, PE202, PE203</td>
<td></td>
</tr>
<tr>
<td>Allasia A., Switzerland</td>
<td>PE046</td>
<td></td>
</tr>
<tr>
<td>Almuttawa A., France</td>
<td>18.35</td>
<td></td>
</tr>
<tr>
<td>Amin Md.R., Bangladesh</td>
<td>71.05</td>
<td></td>
</tr>
<tr>
<td>Amjad K., Pakistan</td>
<td>PE390</td>
<td></td>
</tr>
<tr>
<td>Anand A., India</td>
<td>PE109</td>
<td></td>
</tr>
<tr>
<td>Anand S., India</td>
<td>155.07</td>
<td></td>
</tr>
<tr>
<td>Antakia R., United Kingdom</td>
<td>PE125</td>
<td></td>
</tr>
<tr>
<td>Anwer M., Pakistan</td>
<td>PE280</td>
<td></td>
</tr>
<tr>
<td>Aoki M., Japan</td>
<td>PE316</td>
<td></td>
</tr>
<tr>
<td>Aratani K., Japan</td>
<td>PE245</td>
<td></td>
</tr>
<tr>
<td>Arora A., India</td>
<td>PE372</td>
<td></td>
</tr>
<tr>
<td>Arora P., India</td>
<td>Are K., India</td>
<td>155.08</td>
</tr>
<tr>
<td>Arteaga A.M., Switzerland</td>
<td>PE252</td>
<td></td>
</tr>
<tr>
<td>Asai Y., Japan</td>
<td>PE289</td>
<td></td>
</tr>
<tr>
<td>Atstupens K., Latvia</td>
<td>PE315</td>
<td></td>
</tr>
<tr>
<td>Attergrim J., Sweden</td>
<td>PE316</td>
<td></td>
</tr>
<tr>
<td>BB</td>
<td>BR</td>
<td>PE087</td>
</tr>
<tr>
<td>Bagias G., Germany</td>
<td>PE270</td>
<td></td>
</tr>
<tr>
<td>Balachandran G., India</td>
<td>126.03</td>
<td></td>
</tr>
<tr>
<td>Balasubramaniam S., Singapore</td>
<td>18.39</td>
<td></td>
</tr>
<tr>
<td>Barbera Carbonell B., Switzerland</td>
<td>PE179</td>
<td></td>
</tr>
<tr>
<td>Barczynski M., Poland</td>
<td>115.05</td>
<td></td>
</tr>
</tbody>
</table>

**CCC**

<p>| Calcatera N., United States | 85.03 |
| Cammerger G., Germany | 66.03 |
| Cao Z., China | 66.05, PE410 |
| Cardini B., Austria | PE382 |
| Carvalho A.C., Portugal | PE295 |
| Cavas J.M., Portugal | PE275, PE276 |
| Cassao B.D.A., Brazil | 204.01 |
| Celaya D., Mexico | PE266 |
| Chaitra S., India | 127.06, PE125 |
| Chaivanichaya K., Thailand | PE154 |
| Chan S., Singapore | PE022 |
| Chan T.Y., Hong Kong | PE219 |
| Chan Y.H.Y., Hong Kong | 127.02 |
| Chao W.-S., Taiwan, Province of China | PE342 |
| Chary J., Colombia | 18.91, 18.92, 18.93, 48.06 |
| Chen J.Y., Taiwan, Province of China | PE084 |
| Chen R., Singapore | 18.44 |
| Cheng C., Hong Kong | PE263 |
| Chia M.L., Singapore | PE018 |
| Chiba H., Japan | 18.15 |
| Chirom-Mefire A., Cameroon | 18.24, 18.46, 26.03, 41.07, 209.01 |
| Cho A., Japan | PE294 |
| Cho C.K., Korea, Republic Of | 26.04, PE265, PE300, PE301, PE383, PE384 |
| Chooklin S., Ukraine | PE332, PE333 |
| Chou S.-H., Taiwan, Province of China | PE005 |
| Choy C., United Kingdom | PE136 |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>Country</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark D.</td>
<td>South Africa</td>
<td>18.28, 18.41</td>
</tr>
<tr>
<td>Co M.</td>
<td>Hong Kong</td>
<td>PE112</td>
</tr>
<tr>
<td>Cohen M.</td>
<td>United States</td>
<td>PE082</td>
</tr>
<tr>
<td>Cohnert T.</td>
<td>Austria</td>
<td>196.04</td>
</tr>
<tr>
<td>DDD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dantona C.</td>
<td>Switzerland</td>
<td>127.03, PE155, PE156</td>
</tr>
<tr>
<td>Daume D.L.</td>
<td>Switzerland</td>
<td>PE183</td>
</tr>
<tr>
<td>De Crea C.</td>
<td>Italy</td>
<td>115.01, 175.02</td>
</tr>
<tr>
<td>De Jager E.C.</td>
<td>Australia</td>
<td>204.02</td>
</tr>
<tr>
<td>Deepak S.</td>
<td>United Kingdom</td>
<td>209.03</td>
</tr>
<tr>
<td>Degaiof K.</td>
<td>Canada</td>
<td>4.05</td>
</tr>
<tr>
<td>DeLacy F.B.</td>
<td>Spain</td>
<td>6.06, 86.01, PE184, PE355, PE356</td>
</tr>
<tr>
<td>Deretti S.</td>
<td>Switzerland</td>
<td>PE024</td>
</tr>
<tr>
<td>Dev H.</td>
<td>Australia</td>
<td>94.05, 196.05</td>
</tr>
<tr>
<td>Devane L.A.</td>
<td>United States</td>
<td>127.04</td>
</tr>
<tr>
<td>Dhar A.</td>
<td>India</td>
<td>4.01</td>
</tr>
<tr>
<td>diMarco A.N.</td>
<td>United Kingdom</td>
<td>55.03</td>
</tr>
<tr>
<td>Dimitrief M.</td>
<td>Switzerland</td>
<td>PE130</td>
</tr>
<tr>
<td>Dinets A.</td>
<td>Ukraine</td>
<td>200.06</td>
</tr>
<tr>
<td>Dogjani A.</td>
<td>Albania</td>
<td>18.56</td>
</tr>
<tr>
<td>Doklestic K.</td>
<td>Serbia</td>
<td>PE001</td>
</tr>
<tr>
<td>Donatini G.</td>
<td>France</td>
<td>PE075, PE096</td>
</tr>
<tr>
<td>Dong M.</td>
<td>United States</td>
<td>6.07</td>
</tr>
<tr>
<td>Downs J.</td>
<td>South Africa</td>
<td>196.07</td>
</tr>
<tr>
<td>Drake T.</td>
<td>United Kingdom</td>
<td>34.01</td>
</tr>
<tr>
<td>Drake T.M.</td>
<td>United Kingdom</td>
<td>174.04</td>
</tr>
<tr>
<td>Drevin G.</td>
<td>Sweden</td>
<td>41.08</td>
</tr>
<tr>
<td>Duh Q.</td>
<td>United States</td>
<td>5.04</td>
</tr>
<tr>
<td>Dumas R.P.</td>
<td>United States</td>
<td>168.01</td>
</tr>
<tr>
<td>Dzikia A.</td>
<td>Poland</td>
<td>PE162, PE163</td>
</tr>
<tr>
<td>Dzodic R.</td>
<td>Serbia</td>
<td>PE090</td>
</tr>
<tr>
<td>EEE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efstathiou E.</td>
<td>Greece</td>
<td>66.06</td>
</tr>
<tr>
<td>Eilenberg W.-H.</td>
<td>Austria</td>
<td>196.03</td>
</tr>
<tr>
<td>Elf A.-K.</td>
<td></td>
<td>35.01</td>
</tr>
<tr>
<td>Elfadal A.</td>
<td>UAE</td>
<td>PE016, PE039</td>
</tr>
<tr>
<td>Elkashlan T.S.</td>
<td>Egypt</td>
<td>PE359</td>
</tr>
<tr>
<td>Emparan C.</td>
<td>Spain</td>
<td>6.02, 126.05, PE030, PE037</td>
</tr>
<tr>
<td>Engelsman A.</td>
<td>Netherlands</td>
<td>5.02, PE105</td>
</tr>
<tr>
<td>Epstein M.</td>
<td>Brazil</td>
<td>116.04, 154.01, 154.02</td>
</tr>
<tr>
<td>FFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faes S.</td>
<td>Switzerland</td>
<td>PE285</td>
</tr>
<tr>
<td>Fariñas R.</td>
<td>Philippines</td>
<td>131.01</td>
</tr>
<tr>
<td>Fedorenko A.</td>
<td>Israel</td>
<td>18.61</td>
</tr>
<tr>
<td>Felberbauer F.</td>
<td>Austria</td>
<td>116.05</td>
</tr>
<tr>
<td>Feng J.</td>
<td>Singapore</td>
<td>PE038</td>
</tr>
<tr>
<td>Fernandez Ranvier G.</td>
<td>United States</td>
<td>PE081, PE166</td>
</tr>
<tr>
<td>Ferrario Di Tor Vajana A.</td>
<td>Switzerland</td>
<td>18.07, 64.07, PE235</td>
</tr>
<tr>
<td>Ferreira C.</td>
<td>Portugal</td>
<td>PE264</td>
</tr>
<tr>
<td>Fildes J.</td>
<td>United States</td>
<td>18.23</td>
</tr>
<tr>
<td>Fisichella P.</td>
<td>United States</td>
<td>PE375</td>
</tr>
<tr>
<td>Forrester J.</td>
<td>United States</td>
<td>178.04, 204.05</td>
</tr>
<tr>
<td>GGG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gallagher J.</td>
<td>United States</td>
<td>55.01</td>
</tr>
<tr>
<td>Garg P.K.</td>
<td>India</td>
<td>66.08</td>
</tr>
<tr>
<td>Gatek J.</td>
<td>Czech Republic</td>
<td>PE117</td>
</tr>
<tr>
<td>Gebauer B.</td>
<td>Germany</td>
<td>126.08, PE180</td>
</tr>
<tr>
<td>Genc C.</td>
<td>Netherlands</td>
<td>35.02, PE070</td>
</tr>
<tr>
<td>Gimn O.</td>
<td>Sweden</td>
<td>95.05</td>
</tr>
<tr>
<td>Goel N.</td>
<td>United States</td>
<td>66.09</td>
</tr>
<tr>
<td>Goffredo P.</td>
<td>United States</td>
<td>6.01</td>
</tr>
<tr>
<td>Goh M.H.</td>
<td>Singapore</td>
<td>PE122</td>
</tr>
<tr>
<td>Goh S.</td>
<td>Singapore</td>
<td>PE286</td>
</tr>
<tr>
<td>Goh S.S.N.</td>
<td>Singapore</td>
<td>18.37</td>
</tr>
<tr>
<td>Grass F.</td>
<td>Switzerland</td>
<td>PE185, PE268</td>
</tr>
<tr>
<td>Guifo M.</td>
<td>Cameroon</td>
<td>155.06</td>
</tr>
<tr>
<td>Gullo R.</td>
<td>Italy</td>
<td>PE085, PE376</td>
</tr>
<tr>
<td>Gunji H.</td>
<td>Japan</td>
<td>PE241</td>
</tr>
<tr>
<td>Gunnesson L.</td>
<td>Sweden</td>
<td>PE061</td>
</tr>
<tr>
<td>Gupta M.</td>
<td>India</td>
<td>18.13, 26.11, 131.03, PE229, PE423</td>
</tr>
<tr>
<td>Gyedu A.</td>
<td>Ghana</td>
<td>41.05, PE422</td>
</tr>
<tr>
<td>Habermann E.</td>
<td>United States</td>
<td>PE153</td>
</tr>
<tr>
<td>Hadziev G.</td>
<td>Bulgaria</td>
<td>PE308</td>
</tr>
<tr>
<td>Halonen J.</td>
<td>Finland</td>
<td>174.02</td>
</tr>
<tr>
<td>Hampton D.</td>
<td>United States</td>
<td>18.26</td>
</tr>
<tr>
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RANDOMIZED STUDY TO COMPARE EFFICACY OF SHORT STRETCH BANDAGE SYSTEMS WITH LOCALLY USED COTTON CREPE BANDAGES IN THE TREATMENT OF LOWER LIMB LYMPHOEDEMA

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¹department of surgical disciplines, All India Institute of Medical Sciences, new delhi, India

Introduction: Lymphoedema is caused by accumulation of lymph fluid in the tissues which results in swelling of a specific body part. Compression therapy on the affected limb can reduce the diameter of the blood vessel and pressure and reduces the backflow of blood. One technique of applying compression is the use of elastic bandages or garments. Short stretch provide low resting pressures when the patient is at rest and high working pressures during exercise when the muscles are engaged.

Materials & Methods: Two-arm parallel design open-label randomized controlled trial. Inclusion criteria: Male/Female patients of ages 18 and above suffering from lower limb secondary lymphoedema will be included. Exclusion criteria: Patients suffering from arterial disease. Patients undergoing additional therapy or treatment for lymphoedema like manual lymphatic drainage or using compression therapy pumps. Intervention or therapy arms: Patients in the therapy arm will be treated with a bandage system comprising of stockinette + cotton role + short stretch bandage. These patients will be followed up for six months. Patients in the control arm will be treated with local cotton/crepe bandages for three months. At the end of three months, the patients will be provided with short stretch bandages which are washable. The progress of these patients will be monitored for another three months.

Primary Objectives: To assess and compare the effectiveness of short stretch bandage with multilayer local cotton crepe compression bandage system in the treatment of lower limb lymphoedema. Secondary Objectives: To assess and compare the following parameters between the three arms of the study. Decrease in Swelling, Pain in walking, Quality of life, Handling of bandage, Ease of use and Patient Compliance.

Results: Total of 60 cases were randomized in this study. 30 in each arm - short stretch and control. There was a significant improvement in the quality of life, decrease in the limb circumference.

Conclusion: The Short Stretch Bandages provide low resting pressures when the patient is at rest and high working pressures when the muscles are engaged. They are thus better suited for lymphoedema management.


Disclosure of Interest: None declared
Introduction: The aim of this study is to assess and compare Lichtenstein's open tension-free and laparoscopic totally extraperitoneal mesh repair in relation to:

- Operative time.
- Intra-operative complications.
- Post-operative pain and neuralgia.
- Post-operative hospital stay.
- Time required for return to work.
- Hernia recurrence.

Materials & Methods: A hospital-based comparative type of study including the patients admitted in General Surgery Department from January 2014 to January 2016. 50 subjects taken for each of two groups, i.e., laparoscopic totally extraperitoneal and Lichtenstein's open tension-free mesh repair.

Results: The patients were in the age group of 15–76 years. Mean age in the laparoscopic group was 39.54 years and in open Lichtenstein's was 42.78 years. 99 patients were male and 1 female. Majority of patients had right-sided hernia, 76% in TEP group and 84% in Lichtenstein's mesh repair group. Mean operative time was 56.16 min for TEP and 26.21 min for Lichtenstein's repair. Mean VAS score at 24 hr post-operative period was 2.96 for TEP and 3.60 for Lichtenstein's repair. Mean post-operative hospital stay (in day) was 2.02 for TEP and 2.54 for Lichtenstein's repair. Mean time (in Days) for return to work was 11.34 for TEP and 17 for Lichtenstein's repair.

Conclusion: Laparoscopic TEP repair may be done in all uncomplicated inguinal hernia by an experienced surgeon for those desiring less pain, better cosmetic results, less postoperative complications, less hospital stay and early return to work. Laparoscopic repair of inguinal hernia is more physiological repair because the mesh prosthesis is used in a tension free manner at the entry site of the hernia and the whole myopectineal orifice of Fruchard is covered by a single prosthesis preventing other groin hernia too in future and it's the characteristic feature of laparoscopic repair.


Disclosure of Interest: None declared
ABDOMINAL WALL HERNIAS: INTRAPERITONEAL ONLAY MESH REPAIR AND FOLLOW-UP IN TERMS OF QUALITY OF LIFE

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Introduction: Abdominal wall hernia repair techniques are manifold. In the last decade minimal invasive methods have gained popularity and various new meshes are available. However there remains concern about the intraperitoneal position of the mesh and mesh related complications. We report our results of 10 years’ experience with Intra Peritoneal Onlay Mesh repair (IPOM) in terms of Quality of Life (QoL) using the Carolinas Comfort Scale (CSS) and comparing different meshes.

Materials & Methods: We included patients undergoing IPOM from 06/2006-02/2015, prospectively recorded data was evaluated retrospectively. We operated a total of 159 patients with a mean age of 59 (31-89) years. 62% (n=99) were male. The surgeons had difference levels of experience; an expert surgeon was present in the majority of procedures. A first follow-up was performed 12 weeks postoperatively including clinical examination. All patients were followed up 2016 with a questionnaire including the CSS with particular reference to QoL, hernia recurrence, local complications and reinterventions.

We determined the mean Sensation-Score (SS - 40 points), Pain-Score (PS - 40 points), Movement-Score (MS - 35 points) and Total-Score (TS - 125 points).

Results: The 159 hernias treated are allotted as follows: Primary 60; Incisional 78; Recurrent 13; Various 8. 3 months postop. patients complained of the following: residual pain (18%), seroma (5%), recurrence (1%), infection (2%). Concerning QoL 72 patients could be analyzed after a mean follow-up of 68 (12-120) months. 22 patients had died of unrelated causes, 65 were non-responders. SS, PS, MS and TS were analyzed overall and according to the mesh used.

<table>
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<th>Dynamesh® (n=30)</th>
<th>Parietex® (n=16)</th>
<th>Ventralight® (n=19)</th>
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<td>SS</td>
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<td>1,8/40</td>
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<td>PS</td>
<td>1,3/40</td>
<td>1,4/40</td>
<td>2,4/40</td>
<td>1,6/40</td>
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<td>MS</td>
<td>1/35</td>
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<td>1,1/35</td>
<td>1/35</td>
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<td>TS</td>
<td>4,6/125</td>
<td>4,3/125</td>
<td>4,6/125</td>
<td>4,5/125</td>
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</table>

Conclusion: In our hands laparoscopic intraperitoneal onlay mesh repair for abdominal wall hernias has proved safe and efficient. Longterm QoL is very good, irrespective of the mesh implanted.

Disclosure of Interest: None declared
Mean platelet volume (MPV) as a predictor of venous thromboembolism (VTE) in colorectal cancer

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Introduction: Platelet activity is a major devilish in atherothrombotic events and cancer. Mean platelet volume (MPV), which is widely available as a routine parameter of the complete blood count, is a potentially useful biomarker of platelet activity in the setting of venous thrombosis. Recent studies showed that high-MPV levels associated with an increase VTE risk in cancer patients.

Aim: To investigate the role of MPV in VTE and colorectal-cancer.

Materials & Methods: A retrospective study was performed to analyze differences of MPV between patients with VTE, VTE and colorectal-cancer, and control.

Two reviewers independently extracted data for meta-analysis. Differences in MPV were expressed as unstandardized mean difference.

Results: Among 170 patients, 58-control, 54-VTE, and 58-VTE with colorectal-cancer, MPV was significantly higher in VTE groups.

Table 1

<table>
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<th>Mean platelet volume (fl)</th>
<th>P-value</th>
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<td>Control-varicose veins vs. VTE = 7.0±0.6 vs. 8.2±1.0</td>
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<tr>
<td>Control-varicose veins vs. VTE with cancer = 7.0±0.6 vs. 9.0±0.9</td>
<td>&lt;0.001</td>
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<tr>
<td>VTE vs. VTE with cancer = 8.2±1.0 vs. 9.0±0.9</td>
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From 403 articles, 10 studies (5 cohorts and 5 case-controls) comprising 2,265 patients. MPV was significantly higher in those with VTE (mean difference 0.61 fl, 95%CI 0.34-0.88, P<0.001). Elevated MPV increased the relative risk of VTE (RR 1.319, 1.061-1.641, I²=82.5%) (figure1).

Image:

Conclusion: Our evidence suggests that elevated MPV is associated with VTE and VTE with colorectal-cancer. A mechanistic study and RCT are required in order to use antiplatelet therapy.
Disclosure of Interest: None declared
PROCESS MAPPING IN SURGERY: A SYSTEMATIC REVIEW
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Introduction: Quality improvement (QI) has been a longstanding and transformative force in manufacturing. In industry, process mapping (PM) and statistical process control (SPC) are established techniques to deconstruct complex processes into small, discrete steps, analyze variability around each step, and continuously identify opportunities to streamline processes. The purpose of this systematic review is to assess the impact of PM and SPC on surgical processes and outcomes.

Materials & Methods: A systematic, English-language search of Ovid, EMBASE and MEDLINE was conducted for papers examining the impact of process mapping on Surgical care from 1946 to present. Key words used were “statistical process control”, “process map”, “Deming”, “Shewhart” AND “Surgical procedure”, “Operative”. From 138 papers, two independent reviewers identified 65 studies that met inclusion criteria. The evidence-based practice for improving quality (EPIQ) method was used to score quality and level of evidence.

Results: 3 broad themes identified were economic impacts, patient outcomes and access to care systemically. 5 papers used time-driven activity based costing to compare the economics of resource-intensive procedures and potential cost-reducing strategies that maintained and emphasized value. 30 papers were identified as describing the use of SPC and PM to investigate QI initiatives aimed at improving perioperative complication rates; they noted decreased infection rates, adverse events, and postpartum haemorrhages as well as increased co-morbidity variation impacting outcomes. The 29 remaining papers commented on systems and access to care. Using various PM techniques important issues such as delays to OR, access to endoscopy and surgical cancellations were addressed. PM helped address inefficiencies in these areas and reduced delays to both the OR and endoscopy, resulting in fewer cancelled cases and patient no shows.

Conclusion: Process mapping allows detailed insights into the variability and costs of complex processes. This review demonstrates many examples of how PM can be integrated into established surgical QI strategies to improve patient care. Models should be created and re-assessed to improve quality of care and financial performance of health systems.

Disclosure of Interest: None declared
TROCAR SITE HERNIA AFTER BARIATRIC SURGERY: IS IT NECESSARY TO CLOSE THE FASCIA AT THE TROCAR SITE, AFTER SURGERY?

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Introduction: Laparoscopic surgery, play a main role in bariatric surgery and it is performing worldwide. Trocar site hernia (TSH) is a type of incisional hernia. Obese patient are at increased risk for TSH, due to their wide abdominal wall circumference, more intraperitoneal fat and their eminent weight loss after bariatric surgery. TSH overall rate after bariatric surgery is reported 0% to 1.6%. The aim of this study was to evaluate the TSH rate after different types of bariatric surgery.

Materials & Methods: Between April 2013 to Jun 2016, 2061 patients underwent laparoscopic bariatric surgery in three high volume hospitals by three bariatric surgeons of excellence and their fellowships. All patients have at least one year follow up and the data of their demographic features, surgery type, complications, outcomes and follow ups was registered in Iranian obesity database.

Results: During the time of study, 2061 patients, 1690 female (81.9%) and 371 male (18.1%) underwent bariatric surgery, including 148(7.1%) sleeve gastrectomy, 456(22.1%) Roux-en-Y gastric bypass, 1405(68.1%) mini gastric bypass and 52(2.5%) other procedures such as gastric banding and biliopancreatic diversion and duodenal switch. The mean age was 37.2 years (16-75 yr) and mean BMI was 45.7 kg/m\(^2\) (35-76.1 kg/m\(^2\)). The mean 1 year %EWL was %83.9. In patients with 1 year of follow-up, the TSH occurred in two patients in 12mm trocar site with rate of 0.09%.

Conclusion: The trocar site closure after bariatric surgery is difficult and time consuming. Upon very low incidence of TSH after bariatric surgery and the common complications of trocar site closure, it seems that it is not necessary to routine closure of trocar sites.

Disclosure of Interest: None declared
NOVEL USE OF BOTULINUM TOXIN A (BTA) INJECTION IN THE SURGICAL MANAGEMENT OF GIANT INGUINOSCROTAL HERNIAS
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Introduction: Giant inguinoscrotal hernias are hernias that extend below the midpoint of the inner thigh. The surgical challenge is the difficulty in reducing the inguinoscrotal contents into the limited abdominal cavity and the intra-abdominal hypertension that invariably happens. The lack of abdominal domain predisposes to wound dehiscence and early recurrence. Methods to limit this include resection of contents and pre-operative progressive pneumoperitoneum, each controversial due to its attendant risks. We describe a new technique using botulinum A (BTA) injection into the abdominal wall to achieve abdominal domain before repair of giant inguinoscrotal hernias.

Materials & Methods: A pilot study investigates the feasibility of BTA injection into the abdominal wall musculature for progressive wall relaxation before elective giant inguinoscrotal hernia surgery. 2 patients each received 300 units of BTA injection in equal divided doses into the external oblique, internal oblique and transversus abdominis muscles at three sites on each side, each dose 50 units, two weeks before the planned surgery. The six injections were performed under ultrasound control. Both hernias were repaired as a one stage procedure.

Results: Between November 2015 to May 2016, 2 patients who fit the criteria for elective repairs consented for BTA injections. Patient A was 65 years old and patient B was 81 years old. Patient A presented with intestinal obstruction. Nasogastric tube decompression and parenteral nutrition were started and he was monitored as an inpatient to time of surgery. Patient B returned to his outpatient activities between the injections and surgery date. BTA injections were tolerated by both without complications. Patient A had a concurrent laparotomy to aid reduction of the hernia contents. Patient B’s hernia was successfully reduced with a groin incision, without need for midline laparotomy. Mesh repair were performed for both. There were no postoperative complications. There was no post-operative recurrence at the 6 months review.

Conclusion: Pre-operative BTA injection prior to elective giant inguinoscrotal hernia repairs is a safe and feasible procedure in a selected group. The injections lead to progressive paralysis of the abdominal wall and increase in abdominal domain, which greatly aid the reduction of the inguinoscrotal contents during surgery. Abdominal wall musculature paralysis also decreases abdominal pressure during the postoperative period and decreases the risk of hernia recurrence.

Disclosure of Interest: None declared
AN OBSERVATIONAL STUDY TOWARDS DEFINING TIME CONSTRAINTS FOR TEMPORAL ARTERY BIOPSY.
M. R. Sait 1*, M. Lepore 1, J. Allington 1, R. M. Kwasnicki 1, F. Tsang 1, S. Lisa 1, R. Vashisht 1, M. M. Barkeji 1
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Introduction: Temporal artery biopsy (TAB) is considered the gold standard for diagnosing Giant Cell Arteritis (GCA), however there is no definite time constraint. Prompt diagnosis and treatment with corticosteroids is important to avoid complications, however unnecessary treatment carries adherent morbidity. The aim of this study was to assess the use of TAB and its diagnostic value over time.

Materials & Methods: A retrospective observational study was conducted of patients requiring a TAB from August 2014 to August 2016, at our district general hospital. The data collected included clinical history, biochemical results, time to TAB from clinical suspicion, and histology.

Results: 42 TABs were performed (mean age: 66 years, 10 male: 32 female) over the two-year period for patients presenting with temporal headache or scalp tenderness. Mean time from provisional diagnosis to TAB was 9.5 days. TAB completed within 8 days had a diagnostic yield of 41% compared with 16% thereafter. 7 patients with a negative TAB were still treated based on ESR and clinical suspicion, 5 of which had a TAB after 8 days.

Conclusion: This audit highlights the decreasing value of TAB with time after onset of symptoms. TAB should be performed within a defined timeframe or omitted and treatment based on clinical or biochemical information. A larger cohort study is required to better define the optimal time constraints.

Disclosure of Interest: None declared
Introduction: Criteria for diagnosing primary hyperparathyroidism (PHPT) include hypercalcemia in the presence of parathyroid hormone (PTH) levels that are either elevated (classic PHPT) or normal but non-suppressed. However, there is no standard definition of what constitutes normal non-suppressed levels, and data are lacking regarding the potential for surgical cure in this challenging subset of patients. The purpose of this study is to examine patients with normal PTH levels undergoing parathyroidectomy and establish predictors of success.

Materials & Methods: A retrospective review of patients undergoing parathyroidectomy for sporadic PHPT between January 2012 and March 2014 was performed. Patients with normal PTH were compared to classic PHPT patients to assess demographics, imaging, intraoperative PTH (IOPTH), extent of exploration, pathology, and outcomes.

Results: 332 patients met inclusion criteria, and 60 (18%) had a normal PTH (range 33-65 pg/mL). The mean calcium level was 10.9 mg/dL in both the normal PTH and classic PHPT groups. Negative sestamibi scans were seen more often with normal PTH levels (18.3% vs 4.8%, \( p < 0.001 \)). IOPTH declined ≥50% in 45/60 patients (75%), ≥40% in 50/60 (83%), and ≥30% in 50/60 (83%). Sensitivity and accuracy was greatest when using either the ≥40% or ≥30% decline criteria (90% sensitive and 86% accurate for both vs 81% and 78% for ≥50% decline). Patients with normal PTH levels were more likely to have ≥2 glands removed (26.7% vs 14.3%, \( p = 0.02 \)), and the specimens were more likely to be classified as only mildly hypercellular or normocellular by pathology (20% vs 2.9%, \( p < 0.001 \)). Average follow-up was 24 mos (range 6-55), and cure rate was 88% in the normal PTH group, compared to 96% in classic PHPT \( ( p = 0.02 ) \). Among patients with normal PTH, those with PTH ≤55 had a cure rate of 83% (29/35), whereas those with PTH 56-65 had a 96% cure rate (24/25) \( ( p = 0.12 ) \).

Conclusion: CONCLUSIONS – Parathyroidectomy can have high rates of cure in patients exhibiting hypercalcemia in the context of normal PTH levels despite a high likelihood of negative imaging and multigland resection. An IOPTH decline of 40% is an appropriate predictor of cure. Operative success is equivalent to classic PHPT when PTH levels are >55 pg/mL.

Disclosure of Interest: None declared
5.02
PARATHYROIDECTOMY VERSUS MEDICAL MANAGEMENT FOR SECONDARY HYPERPARATHYROIDISM IN END-STAGE RENAL DISEASE: A PROPENSITY MATCHED ANALYSIS.

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Introduction: Secondary hyperparathyroidism (SHPT) is a common abnormality in patients with end-stage renal disease. Initial treatment consists of medical management and parathyroidectomy (PTX) can be performed for severe cases. Currently, the role of surgery for these patients is still under debate, and its effects on subsequent kidney transplantation (KTX) are unclear. In this study we compare the outcomes of kidney transplantation in patients with and without PTX.

Materials & Methods: All patients who had undergone KTX in 4 centers between 1995 and 2015 were analyzed retrospectively. Two groups were identified; patients who had undergone PTX prior to KTX and patients treated with medical management. Both groups were selected using a propensity score for gender, age and parathormone levels (PTH). Outcome variables were post KTX PTH, transplant morbidity, graft survival and overall survival were compared between groups.

Results: Matching succeeded for 77 patients. The medical management group had more males, patients with diabetes, patients with hypertensive or diabetic nephropathy and living donors compared to the PTX group. Baseline calcium and phosphate levels were higher in the PTX group. After PTX, PTH was significantly lower on the day of KTX as well as at 1- and 5 years post KTX (47.90 vs. 13.85, 27.40 vs. 10.10 and 22.20 vs. 6.70, all p < 0.05, respectively). PTH at 3 years post KTX was similar (18.70 vs. 10.60, p = 0.10). There were no significant differences in transplant complications (70% vs. 77%, p = 0.46) and 1-year graft survival (91% vs. 80%, p = 0.05). Overall survival at 1-, 3-, 5- and 10 years post transplantation was similar between both groups (95% vs. 99%, 88% vs. 94%, 86% vs. 91%, 84% vs. 83%, all p > 0.05, respectively).

Conclusion: In patients who had PTX for SHPT, PTH remained lower after KTX in comparison to patients who received medical management only. There were no differences in complications, graft survival and overall survival up to 10 years.

Disclosure of Interest: None declared
THE ROLE OF HYPOXIA IN THYROID CANCER PROGRESSION
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Introduction: Genetic basis of thyroid cancer is well-researched area but little is known about thyroid cancer stem cells (CSC). Growing thyroid tumours are subjected to hypoxia leading to increased expression of Hypoxia-inducible factors (HIFs), which regulate transcription of genes involved in cell-cycle regulation, metabolism and angiogenesis. Hypoxia is linked to tumour progression and metastases. In epithelial cancers, metastases can be achieved through Epithelial-to-mesenchymal transition (EMT), which enables cancer cells to become mobile and invade surrounding structures. Transcription factors TWIST, SNAIL and Slug downregulate expression of epithelial marker E-cadherin during EMT. EMT is reported to increase CSC numbers.

Materials & Methods: CSC were isolated from normal (Nthy-ori 3-1), papillary (BCPAP) and anaplastic (SW1736) thyroid cancers cell lines as Side-population (SP) using Fluorescent-activated cell sorting combined with dye efflux. Hypoxia was induced by treatment with cobalt chloride (hypoxia-mimicking agent) or using Ruskinn hypoxic chamber. Expression of HIFs, their target genes (VEGF, CA9), embryonic stem cell markers (Sox2, Oct4, Nanog) and EMT markers was quantified in hypoxic cells and controls using RT-PCR and immunohistochemistry.

Results: All thyroid cell lines expressed HIF-1α mRNA under normoxia but not HIF-2α mRNA. Under hypoxic conditions - HIF-1α mRNA levels declined over time. HIF-2α mRNA and VEGF levels peaked at 72 hours. - Expression of Oct4 and Nanog mRNA was elevated in all. - Loss of E-cadherin expression in Nthy-ori 3-1 and increase in Slug mRNA levels in all. SP fraction increased, which diminished on re-oxygenation (Table 1).

Table 1: Percentage change in SP fraction of treated and control cell lines

<table>
<thead>
<tr>
<th>Cells</th>
<th>SP control (%)</th>
<th>SP treated (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nthy ori 3-1</td>
<td>0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>BCPAP</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>SW1736</td>
<td>7.6</td>
<td>25.4</td>
</tr>
</tbody>
</table>

Conclusion: Nthy ori 3-1 expressed mixed epithelial/mesenchymal phenotype under normal conditions; lost epithelial characteristics under hypoxic conditions, signifying they had undergone EMT. Cancerous thyroid cells had mesenchymal phenotype under normoxia; upregulated mesenchymal markers under hypoxia. Hypoxia may be contributing to cancer progression by promoting EMT and CSC phenotype as demonstrated by increased expression of embryonic SC markers and SP in treated thyroid cancer cells. Future work would include silencing HIF-1α and HIF-2α to investigate the effect of each pathway on thyroid CSC population and thyroid tumourigenesis, thus providing an opportunity for targeted drug treatment.

Disclosure of Interest: None declared
5.04 RECOMBINANT PARATHYROID HORMONE VERSUS USUAL CARE: DO THE OUTCOMES JUSTIFY THE COST?

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Introduction: Hypoparathyroidism is a potential complication of anterior neck surgery. It is commonly managed by calcium and vitamin D supplementation in large doses. Such quantities over a long time horizon have been shown to lead to renal complications as well as basal ganglia calcification. A recombinant parathyroid hormone (rPTH) is now available in the United States, offering a potentially more effective but also more costly treatment. Although there is currently no long-term data with respect to renal or neurologic outcomes, there is evidence to suggest that rPTH may provide a more favorable side effect profile. Formal cost-effectiveness analyses of this new medication versus standard care are lacking.

Materials & Methods: We constructed a decision-analytic model comparing usual care versus rPTH treatment for postsurgical hypoparathyroidism. Treatment outcomes, utilities, and probabilities were determined via literature review. Costs were determined by review of Medicare records and publicly available pricing information. Standard discounting was applied, and a 10 year time horizon was used. Threshold and sensitivity analyses on key parameters were conducted to assess robustness of the model. Costs and health outcomes were represented in US dollars and Quality Adjusted Life Years (QALYs).

Results: The rPTH strategy was both more costly and more effective than the Usual Care (UC) strategy. In the base case, UC cost $2031 and provided 7.38 QALYs. The rPTH strategy cost $836,016 and provided 7.77 QALYs for an Incremental Cost-Effectiveness Ratio (ICER) of $2,148,938 per QALY. This was well above our willingness to pay (WTP) threshold of $100,000, and therefore treatment with rPTH was not considered cost-effective. Given the same WTP, the model predicted a threshold for the annual cost of rPTH at $5495, suggesting that if the price could be brought to this level, the treatment would be cost-effective. The model was robust to all other parameters.

Conclusion: To our knowledge, this is the first formal cost-effectiveness analysis of rPTH in comparison with UC. Our model suggests that although rPTH is slightly more effective than UC, the modest gain in quality of life for patients who are reasonably well-managed on UC probably does not justify the cost. However, in the subset of patients for whom UC supplementation is ineffective, consideration must be given to rPTH because the repeated costs of office visits, hospitalization, and decreased quality of life would likely warrant the cost.


Disclosure of Interest: None declared
DOES LOCATION AFFECT PROGNOSIS OF SQUAMOUS CELL CARCINOMA OF THE DISTAL ALIMENTARY TRACT?

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Introduction: Rectal Squamous Cell Carcinoma (R-SCC) is a rare malignancy for which the American Joint Committee on Cancer (AJCC) currently lacks a dedicated staging system. We have previously demonstrated that 1) a staging classification based on size, as in Anal Squamous Cell Carcinoma (A-SCC) rather than on depth of invasion, is more accurate in predicting the disease-specific survival (DSS) of R-SCC and 2) a radiation based management strategy comparable to that used for A-SCC should be considered the optimal management for R-SCC. Because of these common traits, we hypothesized that R-SCC and A-SCC may represent a similar biological entity, and therefore location would not affect prognosis.

Materials & Methods: Patients diagnosed with R-SCC (n=1327) and A-SCC (n=13998) between 1998 and 2013 were identified in the Surveillance, Epidemiology, and End Results database. R-SCCs were staged based on the AJCC classification for A-SCC, and prognostic impact of location was analyzed accordingly. Survival analyses were adjusted by gender, age, race, and management strategy (surgical resection and/or radiation).

Results: R-SCCs compared to A-SCC were more commonly diagnosed in females (65 vs 48%, p<0.001) and older patients (62 vs 56 yrs, p<0.001). R-SCC presented with more advanced disease than A-SCC: mean size 4.2 vs 3.6 cm; T4 14 vs 5%; nodal invasion 20 vs 15%; and metastases 13 vs 6% (all p<0.001). In multivariate analysis, R-SCCs and A-SCCs had similar DSS for stages 0, I, and III, however stage II R-SCC had significantly worse DSS than A-SCCs (p=0.002). Following breakdown of stage II into T2 (2-5cm) and T3 (>5cm), T3 R-SCCs had a significantly lower DSS compared to T2 R-SCC (Table 1). Since the R-SCC cohort had a higher proportion of T3 cancers than A-SCC (36 vs 27%, p<0.001), this likely accounted for the stage II survival difference. Also, while T2 (and T1) A-SCC and R-SCC had similar DSS, T3 (and T4) RSCCs had lower DSS than A-SCCs.

<table>
<thead>
<tr>
<th>Stage</th>
<th>R-SCC</th>
<th>A-SCC</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5 y DSS, %</td>
<td>n</td>
<td>5 y DSS, %</td>
</tr>
<tr>
<td>0 T1 si N 0</td>
<td>93 4 3</td>
<td>4 7</td>
<td>95 7</td>
</tr>
<tr>
<td>I T1</td>
<td>87 1 2</td>
<td>1 1</td>
<td>89 11</td>
</tr>
<tr>
<td>II T2</td>
<td>78 2 3</td>
<td>1 7</td>
<td>83 20</td>
</tr>
<tr>
<td>III T3</td>
<td>54 8 3</td>
<td>3 3</td>
<td>68 5</td>
</tr>
<tr>
<td>III T4</td>
<td>49 8 7</td>
<td>4 2</td>
<td>64 3</td>
</tr>
<tr>
<td>T1-4 N +</td>
<td>42 2</td>
<td>8 9</td>
<td>42 16</td>
</tr>
<tr>
<td>p</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
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</tr>
</tbody>
</table>

Conclusion: R-SCC presented with higher stages than A-SCC, suggesting a delayed diagnosis. Larger R-SCC (T3-T4) had worse survival compared to T3-4 A-SCC, which we postulate may be due to a combination of more advanced disease within-stage as well as the use of less efficacious therapeutic regimens. Therefore, location may represent a significant prognostic factor for SCC of the distal alimentary tract.

Disclosure of Interest: None declared
AMBULATORY MANAGEMENT OF HEMORRHOIDS GRADE III/IV WITH ENDOLUMINAL LASER ABLATION GUIDED WITH US-DOPPLER.
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Introduction: The purpose of this study is to compare laser intra-hemorrhoidal dearterialization, achieved by a dedicated laser energy device with Milligan–Morgan (MM) hemorrhoidectomy.

Materials & Methods: 30 Patients with symptomatic grade II or III internal hemorrhoids according to the Goligher’s classification (refractory to medical treatment) were enrolled in this double-blinded randomized controlled trial study. In the laser group, hemorrhoidal columns were coagulated using a 980-nanometer (nm) radial laser emitting fiber (15-W pulses of 1.2 s each, with 0.6-s intervals covering the whole hemorrhoidal column). Operative time, postoperative pain and complications, and recovery or resolution of symptoms were measured. Patients were followed up for at least one year for evaluating healing, resolution of symptoms, and late complications. The primary end point was a reduction in the bleeding rate; secondary end points were: postoperative complications, reduction in pain and prolapse, resolution of symptoms, and degree of patient’s perception of improvement. The procedure was carried out as ambulatory surgery. A diode laser device was employed to seal the terminal branches of the hemorrhoidal arteries, detected by a Doppler-equipped proctoscope.

Results: Postoperative pain scores (at 12, 18, and 24 hr after surgery) were significantly lower in the laser group compared with the MM group (p <.001). The operative time and intra-operative blood loss were more in the MM group (p <.001). The administration of analgesics was significantly reduced in the laser group (p <.001). One-year follow-up showed comparable results in terms of the resolution of symptoms and sustainable cure. Complete resolution of bleeding and resolution of pain was observed in all patients, and resolution of the mucosal prolapse in 15/18 patients (76.9 %). At 12-month follow-up, 86.3 % of patients reported improvement with the PGI Scale.

Conclusion: Intra-hemorrhoidal coagulation with 980-nm diode laser reduces postoperative pain, intra-operative bleeding, and administered analgesics with a comparable resolution rate of hemorrhoid symptoms.

Disclosure of Interest: None declared
Introduction: Postoperative pain is the primary complication after haemorrhoidectomy and it causes significant patient morbidity. Metronidazole in both oral and topical administration routes has been shown to reduce pain after haemorrhoidectomy but its use is not yet widespread. This systematic review and meta-analysis aims to investigate if metronidazole decreases post-operative pain.

Materials & Methods: A systematic review of the literature was conducted according to PRISMA guidelines. Randomised controlled trials (RCTs) published in Pubmed/MEDLINE, EMBASE, CENTRAL and CINAHL, from inception to December 2016 were retrieved. The primary outcome investigated was post-operative pain reported as visual analogue scores. Secondary outcomes were additional analgesia required, complications and return to normal activity. Meta-analysis was performed using Review Manager v5.3 software.

Results: Nine RCTs consisting of 523 patients were included in the final analysis. Five studies used oral administration and four used topical. One study was excluded from the meta-analysis due to the unavailability of data. Meta-analysis showed that postoperative pain scores of patients receiving metronidazole were significantly less than those in comparison groups. The difference in means were as follows; postoperative Day 1 (-1.27; 95% CI [-1.82, -0.72]; p < 0.00001), day 7 (-2.29; 95% CI [-2.97, -1.62]; p < 0.00001) and day 14 (-1.76; 95% CI [-3.08 , -0.44]; p = 0.009). Subgroup analysis stratifying into topical and oral routes of administration showed both were efficacious in the reduction of pain. There was no increase in complication rates and return to normal activity was significantly earlier for patients receiving metronidazole (-4.49 days; 95% CI [-7.70, -1.28]; p=0.006).

Conclusion: Metronidazole use, via both oral and topical routes, reduced pain in the post-operative period without an increase in complication rates and resulted in an earlier return to normal activity.

Disclosure of Interest: None declared
CONVERSION FROM SLEEVE GASTRECTOMY TO RESECTATIONAL GASTRIC BYPASS DUE TO SEVERE EROSIONAL ESOPHAGITIS.
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Introduction: Sleeve gastrectomy is the most used surgical technique in recent years associated with a low rate of early postoperative complications and near zero mortality. However the most severe complication is erosive esophagitis and even appearance of Barrett’s Esophagus.

Objective: to present the laparoscopic technique of conversion of sleeve gastrectomy to resectional gastric bypass for the treatment of severe erosive esophagitis.

Materials & Methods: Female patient undergoing sleeve gastrectomy 3 years before and who developed symptoms of gastro esophageal reflux that does not respond to treatment with proton pump inhibitors despite the use of double doses than usual. Endoscopy demonstrated severe grade C erosive esophagitis of Los Angeles and radiology demonstrated gastric fundal dilatation and relative gastric body stenosis. For this reason conversion to gastric bypass is indicated.

Surgical technique: The Video shows the details of the technique employed: division of adhesions was performed beyond the pylorus, section of the pyloric artery, division of the duodenal bulb, dissection of lesser curvature and resection of the distal tubulated stomach, and then gastrojejunoanastomosis in Y of Roux fashion, 150cm long loop.

Results: Excellent postoperative evolution without complications, disappearance of reflux symptoms and improvement of erosive esophagitis. No need for treatment with proton pump inhibitors.

Conclusion: The conversion to gastric bypass is the treatment of choice for gastroesophageal reflux and erosive esophagitis after sleeve gastrectomy.

References:


1. 2010:
2. 2009;

Disclosure of Interest: None declared
THE IMPACT OF PREOPERATIVE INVESTIGATIONS ON THE MANAGEMENT OF BARIATRIC PATIENTS; RESULTS OF A COHORT OF MORE THAN 1100 CASES

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Introduction: Despite the increasing use of bariatric surgery as the most effective treatment of morbid obesity, there is still no consensus in its pre-operative diagnostic work-up. The aim of this study is to identify the impact of the endoscopic and radiological findings before performing bariatric surgery and to evaluate their influence in the therapeutic approach.

Materials & Methods: Retrospective analysis of prospectively collected data of 1171 consecutive patients, who underwent laparoscopic Roux-Y gastric bypass (n = 795) or sleeve gastrectomy (n = 376) at our institution. An abdominal ultrasound was performed in 1142 patients, 1134 patients underwent upper GI endoscopy, 1132 patients underwent upper GI series and 595 patients underwent esophageal manometry.

Results: Gallstones were detected in 217 (18.5%) patients and a synchronous cholecystectomy was performed in 215 (18.5%) patients. The upper GI series indicated hiatal hernias in 314 (26.8%) patients. The most common findings of the upper GI endoscopy were Type- C gastritis (222 patients, 19.0%), reflux esophagitis (220 patients, 18.8%), HP-positive gastritis (146, 12.5%) and hiatal hernia (54 patients, 4.6%). Additionally, we detected one Barrett’s high-grade dysplasia, one Barrett’s carcinoma and one stomach cancer in asymptomatic patients, who were due to have a sleeve gastrectomy. Esophageal motility disorders were detected in 98 (16.5%) individuals, who underwent esophageal manometry. Preoperative examinations changed the therapeutic approach in 455 cases (38.9 % of all patients).

Conclusion: Abdominal sonography and upper GI endoscopy are mandatory before bariatric surgery as they reveal findings, which influence the therapeutic approach. Upper GI series and esophageal manometry help to define patients not suitable for sleeve gastrectomy.

Disclosure of Interest: None declared
Introduction: Bariatric surgery (BS) has been shown to be effective and safe for morbid obesity and its comorbidities. Due to the great economic impact that it entails, the rate of early readmission after BS is of major importance. Large series studies suggest that gastric bypass is associated with higher readmission rate than sleeve gastrectomy. The aim of this study is to analyze the predictive factors for early readmission.

Materials & Methods: From a prospectively collected dataset, all patients operated on in our center between 2010 and 2015 were retrospectively analyzed. The primary endpoint was to determine the predictors of 30-day readmission.

Results: A total of 1049 patients were included in the analysis, of which 294 (28.0%) underwent laparoscopic gastric bypass (LGBP), 687 (65.5%) underwent laparoscopic sleeve gastrectomy (LSG) and 69 (6.5%) another technique (O). After exclusions (n=16), the final number of readmissions was 33 cases (3.1%), with a ratio of 3.7% for LGBP, 2.7% for LSG and 4.3% for group O.

The mean age was 41.3 years in the LGBP group and 46.0 years in the LSG group (p <0.0001). The Body Mass Index (BMI) was 40.3 vs. 45.0 kg/m² (p <0.0001). There were no differences in the incidence of diabetes, hypertension and smoking. Among readmitted patients (n = 33) and non-readmitted (n = 997), there were no differences in LGBP (33.3% vs. 28.8%) and LSG (57.6% vs. 65.6%), suggesting that the technique was not a predictor for readmission. Age was independently associated with readmission (50.2 vs. 45.6 years, p = 0.033). Diabetes (42.4% vs. 23.8%) and hypertension (63.6% vs. 43.6%) had a trend to association with no statistical significance. There were no differences in gender, BMI, American Society of Anesthesiologists (ASA) classification, severe chronic obstructive pulmonary disease (COPD) and smoking.

Conclusion: LGBP is not associated with a higher 30-day readmission rate. In this analysis, the only predictor of readmission was advanced age. Due to the low number of readmissions, we did not find as many predictors as we anticipated. With a larger sample, probably hypertension and diabetes would also be associated.

Disclosure of Interest: None declared
SUCTION CALIBRATION SYSTEM USE IN SLEEVE GASTRECTOMY: FEASIBILITY, SHORT-TERM OUTCOMES, AND COST ANALYSIS

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Introduction: Laparoscopic sleeve gastrectomy (LSG) is now the most common bariatric operation in the United States. The International Sleeve Gastrectomy Expert Panel Consensus Statement (2012) recommends use of a 32-36 French bougie for calibration. More recently, calibration devices have been developed to make sleeve gastrectomy technically easier, safer, and with a potential reduction in cost. Our institution recently began routine use of a suction calibration system (SCS, ViSiGi 3D Boehringer Laboratories LLC, Phoenixville, PA) in LSG. The purpose of this study is to evaluate the impact of this device on perioperative outcomes and cost.

Materials & Methods: We retrospectively analyzed all patients who underwent LSG at our institution between January and July, 2016. Patients who underwent a concomitant procedure, such as cholecystectomy, were excluded. Patients were categorized into 3 groups on an intention to treat basis: Group A underwent LSG with intraoperative endoscopy alone; Group B with SCS alone; Group C with both intraoperative endoscopy and SCS. We reviewed perioperative complications within 30 days, readmission rate, length of operation and cost.

Results: 137 LSG patients were identified, 71 in Group A, 25 in Group B and 41 in Group C. Calibration was performed in all patients with either a 40 French SCS or 36-40 French bougie. Complications included 1 superficial surgical site infection (0.7%, in Group B), 1 postoperative hemorrhage requiring transfusion (0.7%, in Group B), and 1 reoperation (0.7%, in Group C) for tachycardia (negative diagnostic laparoscopy). There were 2 cases in which SCS placement failed (3.0%). Operating time was not significantly different among the three groups (EGD alone 90.0 ± 5.1 minutes, SCS alone 87.2 ± 8.2, and both 92.7 ± 7.0). Cost was significantly reduced in Group B ($5,020±1,089 vs. $6,437±231.18 for Group A and $6,514±424 for Group C). Average length of stay was not significantly different among the groups.

Subjectively, surgeons felt that SCS made performance of LSG easier, by facilitating configuration and decompression of the stomach.

Conclusion: SCS may be a useful tool in performing LSG, and may reduce costs if used in place of intraoperative endoscopy. In our small cohort we did not observe any difference in overall complication rates amongst the 3 groups. While SCS may make dissection and creation of a properly configured sleeve technically easier, whether this improves outcomes remains to be seen and requires further study.

Disclosure of Interest: None declared
LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS IS ASSOCIATED WITH FAVOURABLE LONG-TERM METABOLIC OUTCOMES WHEN COMPARED TO SLEEVE GASTRECTOMY IN MORBIDLY OBESE PATIENTS - A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Introduction: The aim was to perform a systematic review and meta-analysis of randomized controlled trials (RCT) comparing laparoscopic Roux-en-Y gastric bypass (GB) with sleeve gastrectomy (SG) concerning the optimal long-term glycemic control. Bariatric surgery is the most effective treatment for morbid obesity and is currently renowned to have benefits for glycaemic control in patients with type 2 diabetes mellitus (T2DM) and for diabetes prevention. The preferred type of surgery and mechanism of action is however unclear

Materials & Methods: A literature search of the Medline, Pubmed, Cochrane, EMBASE and SCOPUS was performed on 21st of November 2014 for RCT comparing GB with SG in morbidly obese patients. Primary outcome was improvement in postoperative glycemic control. Secondary outcomes included weight related and lipid metabolism endpoints. Synthesis of these data followed established statistical procedures for meta-analysis.

Results: 16 RCT with a total of 1132 (566 in each group) morbidly obese patients were included in the analysis. Compared to patients that underwent SG, those that received GB had lower mean fasting serum glucose 24 months (Mean Difference [MD]: -17, 95%CI: -22 to -12 mg/dl, p<0.001) and lower mean HbA1c 12 months (MD: -0.44, 95%CI: -0.68 to -0.19 mg/dl, p<0.001) postoperatively. Similarly, when compared to SG, patients that underwent GB had a lower BMI 52 months postoperatively (BMI MD: -1.8, 95%CI: -2.9 to -0.7 kg/m², p<0.001), lower low-density lipoproteins (MD: -17.7, 95%CI: -25.6 to -9.9 mg/dl, p<0.001), lower triglycerides (MD: -5.6, 95%CI: -9.0 to -2.2 mg/dl, p<0.001) and lower cholesterol (MD: -16.3, 95%CI: -26.7 to -5.9 mg/dl, p<0.001) 12 months postoperatively.

Conclusion: Based on this meta-analysis, laparoscopic Roux-en-Y gastric bypass is more effective than laparoscopic sleeve gastrectomy concerning improved long-term glycaemic control, lipid metabolism and weight loss.

Disclosure of Interest: None declared
COLUMNAR METAPLASIA AND DYSPLASIA ARISING IN GASTRO-ESOPHAGEAL REFLUX SURGICAL MODELS IN C57BL/6 MOUSE

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Introduction: Esophageal adenocarcinoma develops in the setting of gastroesophageal reflux and columnar metaplasia in distal esophagus. Columnar metaplasia arising in gastro-esophageal reflux models have been developed in rat, however, gastro-esophageal reflux models in mice have not been well-characterized. We sought to develop mouse surgical models of gastro-esophageal reflux and compared the development of metaplasia and dysplasia in the distal esophagus among the models, and examined the carcinogenic cause of esophageal adenocarcinoma.

Materials & Methods: One hundred thirty-five C57Bl/6J mice aged 8 weeks old were divided into following operations: esophagogastric junction-jejunostomy (side to side) (EGJ), esophageal separation and esophagojejunostomy (end to side) (EJ), and esophagojejunostomy and gastrectomy (end to side) (EJ/TG). The animals were euthanized after 40 weeks and the histology of the junction was examined. Immunohistochemistry for p53, PDX-1 and CDX-2 was performed and columnar metaplasia and dysplastic changes each model were compared. PDX-1 expression for 16 human junctional cancer specimens was also analysed by immunohistochemistry.

Results: Metaplasia developed in 15/33 (45.5%) of EGJ, 0/38 (0%) of EJ, and 6/39 (15.4%) of EJ/TG (p<0.05) and dysplasia was developed 7/33 (21.2%) of EGJ, 0% of EJ, and 1/39 (2.6%) of EJ/TG. p53 was positive in all of the dysplastic regions, 12/15 (80%) metaplasia in the EGJ model, and 1/6 (16.7%) metaplasia in the EJ/TG model. CDX-2 was positive in all of metaplasias, but decreased in some cases of dysplasia. PDX-1 was positive in 7/8 (88%) cases of dysplasia and in 15/21 (71%) cases of metaplasia (p<0.05). Half of the human junctional cancer was positive for PDX-1.

Conclusion: The EGJ model, which causes reflux of gastric acid and duodenal content, developed metaplasia and dysplasia most frequently. P53 positivity in metaplasia was also higher in the EGJ model than the EJ/TG model. No metaplasia developed in the EJ model in which gastric juice and duodenal content mixed prior to reflux. PDX-1, originally expressed in duodenum, not expressed in esophagus and jejunum, was expressed in columnar metaplasia and these columnar changes were thought to be true metaplasia. Thus, duodenal contents alone can induce columnar metaplasia and dysplasia, however, the combination of gastric acid with duodenal content reflux can cause metaplasia and dysplasia more efficiently.

Disclosure of Interest: None declared
Hypoxya Driven Hif 2α Coordinates Mouse Liver Regeneration by Coupling Parenchymal Growth to Vascular Expansion

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Introduction: Interaction between sinusoidal endothelial cells (SECs) and hepatocytes is a prerequisite for liver function. Upon tissue loss, both liver cell populations need to be regenerated. Repopulation occurs in a coordinated pattern, first through the regeneration of parenchyme (hepatocytes) which then produces VEGF to enable the subsequent angiogenic phase. The signals that instruct hepatocytes to induce timely VEGF remain unidentified. Given that liver is highly vascularized, we reasoned that fluctuations in oxygenation after tissue loss may contribute to the coordination between hepatocyte and SEC proliferation.

Materials & Methods: To prevent a development of hepatic hypoxia after resection, we applied the novel antihypoxic molecule inositol trispyrophosphate (ITPP). ITPP acts as an allosteric effector of hemoglobin, increasing dissociation of O2 from heme under low oxygen tension. ITPP efficiently promotes in vivo oxygenation of hypoxic tissues, an effect that lasts for about two days following injection. We injected ITPP 30 min before hepatectomy, a period sufficient to inhibit tumor hypoxia without affecting normoxic tissues. To assess regeneration, liver-to-body-weight ratio (LW/BW) was measured at various times after resection.

Results: ITPP treatment delayed liver weight gain after hepatectomy. Comparison with controls revealed the presence of a hypoxic period around the peak of hepatocyte mitosis. Inhibition of hypoxia led to deficient hepatocyte mitosis, suppressed the regenerative Vegf wave, and abrogated the subsequent reconstruction of the sinusoidal network. These ITPP effects were ongoing with the reduction in hepatocellular Hif2a. In contrast, Hif1a was unaffected by ITPP. Hif2a knockdown phenocopied all effects of ITPP, including the mitotic deficiencies, Vegf suppression and angiogenic failure.

Conclusion: Our study identifies oxygen as a key regulator of liver regeneration. Hypoxia - inherent to the expansion of parenchyme - activates Hif2a to couple hepatocyte mitosis with the angiogenic phase. Hif2a acts as a safeguard to initiate sinusoidal reconstruction only upon successful hepatocyte mitosis, thereby enforcing a timely order onto cell-type specific regeneration patterns. These findings portray the hypoxia-driven Hif2a-Vegf axis as a prime node in coordinating SEC-hepatocyte crosstalk during liver regeneration.

Disclosure of Interest: None declared
18.01
PREDICTING COMPLICATIONS IN ACUTE CARE SURGERY PATIENTS
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Introduction: Clinical parameters with which patients admit in ICU play an important role in predicting their outcome. Various prognosticating tool/scoring systems based on these parameters have been developed till now. We intend to compare different scoring systems predicting mortality in acute care surgery patients in our population.

Materials & Methods: We retrospectively reviewed acute care surgery patients admitting in ICU under general surgery service from May 2014 – April 2015. Patients characteristics including demographics, diagnosis, physiological parameters, operative findings and in hospital complications and mortality were assessed from medical records. Patients were classified according to ASA, APACHE II and POSSUM scores were calculated using calculator available online, predicted mortality were calculated by binary logistic regression and receiver operating characteristic (ROC) curves were plotted. Data analyzed using SPSS V.19

Results: Total of 72 patients’ charts retrospectively reviewed. Mean age of patients admitting in ICU under general surgery service with acute care issues was 48.5 +/- 17.7, of which 65% were males. Maximum number of patients admitting in ICU was with road traffic accidents 18% followed by bowel perforation 16%. 42% of patients were shifted to ICU postoperatively after their procedures. 69% of patients admitting in ICU underwent operative procedures. Total of 57% of patients died during their stay in ICU. 60% of patients were in ASA class IV with predicted mortality of 67.4%, mean APACHE II and POSSUM score were 16.9 and 15 with highest predicted mortality of 78.9% in patients having APACHE II score >30. In all patients admitting in ICU the ROC curves shows APACHE II to be the best predictor of mortality than ASA and POSSUM. However, when only operative patients were plotted in ROC curves it showed APACHE II again to be the best predictor.

Conclusion: Mortality is an important outcome in ICU, preempting this through these scores is meaningful. Anticipating high risk of morbidity and mortality in our population is valuable in terms of advance family counseling & reducing financial burden in high risk patients.


Disclosure of Interest: None declared
Introduction: To describe surgeries for colorectal oncologic emergencies in patients who are 80 years of age and older.

Participants: Patients who underwent surgery for colorectal oncologic emergencies which were defined as perforation, obstruction, and invagination associated with primary colorectal carcinoma in the study hospital between April 2010 and August 2016.
Study variables: Postoperative morbidity, duration of hospital stay, performance status at discharge, mortality during hospitalization, and median survival time.
Statistical methods: The subjects were divided into two groups according to age. Elderly[1] group (≥ 80 year old) was compared with control group (< 80 year old) using Wilcoxon rank sum test for continuous variables and Fisher’s exact test for categorical variables. Median survival time was analyzed using Kaplan-Meier method.

Results: A total of 88 patients were selected, of whom 27 were in the aged group and 61 were in the control group. There was no significant difference between the two groups in mortality during hospitalization (3.7% in the aged group and 4.9% in the control group), and duration of hospital stay (25 and 23 days). The incidence of delirium was significantly higher in the aged group (40.7% versus 11.5%). Although performance status at discharge was significantly lower in the aged group (median of 2 versus 1), there was no significant difference between the two groups in median survival time (28 versus 33 months).

Conclusion: In this small descriptive study, higher incidence of delirium and lower performance status at discharge were observed in the elderly patients with colorectal oncologic emergencies. Further prospective multicenter study is needed.

Disclosure of Interest: None declared
THE DRAINAGE OF ASCITES AS PREVENTION OF SEVERITY OF PANCREATITIS IN PANCREATIC BODY INJURY WITH DUCT DISRUPTION MIGHT ENABLE CYST FORMATION AND DELAYED INTERNAL DRAINAGE

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Introduction: In pancreatic injury, sepsis caused by pancreatitis is a risk of mortality. The traumatic pancreatitis with duct disruption is exacerbated by high intraabdominal pressure which is elevated with the volume of pancreatic ascites. We studied the usefulness of drainage of pancreatic ascites as a preventive factor of the intraabdominal pressure elevation which exacerbates pancreatitis of pancreatic injury with duct disruption.

Materials & Methods: Nine cases of pancreatic blunt injury with duct disruption were studied. The duct disruption was diagnosed with CT or ERCP in head (n=1) and body injury (n=4). In all tail injury cases (n=4), the duct disruption was diagnosed at operation. In the head injury case, his ERCP showed protein plaque at the distal edge of duct, he was treated conservatively because he had stable vital sign and no visceral bleeding. In body injury cases, 2 cases associated with adjacent organ injuries were promptly operated and open abdominal drainage was performed. In other case without adjacent organ injury or hemorrhage, closed drainage was performed for control of pancreatic ascites which increased more than 2000ml on the next day after injury. In last one case, his age was 8yr old and his vital sign was stable without visceral bleeding or damage, he was treated conservatively.

Results: The pancreatitis of head injury case became severe 2 days after injury (Ranson Score: severe, CT severity index: 8). He died of sepsis. In the body injury cases, exacerbation of pancreatitis did not occur and cyst at the disrupted site were formed in three cases and cyst-enterostomy was performed in the two cases. The other case did not need additional therapy because of no abdominal symptom. In one case, disrupted pancreas was healed and duct patency was obtained with narrowing. The distal pancreatectomy with splenectomy was performed with no episode of pancreatitis in every tail injury case.

Conclusion: The prevention of exacerbation of pancreatitis might be a key factor for the treatment of pancreatic injury with duct disruption. Distal pancreatectomy is the best option for tail injury. For body injury, early intraabdominal drainage of pancreatic ascites decompress the intraabdominal pressure which could influence intraductal pressure elevation and pancreas ischemia as risk factors of severity of pancreatitis. This strategy enables spontaneous healing and cyst formation and subsequent delayed internal drainage as safe and minimally invasive treatment.

Disclosure of Interest: None declared
Introduction: Demography of patients, nature of local pathology, health care standards, and underlying health status may affect the prognosis of cIAIs. We aimed to prospectively study the demography, risk factors, severity, management, and outcome of complicated intra-abdominal infections (cIAIs) in our setting and compare it globally.

Materials & Methods: We prospectively studied 100 consecutive adult patients who were treated at Al-Ain Hospital during the period of October 2014 to January 2016. We studied demography of the patients and disease, risk factors, WSES Sepsis Severity Score, management, hospital stay, and mortality. Our patients were compared with the patients of a recent global multicenter prospective study on cIAIs from 53 countries (n=4496).

Results: When compared with global data, our patients had significantly more men (p< 0.0001), were significantly younger (p< 0.0001), had more appendicitis and perforated peptic ulcers (p< 0.0001), had significantly less sepsis severity score (p< 0.0001), and had more delay in surgical intervention (p= 0.001). Nevertheless, they had similar adequate source control (p=0.54) and surgical re-interventions (p= 0.63). Overall, our patients had significantly less death rate (1% compared with 9.3%, p = 0.001). A direct logistic regression model showed that WSES severity sepsis score significantly predicted mortality (< 0.0001) but not our hospital setting compared with other hospitals (p=0.18).

Conclusion: Although the demography of our patients and the setting of our hospital significantly differ from other international hospitals, the WSES sepsis severity score was very accurate in predicting mortality in our patients. This supports the generalizability of the WSES sepsis severity score.

Disclosure of Interest: None declared
PERFORMANCE OF DIAGNOSTIC MODALITIES IN ACUTE APPENDICITIS

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Introduction: Despite the advancements in clinical diagnostics, negative appendectomies continue to occur in 3-15% of patients [1-5]. We set out to study diagnostic performance of C-reactive protein (CRP), white blood count (WBC), ultrasound (US), and computed tomography (CT) in patients subjected to appendectomy for acute appendicitis.

Materials & Methods: After IRB approval, all consecutive patients subjected to appendectomy between 9/2013 and 12/2014 were subjected to ad hoc analysis of a prospectively accrued sample [1]. Data collection included demographics, CRP, WBC, and US and CT findings. Histology of all surgical specimens was available for analysis assigning the final diagnosis. Primary outcome was diagnostic performance of US and CT. Secondary outcome was diagnostic accuracy of CRP and WBC alone and in combination.

Results: A total of 266 patients were analyzed. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value of US were 63.0%, 66.7%, 95.6% and 13.5%, respectively. Sensitivity and PPV of CT were 100% and 98.0%, respectively. Mean WBC and CRP were 13.1 ± 3.9 x 10^9/L and 47.8 ± 71.9 mg/L, respectively. Area under ROC-curve was 0.71 (95% CI 0.60-0.83) and 0.59 (95% CI 0.48-0.71) for WBC and CRP, respectively.

Conclusion: The current study observed poor diagnostic performance of US, WBC, and CRP in acute appendicitis. CT was distinctly superior diagnostic modality. Thus, conditional strategy with US investigation followed by CT provides accurate diagnosis with reduced radiation burden.


Disclosure of Interest: None declared
Introduction: Appendectomy is the gold standard treatment for acute appendicitis, however, appendiceal phlegmon or abscess are frequently subjected to non-operative management. Thus, we set out to study outcomes of patients managed non-operatively for appendiceal masses.

Materials & Methods: After IRB approval, all patients with acute appendicitis per ICD-10 codes managed non-operatively at the two referral medical facilities between 1/2010 and 12/2014 were retrospectively enrolled. Data collection included demographics, in-hospital management, and two-year follow-up. Primary outcome was the incidence of malignancy. Secondary outcomes included incidence of percutaneous drain placement, interval appendectomy, post-discharge colonoscopy, and hospital length of stay (HLOS).

Results: During the 5-year study period, 98 cases were included. Mean age was 50.1 ± 3.9 years and 61.2% were male. Patients with acute phlegmonous appendicitis and periappendicular abscess, at 61.2% and 38.8%, respectively, were enrolled. Percutaneous drainage was utilized in 20.4% of the patients during the first episode of acute appendicitis. Follow-up was available in 81.6% (n=80) of patients. Post-discharge colonoscopy performed in 29.7% (n=22) revealed malignancy in 13.6% (n=3) including a 28-year old patient with a carcinoid and two patients beyond 80 years of age with adenocarcinomas. A total of 22.2% (n=17) had recurrent appendicitis following an average of 6.8 ± 3.7 months requiring readmission. In 26.2% (n=21) of the cases, an interval appendectomy was performed. Mean HLOS was 5.2 ± 0.7 days.

Conclusion: Post-discharge colonoscopy performed in nearly 30% of patients revealed a malignancy in 13.6% patients. Appendiceal masses warrant liberal colonoscopy strategy including younger patients. Further prospective studies are warranted.

Disclosure of Interest: None declared
SEPTIC SHOCK DUE TO A SEVERE NECROTIZING FASCIITIS AFTER A CESAREAN SECTION
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Introduction: Necrotizing Fascitis (NF) is a rare condition in non-immunosuppressed patients. We report a case of a severe NF in an healthy patient after C-section, caused by aggressive E.coli infection.

Materials & Methods: A healthy 33-years-old woman was admitted for premature rupture of the membranes during a twin pregnancy with breech presentation. This pregnancy was already complicated by twin to twin blood transfusion syndrome at the 6th month. She delivered 2 healthy babies via C-section. In the 3rd post-operative day, due to an increase of the CRP to 232 mg/L and the presence of a mild bilateral lumbar erythema, an abdominal CT-Scan was performed and showed dorsal extra-fascial liquid. Antibiotic polytherapy was given, however 12 hours after administration, the patient experienced disproportionate pain uncorrelated to the clinical appearance, fever, dyspnea, tachycardia and hypotension. The patient was urgently taken into the operating room, the Pfannenstiel incision was revised and purulent fluid between the subcutaneous and the fascial plane was found. Necrosis was spread at the level of the subcutaneous fat and the rectus sheath 10 cm above and below the Pfannenstiel incision. All the visible necrotic tissue was removed and temporary VAC-system applied. She was admitted to the ICU. In the tissues was found E.coli. Due to the fact that the febrile status did not recover and the erythema worsened, the decision to perform a second surgical revision was taken. The wound was left open for 13 days and additional revisions performed, till complete closure of the skin. The patient was discharged 20 days later in good general conditions.

Results: Our case is particularly unusual, in fact rarely NF have been reported in the obstetrical population, specially in industrialized countries. NF is commonly caused by a polymicrobial flora, the mere presence of E.coli is uncommon. The literature reported cases of E. coli particularly virulent, it is important to understand the mechanisms involved in the strong E. Coli pathogenicity and microarray DNA analysis can be a tool.

Conclusion: NF mortality rate ranges from 17% to 34%. Surgical control of the infection is a life-saving procedure, as well as an early diagnosis. In low-risk patients it should be suspected the presence of particularly virulent strains of E.coli.

References: Chen et al. - The microbiological profile and presence of bloodstream infection influence mortality rates in necrotizing fasciitis - Critical care, vol.15, no.3, article R152, 2011

Disclosure of Interest: None declared
Introduction: Traditional on-call general surgical model faces on daily basis the pressures of senior staff availability, clashes with elective surgery and clinics, appropriate supervision of junior staff and timely review of acute surgical patients.

KTPH is the first hospital in Singapore to set up a dedicated acute surgical unit. Established in November 2014, Emergency Surgery and Trauma Team (ESAT) is a consultant led service with the aim of enhancing management of emergency general surgical and trauma patients. This study aims to compare the efficiency and clinical outcomes before and after implementation of ESAT unit in KTPH.

Materials & Methods: A retrospective analysis of all emergency general surgical admissions in KTPH from May 2014 to April 2015 was performed. A comparison between the 5-months period before (May-September 2014) and after (December 2014 - April 2015) ESAT implementation was performed. The data collected includes number of admissions and operations, time to initial assessment, time to surgery, hospital length of stay (LOS), hospitalization costs, readmission rates and complication rates.

Results: The study includes total of 2327 emergency general surgical and trauma admissions. During the 5-months period after the ESAT implementation, there were 1179 admissions (50.7%) and 479 operations (49.7%). Time to initial patient’s assessment reduced from 99.2±135.9 before ESAT to 80.2±97.7mins after ESAT implementation ($P=0.00$). Average hospital LOS decreased from 4.7±9.8 to 3.4±4.3days ($P=0.00$) and mean hospitalization costs reduced from SGD$3,767±$7,088 to SGD$3,189±$6,950 ($P=0.015$). There is no significant difference in readmission rates and complication rates.

Conclusion: The implementation of an acute surgical unit in KTPH has resulted in improvements of the efficiency outcomes, shorter length of stay, lower hospital costs with no worsening of clinical outcomes.

Disclosure of Interest: W. W. Lim Grant/Research Support from: NMRC CENTRE GRANT, J. Goo Grant/Research Support from: NMRC CENTRE GRANT, S. Mathur Grant/Research Support from: NMRC CENTRE GRANT
Introduction: Isolated blunt hollow viscus injury (BHVI) after blunt abdominal trauma, without solid organ injury, is uncommon and management is challenging, sometimes with late manifestations of injury. The aim of this study was to analyse the mode of presentation of BHVI, findings on index trauma CT scan of the abdomen and pelvis, patient management and outcomes.

Materials & Methods: Patients admitted to a level 1 major trauma unit in the UK directly after blunt abdominal trauma were identified from the UK trauma (TARN) database. Index CT scan results, clinical presentation, management and patient outcomes were reviewed.

Results: Between January 2012 and September 2016, 293 patients were admitted with blunt abdominal trauma, of whom 258 underwent a CT scan. There were 199 positive CT abdomen/pelvis scans with evidence of solid organ injury in 185 patients. In the remaining 14 patients without solid organ injury, free air was present in 5 patients leading to immediate (<12 hours) surgery. In the other 9 patients the findings were non-specific (free fluid, haematoma, bowel thickening or oedema). In this group of 9 patients, 7 underwent laparotomy (4 immediately and 3 delayed [>30 hours]), all with evidence of BHVI. There was 1 death. Two patients were treated conservatively.

In the remaining 59 patients with negative index scans a subsequent diagnosis of BHVI was made in 4 patients either directly at laparotomy or repeat CT scan leading to surgery. There was 1 death following surgery.

Conclusion: In the subgroup of 14 patients with positive index CT scans and without solid organ injury, 12 patients required a laparotomy with evidence of BHVI (2 treated conservatively). The presence of free intraperitoneal fluid, haematoma or bowel oedema without solid organ injury on index trauma CT abdomen/pelvis should raise a very high suspicion of BHVI.

Disclosure of Interest: None declared
Introductions: Laparotomy can be a lifesaving procedure after abdominal trauma. In the past decade, incidence of penetrating trauma has declined in Western countries and the indication for a trauma laparotomy has decreased. The aim of this study was to describe the injuries and the performed surgical interventions after abdominal trauma followed by a laparotomy in this present setting.

Materials & Methods: A single-center retrospective cohort study was performed in a Level 1 trauma center in the Netherlands. All patients who underwent a laparotomy after trauma between January 2008 and January 2014 have been included. Patient demographics, trauma mechanism, traumatic injuries, surgical interventions and mortality were registered.

Results: A total of 121 trauma patients were included with a mean ISS of 29.2±14.4. Males contributed for 77.7%. The mean age was 42.5±21.3 years. The most common trauma mechanisms were blunt (i.e. traffic accidents in cars (30.6%), with cycling (14.0%), with a scooter (12.4%) and falls (10.8%)). The median number of laparotomies per patient was 2. Most patients (66.9%) underwent the first laparotomy on the first day. In 73 patients (60.3%) the trauma laparotomy was a damage control surgery. 13 patients (10.7%) underwent an unplanned relaparotomy. A total of 27 patients (22.2%) died, mainly of neurological injuries (29.6%), multi organ failure (18.5%) and retroperitoneal exsanguination (22.2%).

Conclusion: This study shows that most patients who underwent a trauma laparotomy are severely injured patients, often after high energy blunt trauma. Despite a decreased exposure to this procedure, mortality and morbidity rates in a dedicated level 1 center are comparable to international literature.

Disclosure of Interest: None declared
REGULATION OF NEUTROPHIL EXTRAVASATION BY PROTEIN KINASE D IN RESPONSE TO TISSUE TRAUMA

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Introduction: Neutrophil granulocytes are an essential element of the early inflammatory response to mechanical tissue trauma. The extravasation of neutrophils represents a crucial checkpoint during activation of the innate immune system. Thus, this process is considered a pharmacological target for the modulation of inflammation. The understanding of molecular processes regulating the passage of neutrophils from the endothelial layer into spatially confined tissue channels is incomplete. Extravasation requires a very dynamic modulation of cell shape and mechanics. The actin filament network is important in controlling these processes. Modulators of actin network architecture were found to be upregulated within the first 12 hours after tissue trauma. Protein Kinases D (PKD) family serine/threonine kinases regulate dynamic rearrangement of actin filaments. The aim of our study is to investigate if modulation of PKD activity can block neutrophil extravasation by affecting cellular deformability via changes in the subcortical actin network density.

Materials & Methods: Using biochemical approaches, flow cytometry and confocal microscopy we have assessed PKD activation kinetics by Danger-associated molecular patterns (DAMPs) and corresponding changes in actin polymerization upon PKD inhibition. Cell deformability was investigated by optical stretcher technology in NB4 cells in response to DAMPs and in pig and human neutrophils following a standardized trauma. Effects of PKD inhibition on neutrophil transendothelial migration capacity were tested in vitro for the indicated trauma models.

Results: PKDs are activated upon trauma by DAMPs in primary human and pig neutrophils and NB4 cell culture models. Inhibition of PKDs using two specific inhibitors significantly impaired neutrophil transendothelial migration and decreased cellular deformability. Inhibition of PKDs strongly increased F-actin content of activated NB4 cells by enhancing cofilin activity and actin severing to generate new seeds for actin polymerization. PKD exerts its effects on actin dynamics by an inhibitory phosphorylation of the actin-regulatory cofilin phosphatase Singshot2L.

Conclusion: Inhibition of PKDs impairs cellular deformability and extravasation of human and pig neutrophils in response to trauma. Our data suggest that PKD inhibitors may be effective in impairing neutrophil extravasation by modulating subcortical actin density.

Disclosure of Interest: C. Wille: None declared, T. Eiseler: None declared, J. Schneider: None declared, S.-T. Langenberger: None declared, M. Schneider: None declared, D. Henne-Bruns: None declared, T. Seufferlein: None declared, S. Paschke Grant/Research Support from: German Research Foundation/SFB 1149
THE REGULATORY ROLE OF GROUP VIB CALCIUM-INDEPENDENT PHOSPHOLIPASE A2γ IN ACUTE INFLAMMATION
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Introduction: We recently demonstrated that calcium-independent phospholipase A2γ (iPLA2γ), a subtype of iPLA2s, is associated with acute inflammatory responses. The specific inhibitor for iPLA2γ reduced a variety of cytotoxicity of human polymorphonuclear neutrophil (PMN) and acute lung injury in rat trauma and hemorrhagic shock model. Now further investigation is warranted using gene manipulated animals or cells due to pharmacological limitation. The aim of this study is to elucidate the effects of this inhibitor on mouse PMN before using gene manipulated experiments.

Materials & Methods: Bone marrow PMN were obtained from C57BL/6J mice and pretreated with specific inhibitors for iPLA2γ, iPLA2β and/or cytosolic PLA2 (cPLA2), then the PMN bioactivity (such as reactive oxygen species (ROS) production, elastase release, migration, adhesion, and CD11b surface expression) was measured. In vivo study, intestinal ischemia and reperfusion (I/R) model, pretreated mice with the inhibitor specific for iPLA2γ for 1 hour were exposed to mesenteric artery occlusion for 45 minutes, then reperfused for 3 hours. Evans blue dye was injected 1 hour before the end of reperfusion and the lung was harvested to measure lung permeability.

Results: Bioactivities of PMNs and lung injury after intestinal ischemia and reperfusion were significantly reduced by the iPLA2γ specific inhibitor, while other inhibitors for PLA2s didn’t affect these functions.

<table>
<thead>
<tr>
<th>Experiments</th>
<th>DMSO group (Positive control)</th>
<th>R-BEL group iPLA2γ inhibitor</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROS production (total chemiluminescence)</td>
<td>17623 ± 3263</td>
<td>7039 ± 1034</td>
<td>&lt; 0.05</td>
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<tr>
<td>Elastase release (Optical Density)</td>
<td>0.23 ± 0.02</td>
<td>0.09 ± 0.01</td>
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<td>Migration (Migrated cells)</td>
<td>1362 ± 236</td>
<td>0 ± 0</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Adhesion (Adhered cells)</td>
<td>110000 ± 24993</td>
<td>12000 ± 4546</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>CD11b expression (mean fluorescence intensity)</td>
<td>177495 ± 22578</td>
<td>102853 ± 9018</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Intestinal I/R (μg of EBD/ g of tissue weight)</td>
<td>63.4 ± 2.8</td>
<td>46.3 ± 4.4</td>
<td>&lt; 0.05</td>
</tr>
</tbody>
</table>

Conclusion: The specific inhibitor for iPLA2γ decreased mouse PMN cytotoxicity and lung injury after intestinal I/R. This enzyme may regulate PMN in acute inflammatory process.


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COAGULOPATHY DUE TO FALL IN PLATELETS AS A PREDICTOR OF SEVERITY OF HEAD INJURY IN ISOLATED TRAUMATIC BRAIN INJURY PATIENTS

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Introduction: Coagulopathy often accompanies TBI (Traumatic Brain Injury) which is leading cause of morbidity and mortality in Head injury patients. Platelets as component of coagulation can be used as a predictor of severity of head injury.

Materials & Methods: Prospective study in which if 2 out 3 readings of Platelets taken at different prefixed time was taken and compared with severity of Head injury which was taken on GCS score and divided into 3 groups as Group A- Mild, Group B- Moderate, Group C- Severe.

Results: In our study 240 out of 389 patients i.e. 61.6% developed coagulopathy following Traumatic Brain Injury (TBI). In Group A (GCS 3-8) 82% patients, Group B (GCS 9-12) 64% patients and Group C (GCS 13-15) 44% patients developed coagulopathy following TBI.

Conclusion: Platelet count as a predictor of coagulopathy can be used as a predictor of severity of Head injury.

Disclosure of Interest: None declared
DERANGED CYTOSKELETON IN A SUBPOPULATION OF NEUTROPHIL GRANULOCYTES IN PATIENTS WITH MALIGNANCIES AFTER SURGICAL TRAUMA

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Introduction: Patients undergoing major surgical interventions for the reduction of visceral tumor masses suffer from systemic inflammation as demonstrated by increased leukocyte count and increased C-reactive protein concentrations. Trauma-related systemic inflammatory response syndromes (SIRS) induce a plethora of immunological changes related to impaired control against infectious agents. The cellular elements causing this immune dysfunction are currently ill defined. We here addressed leukocyte subpopulations by flow cytometry and actin staining.

Materials & Methods: Seventy-one patients with malignancies were tested for their relative amounts of lymphocytes, monocytes and neutrophilic granulocytes using forward and side scatter analysis. In addition isolated neutrophils from healthy donors were treated with rhC5a and the TL7/8 ligand Imiquimod (R848).

Results: About one third (30/71) of the trauma-patients were unique by the occurrence of a novel neutrophil subpopulation with characteristic low granulation (lower side scatter), and an increased forward scatter. This population also occurred in healthy donor’s granulocytes stimulated with rhC5a or R848 (Imiquimod), in vitro. Further characterization of this granulocyte population revealed an increased expression of arginase 1, non detectable phalloidin staining (indicating an impaired cytoskeleton) and downmodulation of the C5a receptor, CD88.

Conclusion: Systemic inflammation after major surgery in patients with malignancies may induce changes in a subpopulation of neutrophils with low granulation, a structurally altered cytoskeleton and an immunosuppressive phenotype. Ligands resulting in in vitro generation of this PMN population are either C5a or synthetic ligands activating TLR7/8. The identification of this phenotype is now key for further analysis of immune dysfunction syndromes in patients with malignancies after surgical trauma.

Disclosure of Interest: None declared
ASSOCIATION BETWEEN BODY TEMPERATURE AT ADMISSION AND SURVIVAL IN JAPAN
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Introduction: It is well known that hyperthermia should be avoided during the care for traumatic brain injury (TBI). However, it is not known whether hyperthermia at admission affect the patients’ outcome or not in Japan. The purpose of this study was to determine the relationship between body temperature at admission and outcome.

Materials & Methods: This study used the data in the Japan Trauma Data Bank (JTDB) 2004-2015 for 147,525 patients who transported directory to the hospital without data deficits for body temperature (BT) at admission. Hyperthermia, normo-thermia, and hypothermia groups were defined as those having BT of 38 degrees Celsius (°C) or more, 36 to 38 °C, and less than 36 °C, respectively. Multivariate logistic regression analysis were conducted to predict the survival to discharge by the three BT categories with the normo-thermia group as the reference category. The regression model included age, Injury severity Score, Systolic Blood pressure, and Glasgow Coma Scale as covariates.

Results: The median BT of this cohort was 36.4°C. The median BTs by four seasons were 36.3°C in winter, 36.4°C in spring, 36.6°C in summer, 36.4°C in autumn. The adjusted odds ratios for survival (95% confidence interval) were 0.730 (0.669-0.773) for the hyperthermia group and 0.624 (0.528-0.737) for the hypothermia group.

Conclusion: We concluded that both hyperthermia and hypothermia affect the survival on discharge in this study. Active warming and active cooling might be considered by the prehospital protocol in Japan. Further investigation should be needed regarding active cooling for a multi-system trauma with TBI in pre-hospital phase.

Disclosure of Interest: None declared
Massive Transfusion Protocols in Obstetrical Hemorrhage

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Introduction: Massive transfusion protocols (MTP) were developed to ensure that blood products are readily available, in appropriate ratios, for patients with life-threatening hemorrhage. MTP use has mainly been studied in trauma patients, however, MTP is also used for other indications. The purpose of this study was to examine MTP usage associated with obstetrical hemorrhage at our hospital, which has over 5000 deliveries annually.

Materials & Methods: All patients having MTP initiation for obstetrical hemorrhage, from 1/1/13 – 12/31/16 were included. Data included age, BMI, diagnosis, reproductive history, estimated blood loss (EBL), blood products transfused, procedures and outcomes. Data was analyzed using Chi square and Mann Whitney U tests with significance attributed to p value <0.05. ROC curves were plotted between EBL and need for MTP.

Results: Over the 4-year period, 38 patients met inclusion criteria (<0.2% of deliveries). Mean age was 30±7 years and BMI 31±7. Patients had 4±2 prior pregnancies and 26/38 (68%) had previous c-sections (mean 2±1). Hemorrhage was due to placental abruption, previa and/or accreta in 19 patients; 10 had uterine atony. Hysterectomy was performed in 53%. Mean lowest intraop Hgb was 7.7±1.9 g/dl. Mean EBL was 3.6±2.2 liters; 6±4 units of pRBCs and 4±4 FFP were transfused. 1:1 pRBC: FFP transfusion ratios were achieved in 24%. 50% of patients were admitted to ICU, complications included respiratory failure and AKI. Two deaths occurred, both unrelated to hemorrhage. When EBL was compared with need for massive transfusion (≥ 8 units pRBC), EBL ≥4 liters was predictive (AUC 0.79, p = 0.01).

<table>
<thead>
<tr>
<th>&lt;8 units PRBCs</th>
<th>≥8 units PRBCs</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>29</td>
<td>9</td>
</tr>
<tr>
<td>Age</td>
<td>30 ± 6</td>
<td>30 ± 9</td>
</tr>
<tr>
<td>BMI</td>
<td>32 ± 7</td>
<td>31 ± 8</td>
</tr>
<tr>
<td>Gravidity</td>
<td>4 ± 3</td>
<td>5 ± 2</td>
</tr>
<tr>
<td>Previous C-section</td>
<td>19 (68%)</td>
<td>7 (78%)</td>
</tr>
<tr>
<td>Lowest intraop Hgb (g/dl)</td>
<td>7.8 ± 1.9</td>
<td>7.6 ± 2.1</td>
</tr>
<tr>
<td>EBL (L)</td>
<td>3.0 ± 1.8</td>
<td>5.5 ± 2.5</td>
</tr>
<tr>
<td>Crystalloid (L)</td>
<td>3.4 ± 1.4</td>
<td>5.4 ± 3.4</td>
</tr>
<tr>
<td>pRBC units</td>
<td>4 ± 2</td>
<td>12 ± 4</td>
</tr>
<tr>
<td>FFP units</td>
<td>3 ± 2</td>
<td>9 ± 5</td>
</tr>
<tr>
<td>Platelets</td>
<td>1 ± 2</td>
<td>2 ± 1</td>
</tr>
<tr>
<td>Cryo</td>
<td>1 ± 1</td>
<td>2 ± 2</td>
</tr>
<tr>
<td>Hysterectomy</td>
<td>15 (52%)</td>
<td>5 (56%)</td>
</tr>
<tr>
<td>ICU admission</td>
<td>11 (38%)</td>
<td>8 (89%)</td>
</tr>
<tr>
<td>ICU LOS (days)</td>
<td>1 ± 2</td>
<td>5 ± 4</td>
</tr>
<tr>
<td>Hospital LOS (days)</td>
<td>7 ± 5</td>
<td>8 ± 4</td>
</tr>
</tbody>
</table>

Conclusion: In a busy obstetrical service, the need for MTP is relatively uncommon. Despite large-volume blood loss, most obstetrical patients did not require massive transfusion, however, EBL ≥4 liters distinguished patients who required MTP and were at greater risk for ICU admission and complications.

Disclosure of Interest: None declared
Introduction: The Surgical intensive care unit of Tikur Anbesa Hospital, the largest and number one referral hospital in the country, has been running as the primary intensive care unit for mainly surgical and obstetrics patients for many years. Although the unit faces enormous challenges in terms of skilled man power and equipments, it's serving the Ethiopia community at large. One of the ways of addressing problems in the surgical intensive care unit is by identifying the causes of Mortality of admitted patients. With the identified causes, one can act upon and look for solutions that help in the betterment of the service given to patients. The objective of this study was to assess the pattern and explain the commonest causes of death in the surgical intensive care unit.

Materials & Methods: A one year retrospective study was conducted in the surgical intensive care unit of Tikur Anbesa Hospital, Addis Ababa, Ethiopia. All patients who died in the surgical intensive care unit during the study period were included in the study. Structured questionnaire was used for data collection from chart review. Data entry and analysis was done using SPSS version 21.

Results: The total number of patients who died in the surgical intensive care unit of Tikur Anbesa hospital during the one year period was 58. Total number of patients who were admitted was 300, making the mortality rate 19.33%. 36 (62.9%) were males and 22 (37.9%) were females. Most (24.1%) of the patients belong to the age group 18 years to 30 years. The highest percentage of patients who died in the unit was Neurosurgical patients accounting for 34.5% of death. 44 (75.9%) of the patients were supported by Mechanic Ventilator. Hospital acquired infections were noted in 7 (12.1%) of the patients. Sepsis was the cause of death for 24 (41.4%) of the patients. Road traffic accidents contributed to death in 22 (37.9%) of cases. Among the patients that died, dialysis was required by 12.1% but only 3.4% received it.

Conclusion: Neurosurgical patients account the highest mortality rate in the Surgical intensive care unit, thus due emphasis should be given to such patients. Road traffic accidents are significantly associated with mortality, so focus should be given to development of prevention strategies. Significant number of patients died secondary to sepsis, thus management guidelines should be updated.

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Disclosure of Interest: None declared
DECREASED ANTITHROMBIN AND ALBUMIN RATIO MAY PREDICT THE SEVERITY AND PROGNOSIS OF PATIENTS WITH SYSTEMIC INFLAMMATORY RESPONSE SYNDROME
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Introduction: Disseminated intravascular coagulation, particularly consumption coagulopathy with decreased antithrombin (AT) level, is considered to be an important finding in patients with systemic inflammatory response syndrome (SIRS)/sepsis. The AT level decreases owing to increased vascular permeability, dilution by infusion, or impaired hepatic function. In this study, we analyzed the relationship between the ratio of AT and albumin (Alb), whose molecular weight is nearly equal to that of AT, and the severity and prognosis of SIRS patients.

Materials & Methods: The subjects were consecutive SIRS patients transferred to our Emergency and Critical Care Medical Center. Serum AT and Alb levels on admission and day 2, length of intensive care unit (ICU) stay, and prognosis were recorded. Patients with trauma and hemorrhage, and administered ATIII, rTM, FFP, and Alb during this period were excluded. Changes in the AT/Alb ratio and ICU stay, and prognostic outcome were analyzed. The area under the ROC curves (AUC) was compared to predict the prognostic power of the AT/Alb ratio.

Results: We evaluated 120 cases. The mean serum AT level was 92.4% in patients who stayed in the ICU for ≤ 7 days (n = 89), 78.1% in patients who stayed in the ICU for > 7 days (n = 13), and 58.1% in non-surviving patients (n = 18). However, 46% of the patients who stayed in the ICU for > 7 days and 33% of the non-surviving patients showed an AT level > 70% on admission, indicating that only the AT level cannot accurately predict prognosis. On the other hand, an AUC of 0.84 in non-surviving patients indicates a 4.3% AT/Alb decrease as the cut-off value, and an AUC of 0.94 in patients who stayed for > 7 days in the ICU or in non-surviving patients indicates a 5.3% AT/Alb decrease as the cut-off value.

Conclusion: A decrease in the AT/Alb ratio may predict the severity and prognosis of SIRS patients.

Disclosure of Interest: None declared
**18.19 CRITICAL CARE MANAGEMENT OF PERITONITIS IN A LOW-RESOURCE SETTING**

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**Introduction:** Peritonitis is a common surgical condition with high morbidity and mortality in both high and low resource settings. Management of the critically ill patient is more challenging in a low resource setting. We aim to describe critical care management of surgical patients with peritonitis in Rwanda.

**Materials & Methods:** Data were collected at a tertiary referral hospital in Rwanda on all patients undergoing operation for peritonitis over a 6-month period. Data were collected on epidemiology, hospital course and outcomes. Patients requiring admission to the intensive care unit (ICU) were compared with those not requiring ICU admission using Chi squared test and students t-test.

**Results:** Over a 6-month period, 280 patients were operated for peritonitis. Of these, 46 (16.4%) were admitted to the ICU. The most common diagnoses were intestinal obstruction (N= 17, 37.0%) and typhoid intestinal perforation (N=6, 13.0%). Patients with peritonitis admitted to the ICU were more likely to come from outside Kigali (89% versus 76%, pvalue = 0.048).

The median American Society of Anesthesiologist score for patients admitted to the ICU was 3 (range 2-4) and the median Surgical Apgar Score was 4 (range 0 – 6). 24 (52.2%) patients required vasopressors, with dopamine and adrenaline being the only vasopressors available.

The mean length of hospital stay for patients admitted to the ICU was 11.5 days, compared with 9.5 days in non-critically ill patients (pvalue = 0.105). 37 (80.4%) critically ill patients had a major complication compared with 33 (14%) non-critically ill patients (pvalue <0.001). 13 (28%) critically ill patients had an unplanned reoperation versus 23 (10%) non-critically ill patients (pvalue <0.001). 8 (4.3%) patients admitted to ICU were discharged home and 33 (71.7%) patients died in the hospital. In comparison, 178 (85%) non-critically ill patients were discharged home and 16 (8%) died in the hospital (pvalue <0.001)

**Conclusion:** Patients with peritonitis admitted to the ICU commonly presented with features of septic shock. Management is focused on critical care support of sepsis. Due to the limited resource settings, interventions are primarily supportive with intravenous fluids, intravenous antibiotics, ventilator support, and vasopressors. Morbidity and mortality remain high in this patient population.

**Disclosure of Interest:** None declared
CONSERVATIVE MANAGEMENT OF POSTERIOR TRACHEAL LACERATION FROM BLUNT TRAUMA
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Introduction: Tracheobronchial injuries are very uncommon after blunt trauma. Most of these injuries reported in the literature are iatrogenic post-intubation injuries and the classical treatment of choice is surgery. However, cases with conservative management has been also reported to be successful in cases detected early. We present a case of a 33-year-old female who sustained a laceration in the membranous posterior wall of the trachea from blunt trauma. This case was managed conservatively with good result.

Materials & Methods: The patient presented after self-skidding at the speed of 75km/h with reported loss of consciousness and facial tenderness after the incident. She was stable in the respiratory and haemodynamic aspects; secondary survey, screening chest x-ray (CXR) and pelvic x-ray revealed no other injuries. Computed tomography (CT) of the brain, face and cervical spine was ordered in view of the mechanism of accident and facial injuries. The scans revealed a suggestion of superior mediastinal widening with pockets of emphysema (Fig. 1). CT thorax was performed and revealed a mural defect/laceration seen in the membranous posterior wall of the trachea resulting in mediastinal emphysema (Fig. 2).

Results: The patient was admitted to the general ward for observation. Gastrograffin swallow was subsequently performed with no oesophageal perforation noted. Decision was made for conservative management of the tracheal laceration in view of her clinical status. Intravenous antibiotics was given during her hospitalisation of 5 days. The patient had a repeat CXR at the end of her hospitalisation that showed no pneumonia nor emphysema. She was discharged well and stable with a planned follow-up in 6 weeks' time. When she was subsequently reviewed in the outpatient clinic, she was well with no stridor, shortness of breath or chest infection.

Conclusion: With the increase in motor vehicle accidents with high-speed deceleration, tracheal injuries, although very rare, are increasingly reported. Surgery is traditionally the choice management, but conservative management have been increasingly highlighted in selected cases of non-iatrogenic injuries with good results.

Disclosure of Interest: None declared
MOTORCYCLE ACCIDENTS AND SEVERITY: RIDER DEMOGRAPHICS AND OTHER PREDICTORS – A STUDY OF RISK FACTORS BASED ON NATIONAL REGISTRY DATA FROM A DEVELOPED TROPICAL COUNTRY

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Introduction: Predictors of accidents and severity may be specific to the demographics in each country. Although motorcycle accidents (MA) comprises the greatest trauma burden of road traffic accidents in Singapore, there has been no recent study of injury epidemiology and predictors of MA severity in a developed tropical nation. This is the first Singapore study using national data to determine predictors of MA and severity.

Materials & Methods: Between 2012 and 2014, MA of ISS scores >9 from the National Trauma Registry was matched and respectively analysed with weather and geographical data from the National Environmental Agency (NEA) and Urban Redevelopment Authority (URA). Weather data was obtained from NEA. URA divides Singapore into five regions, each with a variable mix of residential, commercial, industrial and recreational areas. Trauma data included patient demographics, outcome, accident day and location.

Results: 2036 casualties had ISS scores >9. Resident status, ethnicity, age and accident locations were significantly associated with MA severity (p=0.021, p=0.010, p=0.015, p=0.021). Singapore Citizens and work permit holders formed the majority. 47% were Chinese, 30% Malays and 18% Indians. Young adults 20-40 years old comprised >50%. More severe MA occurred in Central and West regions. Weather was not associated with MA severity (p=0.67).

Days of the week was associated with MA frequency (p=0.019), with Fridays seeing significantly higher numbers than Sundays (p=0.042). Binomial regression revealed ethnicity (p=0.033, OR=1.13) as an independent predictor of high mortality MA (ISS>24).

Conclusion: Resident status, ethnicity, age and accident location predicted MA severity while days of the week predicted MA frequency. When compared to Singapore’s ethnic proportions, Malays and Indians are overrepresented ethnicities. The commercial and business district forms the central region and traffic congestion could explain its MA severity. The West is largely made up of industrial parks and further studies are warranted to explore the association with greater MA severity. Younger casualties translate to greater economic lost. Weather conditions did not predict MA severity in a tropical island city despite the presence of wetter seasons. Results from our study provides information on vulnerable groups that will benefit from a targeted preventive approach.


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Disclosure of Interest: None declared
CHARACTERISTICS OF PATIENTS ADMITTED TRAUMA ICU WITH INJURY SEVERITY SCORE UNDER 15 VERSUS PATIENTS ADMITTED GENERAL WARD WITH ISS OVER 15

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Introduction: The definition of severe injured patients is difficult to describe. Injury severity score(ISS) over fifteen is generally accepted in the trauma field globally, despite some limitations. We analyzed the patients admitted to a trauma center for three years.

Materials & Methods: A retrospective review of the data base from a single trauma center in Korea was conducted. For three years period, there were 8,884 trauma admissions. We analyzed trauma patients who admitted to trauma intensive care unit(TICU) with ISS<15 as group 1 and patients who admitted to trauma ward with ISS>15 as group 2.

Results: The number of patients were 968 in group 1 and 155 in group 2. Mean age, systolic blood pressure on admission, glasgow coma scale(GCS) were not statistically different. In group 1, penetrating injury, red blood cell and plasma transfusion and trauma team activation were more frequent (p <0.05). Mortality was higher in group 1 than in group 2 (p = 0.015).

Conclusion: ISS is generally good scoring system to predict prognosis. However, ISS can not indicated the severity of the trauma in some situations.

Disclosure of Interest: None declared
Surgeon-Performed Focused Assessment with Sonography in Trauma (FAST) Exams Facilitate Prompt Operative Decision Making for Patients with Penetrating Cardiac Injuries.

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Introduction: Penetrating cardiac injuries (PCI) can be lethal, and prompt diagnosis is essential in preventing morbidity and mortality.1 Chest radiography and ultrasonography (US) aid PCI diagnosis in United States’ trauma centers.2 Surgeon-performed Focused Assessment with Sonography for Trauma (FAST) exams are rapid and highly sensitive for hemopericardium, though transthoracic (TTE) or transesophageal (TEE) echocardiography may have greater sensitivity for cardiac injury.3,4,5

Materials & Methods: All PCI patients treated between January 1, 2000 and December 31, 2015 at a level 1 trauma center (TC) in the United States were reviewed retrospectively. US results within 6 hours of TC arrival, operative findings, and autopsy results were collected from patient records. Iatrogenic injuries were excluded. The primary endpoint is sensitivity of FAST, TTE, and TEE for any PCI or hemopericardium, and secondary endpoints are times from TC arrival to US and operative intervention (OR). Wilcoxon rank-sum and Chi square statistical analyses were performed with Stata v14. P-values <0.05 were considered significant.

Results: Table 1. Sensitivity of US exams for cardiac injuries.

<table>
<thead>
<tr>
<th></th>
<th>FAST (n=84)</th>
<th>TEE or TTE (n=50)</th>
<th>No US (n=95)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemopericardium</td>
<td>19 / 30</td>
<td>34 / 40</td>
<td>91</td>
</tr>
<tr>
<td>Valve injury</td>
<td>0 / 2</td>
<td>0 / 0</td>
<td>0</td>
</tr>
<tr>
<td>Ventricle injury</td>
<td>1 / 20</td>
<td>3 / 25</td>
<td>63</td>
</tr>
<tr>
<td>Atrium injury</td>
<td>0 / 4</td>
<td>1 / 2</td>
<td>13</td>
</tr>
<tr>
<td>Septum injury</td>
<td>0 / 4</td>
<td>1 / 2</td>
<td>16</td>
</tr>
<tr>
<td>Great vessel injury</td>
<td>0 / 4</td>
<td>0 / 2</td>
<td>22</td>
</tr>
<tr>
<td>Coronary artery injury</td>
<td>0 / 3</td>
<td>0 / 2</td>
<td>5</td>
</tr>
<tr>
<td>Combined</td>
<td>20 / 31</td>
<td>35 / 41b</td>
<td>95</td>
</tr>
</tbody>
</table>

Excluded 53 FAST, 2 TTE, 7 TEE with missing documentation

p=0.04 when compared to FAST alone

There were 217 patients with PCI, of which 102 had 134 diagnostic echocardiograms before pericardiomyotomy. Mechanisms of injury included 64 gunshot and 70 stab wounds. There were 84 diagnostic FAST exams performed by surgical residents, and 29 TTE and 21 TEE exams. Ten patients had both a pre-operative FAST and TTE or TEE. FAST exams were introduced in 2002 in our trauma center, and surpassed TTE in 2005 (Figure 1). FAST exams had similar sensitivity (73%) for pre-operative hemopericardium as TTE and TEE combined (81%, p=0.5), but TEE and TTE found 85.4% of hemopericardium and cardiac injuries, while FAST found 64.5% (p=0.04) (Table 1). Mean time from TC arrival to US (7.8 v. 37.6 min, p<0.001) and to OR (38.8 v. 70.1 min, p=0.006) was quicker for FAST than TTE or TEE.

Image:
Conclusion: In evaluating penetrating chest trauma, surgeon-performed FAST exams possess adequate sensitivity to detect hemopericardium and allow surgeons to make expeditious decisions regarding operative intervention.

References:

Disclosure of Interest: None declared
Introduction: Injury severity scoring plays a critical role in benchmarking outcomes for trauma quality improvement. Scoring systems validated in high-income countries (HIC) often are not feasible or accurate in low- and middle-income countries (LMIC) due to resource constraints. In this multi-center, prospective study, we compare the usability and performance of an indicator of clinical gestalt against a traditional scoring algorithm (Calculated Revised Trauma Score (CRTS)) and a more recently developed LMIC scoring metric (Kampala Trauma Score (KTS)) for the ability to discriminate in-hospital mortality. We hypothesized that clinical gestalt (Highest Estimated Abbreviated Injury Severity (HEAIS)) would be more feasible and have comparable predictive capacity, which may provide a simple and cost-effective way to measure injury severity in austere settings.

Materials & Methods: Between July 2015 and July 2016 physiologic and injury data were collected from all injured patients presenting to three large hospitals in Cameroon and used to calculate patient KTS and CRTS. Clinicians used physical exam only to estimate the HEAIS for each patient, based on their clinical impression. Severity scores were analyzed for feasibility; logistic regression assessed prediction of mortality and Receiver Operating Characteristic (ROC) curves compared discrimination of mortality between scores.

Results: Only 38% of 4908 injured patients had sufficient data to calculate KTS and CRTS, while 89% had HEAIS scores. Missingness appeared non-random; however, patients with missing scores had similar rates of operative management, admission, and death to those with complete data, though they received less blood and had lower costs for emergency care (both p<0.05). Among 1785 patients with all three scores, logistic regression modeling demonstrated KTS, CRTS, and HEAIS to all be predictive of in-hospital mortality (all p<0.001). ROC curves demonstrated HEAIS to have superior discrimination for mortality compared with KTS (p=0.02). HEAIS demonstrated a trend toward improved discrimination of death than CRTS, but this failed to reach statistical significance (p=0.06).

Conclusion: Clinical gestalt regarding injury severity has superior feasibility and equivalent-to-improved discrimination for death in this resource-limited setting compared to two commonly utilized physiologic scores. Routine estimation of HEAIS may be more achievable in LMIC thereby facilitating improved data quality and completeness, and supporting trauma systems development.

Disclosure of Interest: None declared
PATTERNS OF ABDOMINAL INJURIES RESULTING FROM SHRAPNEL OF THE MISSILES; CASES ADMITTED TO BENGHAZI MEDICAL CENTER

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Introduction: Abdominal trauma considered one of the most common trauma seen in emergency department worldwide. Currently, in our city the majorities of abdominal injuries are related to shrapnel of the missiles.

Materials & Methods: A retrospective study of the medical records of 100 patients presenting to the emergency department with history of abdominal trauma in Benghazi medical center from 01-01-2016 to 31-12-2016. The clinical manifestations, diagnostic modalities, management, complications and death rate were evaluated.

Results: Patients in 5-40 years were more prone to this type of trauma. Males were predominantly involved. Abdominal pain were the most common presentation and abdominal tenderness were the most common sign. Mean duration of hospital stay for operated cases were 20 days and for non-operated cases were 7 days. Abdominal Ultrasound were 81% sensitive and 100% specific in diagnosing solid organ injury. Operative management was done in 85% of cases. Mortality was 7%.

Conclusion: Penetrating abdominal injuries which results from shrapnel of the missiles are common injury in Benghazi. Repeated clinical examinations and use of appropriate diagnostic modalities holds the key in management. Hollow viscous injury were the most common injury which mandates urgent operative management. Non-operative management and close observation for solid organ injuries in a haemodynamically stable patient is a better option.

Disclosure of Interest: None declared
RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION OF THE AORTA (REBOA) CAN BE DEPLOYED RAPIDLY AND SAFELY BY ACUTE CARE SURGEONS

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Introduction: REBOA is an emergent procedure requiring endovascular skills. Many practicing acute care surgeons (ACS) who trained before the wide-spread acceptance of endovascular techniques gained experience through on-the-job training. We hypothesized there was no difference in REBOA deployment times or complications between ACS trained in endovascular procedures during residency (ACS-EP) and those who did not (ACS-NEP), and there was no difference in ACS virtual reality simulation (VRS) and clinical procedural times.

Materials & Methods: Patient and injury demographics, and vital signs were obtained. ACS professional training and surgical case histories were documented. All ACS completed a 1-day REBOA VRS course. The procedural time was defined as the interval from common femoral arterial access to balloon inflation. ACS-NEP versus ACS-EP performance and their respective patients were compared. Published VRS results were compared to ACS clinical procedural times.

Results: There were five ACS-NEP and four ACS-EP. ACS-NEPs graduated significantly earlier than ACS-EPs: 17 years (IQR:15,32) versus 4 years (IQR:4,5), (p<0.01). The ACS-NEPs performed significantly fewer cases per post-graduate year as compared to the ACS-EPs: 1 case/year (IQR:0,1) versus 10 cases/year (IQR:8,12), (p<0.01). Twenty-eight REBOAs were performed: ACS-NEP (n=17) versus ACS-EP (n=11). There was no difference in patient demographics, pre-hospital and admission vital signs and GCS, mechanism of injury and injury severity score between the two groups. ACS-EPs obtained arterial access via femoral cutdown more often than ACS-NEPs: 8 versus 10, (p=0.04). Eleven of these eighteen patients presented in arrest, ACS-NEP (n=5) vs ACS-EP (n=6), (p=1.0). There was no difference in intra-group REBOA procedure times: ACS-NEP: 315 seconds (SD:±105) versus ACS-EP: 303 seconds (SD:±100), (p=0.46). There was no difference in clinical procedure times as compared to VRS training: Clinical: 310 seconds (SD:±102) versus VRS: 277 seconds (SD:±55), (p=0.18). There were no REBOA-related complications and 30-day survival was 11%.

Conclusion: Participation in a formal training course eliminated a potential surgical training deficit. ACS with and without formal endovascular training during general residency demonstrated equivalent performance times. Additionally, ACS clinical procedural times were similar to their VRS times, validating the VRS training program.

Disclosure of Interest: None declared
CHALLENGING LAPAROSCOPIC REPAIR OF AN ACUTE STRANGULATED POST-TRAUMATIC DIAPHRAGMATIC HERNIA

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Introduction: Laparoscopy is a recognized diagnostic and therapeutical option for detection and repair of diaphragmatic post-traumatic injuries. Its use is mandatory for ruling out diaphragmatic injuries in case of thoracoabdominal penetrating trauma. Notwithstanding, the laparoscopic approach for diaphragmatic injuries is considered challenging facing with strangulated hernias or multiple lacerations.

Materials & Methods: Aim of this report is to show feasibility and discuss technical details of the laparoscopic treatment of a strangulated diaphragmatic hernia with multiple muscular tears. A 45yr-old man was admitted to the ED in shock and severe respiratory distress. One month earlier, he had a motorcycle accident and suffered multiple left ribs fractures, hemothorax and an amelyic fracture of the body of D10 vertebra. During that admission, thoracic CT and chest X-ray did not show any suspected diaphragmatic injury. At re-admission, the chest X-ray showed the dislocation of the gastric fundus in the left pleural space, with hemo-pneumothorax and dislocation of the mediastinum to the right. A chest drain was immediately placed with partial recovery of both hemodynamics and respiratory distress. A thoracic CT confirmed a large diaphragmatic tear with more than 2/3 of the stomach in the left hemi-thorax. Urgent surgery was undertaken.

Results: A 5 ports laparoscopic approach allowed to confirm diagnosis, obtain reduction of the herniated stomach, and repair three radial diaphragmatic tears, with a lenght of 6, 3 and 1 cm respectively. Reduction of the strangulated stomach required a pre-cut near to the upper border of the larger laceration. Partial re-expansion of the lower pulmonary lobe was controlled before the deployment of a dependent left thoracic drainage. Repair of muscular tears was performed with running sutures of nonabsorbable monofilament (for the longest and the shortest lacerations) and of absorbable barbed stitch (for the 3 cm long tear). Recovery was uneventful.

Conclusion: Laparoscopy is the ideal approach for acute isolated diaphragmatic injuries, and could be successful even in case of multiple lacerations.


Disclosure of Interest: None declared
18.28
CIVILIAN CEREBRAL GUNSHOT WOUNDS: A SOUTH AFRICAN EXPERIENCE
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Introduction:
Cerebral gunshot wounds is one of the most lethal form of traumatic brain injury, but there is a paucity of literature describing the situation in the developing world. We reviewed our experience and describe the spectrum and outcome in a major metropolitan trauma centre in South Africa.

Materials & Methods:
This was a retrospective study of all patients with isolated cerebral gunshot wounds managed at the Pietermaritzburg Metropolitan Trauma Service over a 5-year period from 2010 to 2014.

Results: One hundred and two patients were included, 92% (94/102) were male and the mean age was 29 years. Fifty-four per cent (55/102) of all patients were from the urban areas. The mean time from injury to arrival was 6 h (standard deviation: 5) rural patients 15 h (standard deviation: 5.2) for patients urban patients (P < 0.001). Ninety-four per cent (94/102) of all injuries were related to interpersonal violence and involved low velocity firearms. Twenty per cent of all patients (20/102) had a Glasgow Coma Scale 3–8, 20% (20/102) 9–12 and 61% (61/102) 12–15. All 102 patients underwent computed tomography. Thirty percent (31/102) required neurosurgical interventions. The overall mortality rate was 22% (22/102). There was a significant difference in mortality between urban and rural patients (9% versus 36%, P < 0.001).

Conclusion: Cerebral gunshot wounds are associated with significant mortality and protracted delay to definitely care is common in our setting. Those who survived delay to definitive care generally do well and appeared to have reasonably good clinical outcome.

Disclosure of Interest: None declared
COMPARING THE RATE OF MORTALITY FOLLOWING EMERGENCY CRANIOTOMY VERSUS CRANIECTOMY IN PATIENTS WITH SEVERE TRAUMATIC BRAIN INJURY WITH SUBDURAL HEMATOMA

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Introduction: Patients who sustain a severe traumatic brain injury (TBI) with Subdural Hematoma (SDH) and have a Glasgow Coma Scale (GCS) value ≤ 8 have shown better outcomes when operative interventions (evacuation of hematoma either by craniotomies or craniectomies) are performed within 4 hours of admission. Therefore, the purpose of the study was to evaluate the impact of both procedures on overall patient mortality and discharge disposition.

Materials & Methods: Study data was obtained from the National Trauma Data Bank (2007-2010 edition). Only patients who sustained blunt or penetrating injuries, presented with severe TBI with SDH and an initial GCS ≤ 8, and who underwent a craniotomy or craniectomy within 4 hours of hospital arrival were included in the analysis. Patient and hospital characteristics and outcomes were compared between the two procedural groups: craniotomy (Group 1) and craniectomy (Group 2). First compared between the two unmatched groups using Chi-Square, Fisher Exact, and Wilcoxon Rank Sum tests. Then propensity score matching analysis was also performed using baseline characteristics in an attempt to better balance the two groups; paired analysis was performed using McNemar, Stuart Maxwell, and paired Wilcoxon Rank Sum tests.

Results: A total of 2,414 patients qualified for the study and of those, 1,880 (77.9 %) patients underwent craniotomy (Group 1) and 534 (22.1 %) underwent craniectomy (Group 2). There were significant differences between the two groups regarding age (Mean [SD]: 47.7 [22.7] vs. 39.3 [20.0], P<0.001), sex (male, 70.5% vs 75.3%, P=0.03), race (white, 77.0% vs 72.7%, P=0.04), the injury mechanism (fall [50% vs. 32.2%, P<0.001]), ISS (28.0 [9.3] vs. 30.3 [10], P<0.001) and GCS (4.0 [1.6] vs. 3.7 [1.4], P=0.01). Given these results, 534 patients from each group were pair-matched using propensity score matching on age, sex, race, injury type, ISS, and the GCS total value for a reanalysis. Afterward, there were no significant differences observed between the procedural groups in the pair-matching variables; however, there were significant differences observed in patient mortality (32.2% vs 41.9%, P=0.001) and discharge disposition (home with no services: 14.0% vs 7.5%, P=0.003).

Conclusion: There was a significant reduction in mortality (9.7% absolute difference) and a significant increase in the number who went home with no services (6.5% absolute difference) for patients who underwent a craniotomy compared to a craniectomy.

Disclosure of Interest: None declared
EXAMINING THE IMPACT OF BLOOD ALCOHOL CONCENTRATIONS ON MORTALITY IN MOTOR VEHICLE OCCUPANT CRASH VICTIMS: A PROPENSITY MATCHED ANALYSIS
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Introduction: The purpose of this study was to analyze the mortality outcomes of trauma patients who were the occupant of a motor vehicle crash, and who tested positive for alcohol at the time of hospital arrival versus those who tested negative.

Materials & Methods: Four years of retrospective data was pulled from the National Trauma Data Bank (2007-2010), but only those patients who were described as the occupants of a motor vehicle crash and also underwent blood alcohol testing at the time of hospital arrival were included in the study sample. Any blood alcohol concentration (BAC) found at or above the legal limit (≥0.08 g/dL) was considered “positive” for alcohol, and if no alcohol was identified through testing, the patient was considered “negative” for alcohol. Patients’ characteristics including age >= 14, race, gender, systolic blood pressure, heart rate, mechanism of injury, injury severity score (ISS), and Glasgow Coma Scale (GCS) were included in the study. Propensity score matching was then performed using baseline characteristics (age, gender, and race). Both McNemar tests and absolute risk difference (ARD) were then used to evaluate the mortality rates between the paired groups.

Results: Eighty eight thousand, seven hundred and ninety four patients qualified for the study. Of this total sample, 27,464 of the patients (30.9%) tested positive for BAC at or above the legal limit (≥ 0.08 g/dL) and 61,330 patients (69.1%) tested negative for alcohol. There were significant baseline differences found between the two groups regarding age, gender, race, and GCS. There was also a significantly higher mortality rate (3.5% versus 2.7%, P<0.001) and median length of stay (4 days vs. 3 days, P<0.001) found in the alcohol negative group. After pairing the patients using propensity score matching, the overall mortality observed was no longer significant at 2.5% versus 2.7% (P=0.222) between the alcohol negative and alcohol positive groups respectively. There was also no significant difference seen in the median length of hospital stay (4 days vs. 3 days, P=0.190) between alcohol negative versus alcohol positive respectively. The absolute risk difference found was 0.002, CI [-0.001-0.004] (P=0.22).

Conclusion: Patients who were the occupant of a motor vehicle who also tested positive for alcohol following a traumatic injury, showed no significant reduction in mortality or hospital length of stay when compared to a very similar set of patients who tested negative for alcohol.

Disclosure of Interest: None declared
OPERATIVE STABILIZATION OF CHEST WALL TRAUMA: SINGLE CENTER REPORT OF INITIAL MANAGEMENT AND LONG-TERM OUTCOME

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Introduction: Conservative treatment of even severe thoracic trauma including flail chest was traditionally the standard of care. Recently we reported possible benefits of surgical chest wall stabilization in accordance with other groups. The aim of this study was to critically review our indications and results of internal fixation of rib fractures after blunt thoracic trauma also in the long-term course.

Materials & Methods: We analyzed the prospectively collected data of a consecutive series of patients having had internal rib fracture fixation at our institution from 8/2009 until 12/2014 and we retrospectively studied the late outcome by clinical examination or personal interview.

Results: From 1398 patients with a thoracic trauma treated at our institution during that time period 235 sustained a severe thoracic trauma (AIS ≥3). In 23 of these patients 88 internal rib fixation were performed using the MatrixRIB® system. The mean age of these patients with chest wall stabilization was 58±10 years with a mean ISS of 23±10. Operation time was 120±51 minutes. From 18 local resident patients follow up could be obtained after an average time period of 27.6 (12-68) months. All of these patients were free of pain and had no limitations in their daily routine. Of all implants, 5 splint tips perforated the rib in the postoperative course but all patients remained clinically asymptomatic. Plate osteosynthesis showed no loss of reduction in the postoperative course. No case of hardware prominence, wound infection or non-union occurred.

Conclusion: In our carefully selected thoracic trauma patients, locked plate rib fixation seems to be safe and beneficial not only in the early posttraumatic course but also after months and years patients remain asymptomatic and complete recovery is the rule.

Disclosure of Interest: None declared
APACHE II AND SOFA SCORE AS PREDICTING VALUE IN SEVERE TRAUMA PATIENTS

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Introduction: Acute Physiology and Chronic Health Evaluation (APACHE) II and Sequential Organ Failure Assessment (SOFA) scoring system are widely used for critically ill patients. We evaluated the ability of APACHE II score and SOFA score to predict outcome in trauma patients.

Materials & Methods: We retrospectively analyzed trauma patients admitted to ICU of single trauma center from Jan. 2014 to Dec. 2015. The APACHE II score was calculated based on data from the first 24 hours of admission. The SOFA scores of the first three days in ICU were evaluated. Total 241 patients were available for analysis. Injury Severity Score (ISS), APACHE II, and SOFA score were evaluated using patient’s data. And these scores were compared between survivors and non-survivors groups.

Results: The overall survival rate was 83.4%. Non-survival group had significantly high APACHE II score (24.2(±8.1) vs. 12.4(±7.2), p<0.001) and SOFA score (6.8(±2.3) vs. 3.9(±2.0), p<0.001) at admission. SOFA score had the highest AUC (0.904). During the first three days, the SOFA score remained high in non-survival group. Among the SOFA system, neurological system and renal system had significantly higher score in non-survival group. Coagulation score of non-survival group became higher than survival group after second and third day of admission.

<table>
<thead>
<tr>
<th>TRISS</th>
<th>ISS</th>
<th>APACHE II</th>
<th>SOFA</th>
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<tbody>
<tr>
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<td>25.5</td>
<td>54.7</td>
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<td>&lt; 0.001</td>
<td>0.02</td>
<td>&lt; 0.001</td>
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<td>61%</td>
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<tr>
<td>AUC</td>
<td>0.147</td>
<td>0.61</td>
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Image:
Conclusion: Both APACHE II and SOFA score were reliable for predicting the outcomes in ICU trauma patients. These scoring systems may be useful to assess outcome and preventable death rate with other trauma scoring systems.

Disclosure of Interest: None declared
OUTCOME OF UNSTABLE PELVIC BONE FRACTURE PATIENTS AFTER TRAUMA CENTER ESTABLISHMENT IN KOREA.
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Introduction: To assess the outcome of unstable pelvic ring injury patients before and after trauma center and newer management protocol establishment.

Materials & Methods: A retrospective review of pelvic ring injury data from an academic medical center, totally 79 severe bleeding pelvic fracture patients included during seven-year period. Physiological markers of hemorrhage, time to intervention, transfusion requirements, complication and mortality were analyzed.

Results: Mean time to any kind of intervention was 205 min during study period, 268 min before trauma center and 161 min after trauma center. During study period twelve patients died from acute hemorrhage, 10 patients before trauma center and 2 patients after trauma center.

Conclusion: Trauma center and protocol including pelvic packing for unstable pelvic ring injury significantly reduced time to intervention and may reduce early mortality due to exsanguination from pelvic hemorrhage.

Disclosure of Interest: None declared
GUNS AROUND THE GLOBE: A WORLD VIEW OF FIREARM ASSOCIATED HOMICIDE?
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Introduction: The debate on weaker gun laws and easy access to guns being responsible for the increasing firearm associated violence in the United States is polarized. Many thought groups have indicated that a lack of stringent gun laws may be associated with the national spike in firearm associated homicide (FAH; >30,000 per year in the US). In order to determine if a link exists between gun policies, socioeconomic factors and FAH, we conducted a review of the World Health Organization (WHO) databanks on policy variations across the globe with respect to FAH.

Materials & Methods: After IRB approval, the WHO database was employed for extracting FAH rates and presence of laws regulating firearm possession (LF) including mandatory background check, laws for possession of handguns, long guns, automatic weapons and regulations for public carry of firearms. Socioeconomic factors (LS) were captured including presence/absence of programs to reduce civilian firearm possession, population in 2012 and gross national income per capita (GNP). We categorized the FAH level as high (≥67%), medium (34-66%) and low (≤33%). A multivariate analysis was conducted to determine the impact of each LF and LS on FAH rates. A p-value of less than 0.05 was considered statistically significant.

Results: Data from 133 countries for the years 2008, and 2010 to 2013 was collected. Homicide data was unavailable for 50 countries. Overall, our data showed the homicide rate per 100,000 ranged from 0.03 in Iceland to 86 in Honduras. This translates to 5.3 in the United States, 1.1 in Australia, 0.9 in Italy, 0.8 in Germany and 0.8 in Japan. No significant differences in FAH was noted for LF including mandatory background check (p: 0.56), laws for possession of handguns (p: 0.92), long guns (p: 0.94), automatic weapons (p: 0.58) and regulations for public carry of firearms (p: 0.6). Additionally, no significant differences in FAH was noted in relation to LS including programs to reduce civilian firearm possession (p: 0.65), country specific population in 2012 (p: 0.52) and GNP (p: 0.66).

Conclusion: Our study did not reveal any significant correlation between laws and socioeconomic factors and FAH internationally. This is not consistent with past studies which show stringent laws may reduce FAH. Future studies need to be conducted to shed light on the same. The limitation of our study is lack of consistency in reporting homicides and gun associated policies globally.

Disclosure of Interest: None declared
Introduction: Context: Trauma is a major public health problem. It is the most common cause of mortality and morbidity in Americans under 45 years of age. Multiple studies have examined this regarding mortality. However, fewer studies examined how survivors do beyond merely surviving.

Objective: Study the associations between pre-hospital factors and functional outcomes measured by requiring physical therapist intervention in severe penetrating trauma patients along with examining additional variables associated with improved functionality in such patients.

Materials & Methods: Design: Retrospective chart review

Setting: Trauma patients who were admitted to the emergency department (ED) of Johns Hopkins Medical Institute (JHMI), Baltimore, MD, between 2009 and 2014

Patients: Include those who survived ED with penetrating trauma to the thorax and/or abdomen with significant injury, defined by AIS of 4 to 6 in the chest and/or abdomen and AIS of 3 or less in any other area

Main Outcome Measure: The primary outcome measure was the requirement for physical therapist intervention after surviving ED

Results: 67 percent required physical therapist intervention. Hypotension and tachycardia, as well as decreased GCS correlate with increased need for PT intervention ($P=0.06, 0.06, 0.003$ retrospectively). Severe penetrating trauma to the abdominal area was associated with 54.7 percent compared to 41.1 percent in the thorax ($p=.08$). Overall mean ISS was statistically significant different for those who needed PT and did not need PT ($p<0.05$). Gunshot trauma has 8.84 higher odds of PT intervention compared with those who suffered other mechanism of penetrating trauma ($p<0.05$). With each extra minute in pre-hospital overall time there is a statistically significant reduction by 10 percent in the odds of PT intervention after controlling for all demographic and clinical variable, OR=.90 ($p<0.05$)

Following the same trend, with each extra one-tenth of a mile away from our institute there is a statistically significant reduction by 40 percent in the odds of requiring PT holding all other variables constant, OR=.60 ($p<0.05$)

Conclusion: Adjusting for injury severity and region injured, we found out that shorter pre-hospital time and shorter distance to hospital are associated with higher odds of requiring PT intervention. Hypotension and tachycardia, as well as decreased GCS correlate with increased need for PT intervention. Moreover, gunshot wounds and trauma to the abdomen showed higher odds of requiring PT intervention.

Disclosure of Interest: None declared
CAN WE PREDICT THE DELAYED UNDESIRABLE EVENTS AFTER THE BLUNT INJURY TO THE VISCERAL ORGAN?

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Introduction: The blunt injury to the visceral organ like spleen, liver or kidney have possibilities to lead to pseudoaneurysm formation or delayed rupture, but current trauma and surgical guidelines do not recommend repetitive imaging. And under the conditions of renal dysfunction, we also should avoid repetitive contrast enhanced computed tomography (CT) to a maximum extent. The purpose of this study was to examine the incidence and timing of delayed undesirable event, and establish the advisable timing of follow-up imaging, appropriate observational admission or disposition for blunt visceral organ injury.

Materials & Methods: The patients with blunt splenic, liver or kidney injury was detected and treated with non-operative management (NOM) in trauma and critical care center of Osaka city university hospital were included. We performed retrospective review of patient demographics, injury description, the timing of follow-up CT scan, management technique, and patient outcomes.

Results: During January 2013 to October 2016, a total of 46 patients who documented blunt splenic (S), liver (L) or kidney (K) injury were admitted in our hospital. We excluded 17 patients who treated with open surgery and 3 patients who were dead or had unrecovered unconsciousness (GCS<8) because of severe brain injury. Of the 26 patients (L:10, S:10, K:5, L&S:1) who treated with NOM, 7 (L:4, S:3, K:1) patients performed interventional radiology (IVR). During the observation period, delayed undesirable event confirmed in 2 patients. Splenic pseudoaneurysm confirmed at 6 hospital days in one patient, and splenic delayed rupture confirmed at 7 hospital days in another one patient. The American Association for the Surgery of Trauma (AAST) severity injury scales of these two patients were 3 and 4, and had tendency of longer continuous abdominal pain than that of event free patients (p=0.047). Both patients are treated with IVR and discharged with no complications.

Conclusion: Delayed undesirable events were recognized with follow-up CT in 7.6% of NOM patients during hospital Days 6 to 7. And these events were tending to associate with high-grade splenic injuries with continuous symptom. We conclude that repetitive screening of this group of patients at 7 days after injury may be warranted because of the potential risk of delayed events.

Disclosure of Interest: None declared
DECOMPRESSION OF TENSION PNEUMOTHORACES – GREATER SUCCESS WITH LATERAL VERSUS ANTERIOR APPROACH. COMPARISON BY COMPUTED TOMOGRAPHY CHEST WALL MEASUREMENT

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Introduction: Recent studies have shown high failure rates of needle thoracostomy (NT) for tension pneumothorax using the anterior approach, in the second intercostal space midclavicular line. NT with a lateral approach, at the fifth intercostal space, midaxillary line has shown to have greater success rates. Our study aims to compare the anterior and lateral approaches in Asian trauma patients.

Materials & Methods: A retrospective study was conducted in Tan Tock Seng Hospital, a regional trauma centre in Singapore. We included all trauma patients with chest computed tomography scans, admitted during the period of 2011-2015. Caucasian patients and patients below age of 16 were excluded.

Using computed tomography chest scans, four measurements of chest wall thickness (CWT) were taken from each subject at the anterior and lateral approaches bilaterally. Measurements were done from the superficial skin layer of the chest wall to the pleural space. Addition of 1cm to CWT was made to account for reliable entry beyond the chest wall. Subjects were categorized by age, gender ethnicity and World Health Organization Asian BMI categories. Data analysis was conducted with SPSS version 21.

Results: There were 593 eligible subjects. Mean age of subjects was 49.1 years (49.1± 21.0). Majority of subjects were males (77.0%) and Chinese (70.2%).

Mean CWT for the anterior approach was 3.92cm (3.92 ± 1.15) on the right and 4.04cm (4.04 ± 1.21) on the left as compared to 3.52cm (3.52 ± 15.0) and 3.36cm (3.36 ±1.44) for the lateral approach respectively, (p=0.001). Success of NT with anterior approach was 53.1% as compared to 65.6% at the lateral approach.

Obese subjects had significantly higher mean CWT of 5.07cm (5.07 ±1.39) as compared to non-obese subjects of 3.66cm (3.66 ± 0.94), (p=0.001) in the anterior approach. With the lateral approach, mean CWT of obese subjects was 4.72cm (4.72 ±1.88) as compared to non obese subjects of 3.35cm (3.35 ± 1.24), (p=0.001). Obesity was significantly associated with failure of NT in the anterior [OR = 9.79 (CI 4.12-23.3), p =0.001] and lateral approaches [OR= 4.76 (CI 2.38- 9.52), p =0.001] after adjusting for confounders of age, gender and ethnicity.

Conclusion: NT with the lateral approach is more likely to succeed than the anterior approach in Asian trauma patients. A high BMI is an independent predictor of failure of NT, especially for the anterior as compared to lateral approach.

References:

Disclosure of Interest: S. Goh Salary, Royalty or Honoraria from: None, Receipt of Intellectual Property Rights of: None, Grant/Research Support from: None, Consulting fees from: None, Speaker’s Honorarium from: None, Ownership Interest of: None, Other Financial/Material Support from: None, L. T. Teo Salary, Royalty or Honoraria from: None, Receipt of Intellectual Property Rights of: None, Grant/Research Support from: None, Consulting fees from: None, Speaker’s Honorarium from: None, Ownership Interest of: None, Other Financial/Material Support from: None, W. R. Xu Salary, Royalty or Honoraria from: None, Receipt of Intellectual Property Rights of: None, Grant/Research Support from: None, Consulting fees from: None, Speaker’s Honorarium from: None, Ownership Interest of: None, Other Financial/Material Support from: None
A RETURN TO THE WILD WILD WEST: DO OPEN GUN LAWS AFFECT HOMICIDE RATES?

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Introduction: In the wake of numerous high profile mass shootings the polemical debate over gun control continues. Several cities continue to experience record numbers of firearm related deaths. In our state the concealed weapons law was recently modified to allow concealed weapons permit holders to carry their firearms openly. Many have argued that open carry will serve as a deterrent to crime. We sought to determine if there was any relationship between the open and closed concealed laws and firearm related death.

Materials & Methods: The Center for Disease Control (CDC) wonder database was employed to extract state specific firearm associated homicide and suicide rates for 2006, 2010 and 2014. For the corresponding years, each State's open (O) vs. closed (C) carry gun laws were extracted. Data was unavailable for States with less than 10 deaths in any given year. The Mann-Whitney U-test was employed for assessing statistical significance between firearm associated mortality of states with O vs C. Any p-value of <0.05 was considered statistically significant.

Results: The firearm related homicide rates in (O) vs. (C) States (n: 46 States) were 4 ± 2 vs. 7±6 in 2006 and 3±2 vs 5±3 in 2010. These findings revealed statistically significant higher homicide rates in (C) vs. (O) States (p-value of 0.01 in 2006 and 0.02 in 2010). No significant variation in homicide rates (p-value: 0.08) was demonstrated between (O) vs. (C) States in 2014 (3±2 vs 5±3). The firearm associated suicide rates in (O) vs (C) was 6±3 vs 7±3 in 2006, 7±3 vs 8±3 in 2010 and 6±3 vs. 8±3 in 2014. This demonstrated no significant variations in mortality from suicide based on our criteria in all States (n: 50 States) in all years (p-value of 0.67 in 2006, 0.88 in 2010 and 0.07 in 2014).

Conclusion: Many have advocated that open carry laws will be a deterrent to crime. Our results support this notion. We found that the firearm related homicide rate was higher in the closed carry states. However, open vs. closed carry laws had no impact on suicide rates. Further investigation needs to occur to determine the causal relationship between the homicide rates and open vs closed carry laws.

Disclosure of Interest: None declared
ACUTE TRAUMA COAGULOPATHY: PREVALENCE AND IMPACT ON OUTCOMES OF TRAUMA PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT
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Introduction: We aimed to determine the prevalence of Acute Trauma Coagulopathy (ATC) in severely injured trauma patients presenting to the Emergency Department (ED) of a general hospital, and investigate its impact on these patients’ outcomes.

Materials & Methods: This is a retrospective observational cohort study of all patients presenting to the ED over a one year period with an Injury Severity Score (ISS) greater than 15. Besides epidemiological data, activated Partial Thromboplastin Time (aPTT) and International Normalised Ratio (INR) was recorded and analysed. ATC was defined as patients having INR > 1.2, or aPTT > 1.5 times the upper limit for our institution. The association between ATC and patient outcomes was then studied.

Results: There were a total of 309 patients in our study based on the above criteria, of whom 18.8% had ATC. The on scene Revised Trauma Score (RTS) scores of the patients in the ATC group were significantly worse than those in the non ATC group. Mortality was also higher among the ATC group (46.6%) compared to the non ATC group (9.6%). Base deficit greater than 2 and lactate levels greater than 2 mmol/L were found to be associated with the presence of ATC.

Conclusion: ATC was found in almost one fifth of severely injured patients at the time of presentation to our ED, and was associated with a significantly higher mortality rate. It is therefore important to recognize this clinical entity early and initiate goal directed therapy to maximise the chances of a good outcome for this group of patients.

Disclosure of Interest: None declared
IMEAG MODALITY AND ITS RELATIONSHIP TO MORTALITY IN PATIENTS WITH SEVERE PENETRATING TORSO INJURY IN A LOW RESOURCE TRAUMA CENTER

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Introduction: Computed tomography (CT) and Focused Assessment with Sonography in Trauma (FAST) are two modalities used in high-income countries (HICs) to assess patients after penetrating torso injury. It is unclear how morbidity and mortality outcomes are affected in low- and middle-income countries (LMICs) where such resources are limited. We set out to assess the prevalence of CT and FAST utilization, patients in whom these were utilized, and the impact of availability on morbidity and mortality in patients requiring Damage Control Surgery (DCS).

Materials & Methods: Data were retrospectively collected at a highest tier trauma center in an LMIC from 2001 to 2013. Patients were identified who suffered penetrating torso injury following gun shot wound (GSW) or motor vehicle collision (MVC) and underwent DCS. Demographics, admission characteristics, New Injury Severity Scores, hospital days and mortality were collected. Data were compared between the two groups using chi-squared analysis and Student’s t-test for categorical and continuous variables respectively. The “Imaging” group consisted of patients who underwent CT and/or FAST imaging, and the “Non-Imaging” group consisted of patients with no imaging. Results were regarded as significant at $\alpha = 0.05$.

Results: 285 patients were identified who met inclusion criteria. The Imaging group consisted of 60 patients (overall prevalence of imaging = 21%, CT: \( n = 36 \), FAST: \( n = 34 \)), and the Non-Imaging group consisted of 225 patients. Importantly, although the two groups differed with respect to mechanism of injury (GSW versus MVC), no significant differences were identified in admission physiologic parameters, hospital length of stay, or mortality (see table).

Image:

<table>
<thead>
<tr>
<th>Variable</th>
<th>No Imaging</th>
<th>Imaging</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>31.27 (IQR:24-37)</td>
<td>31.03 (IQR:22.75-35.5)</td>
<td>NS</td>
</tr>
<tr>
<td>% Male</td>
<td>206/225 (92%)</td>
<td>29/60 (82%)</td>
<td>$p &lt; 0.05^*$</td>
</tr>
<tr>
<td>MAP</td>
<td>67.34 (IQR:47-88.25)</td>
<td>76.7 (IQR:57-91.5)</td>
<td>NS</td>
</tr>
<tr>
<td>Pulse Pressure</td>
<td>38.75 (IQR:21-53.25)</td>
<td>41.98 (IQR:32-50.5)</td>
<td>NS</td>
</tr>
<tr>
<td>HR</td>
<td>104.7 (IQR:88-125)</td>
<td>102.1 (IQR:84.5-122.25)</td>
<td>NS</td>
</tr>
<tr>
<td>RR</td>
<td>25.19 (IQR:20-29.5)</td>
<td>23.72 (IQR:18-28)</td>
<td>NS</td>
</tr>
<tr>
<td>Temp</td>
<td>36.03 (IQR:35.6-36.5)</td>
<td>36.08 (IQR:35.5-36.5)</td>
<td>NS</td>
</tr>
<tr>
<td>BD</td>
<td>-11.55 (IQR:-14.8-7.8)</td>
<td>-8.64 (IQR:-10.5-6.13)</td>
<td>$p &lt; 0.05^*$</td>
</tr>
<tr>
<td>NISS</td>
<td>37.44 (IQR:25-50)</td>
<td>36.03 (IQR:25-48.25)</td>
<td>NS</td>
</tr>
<tr>
<td>GSW</td>
<td>213/225 (94%)</td>
<td>40/60 (67%)</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>MVC (penetrating)</td>
<td>12/225 (5%)</td>
<td>21/60 (35%)</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>Hospital LOS</td>
<td>19.5 (IQR:6-22)</td>
<td>19.26 (IQR:3-24)</td>
<td>NS</td>
</tr>
<tr>
<td>Morality</td>
<td>54/225 (24%)</td>
<td>22/60 (37%)</td>
<td>NS</td>
</tr>
</tbody>
</table>

Conclusion: The study presented here characterized CT and FAST utilization in an LMIC. Results indicate that utilization of imaging following severe penetrating injury was lower than what has been observed in HICs. Additionally, neither presenting characteristics nor mortality were significantly different, whether or not critically ill trauma patients underwent imaging studies. This suggests that physical examination, recognition of patterns of injury, and clinical parameters are sufficient to detect those patients that require operations without detectable adverse consequences. Further characterization of imaging modality usage and patient outcomes in low-resource settings with high rates of penetrating trauma is necessary with direct comparison to data collected in HICs.

Disclosure of Interest: None declared
THE SPECTRUM OF INJURIES RESULTING FROM POSTERIOR ABDOMINAL STAB WOUNDS: A SOUTH AFRICAN EXPERIENCE

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Introduction: The spectrum of injury associated with anterior abdominal stab wounds (SW) is well established. The literature on the spectrum of organ injury associated with SW to the posterior abdomen however, is limited.

Materials & Methods: We reviewed our experience of 105 consecutive patients who had established indications for laparotomy managed over a four year period in a high volume trauma service in South Africa.

Results: Ninety-two per cent (97/105) of patients were males and the mean age was 24 years. Fifty-seven (54%) of the 105 patients had immediate indications for laparotomy. The remaining 48 (46%) patients initially underwent active clinical observation, and the indications for laparotomy became apparent during the observation period. Of the 105 laparotomies performed, 94 were positive (90%) and 11 were negative. Of the 94 positive laparotomies, 92 were therapeutic and 2 were non-therapeutic. A total of 176 organ injuries were identified: 50 of the 94 (53%) patients sustained a single organ injury, while the remaining 44 (47%) patients sustained multiple organ injuries. The most commonly injured organs were: colon (63), spleen (21) and kidney (19).

Conclusion: The pattern of intra-abdominal injuries secondary to SW to the posterior abdomen is different to that seen with the anterior abdomen. Colonic injury is most commonly encountered followed by injuries to the spleen and kidney. Clinicians must continue to remain vigilant of the potential occult injuries.

Disclosure of Interest: None declared
EVALUATION OF CLINICAL, LABORATORY AND RADIOLOGICAL PREDICTIVE FACTORS IN ELDERLY SEVERE TRAUMA

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Introduction: Population is growing and getting older. In recent years we have seen an increase in elderly trauma patients. Also, more severe patients are being admitted to hospitals. In light of reduced physiological reserve and pre-existing conditions, older adults tend to have worse outcomes after sustaining similar injuries as their younger counterparts. Among the elderly, it is important to determine variables that can predict worse outcome to identify patients that might benefit from early multimodal intervention. One of those variables is sarcopenia, which can also be measured by CT scan. Our objective was to analyze the potential of abdominal CT scans and clinical data to predict worse outcome in elderly trauma patients.

Materials & Methods: We retrospectively analyzed charts from a prospective database in a one-year period and identified injured patients older than 60 years. We excluded those with minor trauma (ISS < 15) and without abdominal CT scan. We collected demographic, clinical in-hospital evolutive data, laboratory values and radiological measures of psoas muscle. We conducted a statistical analysis to find predictors of worse outcome.

Results: Thirty-six patients were included. Mean age was 69 ± 10 years, 75% were male. Victims were more commonly ran over (44%), involved in falls (34%) and in motor vehicle accidents (13%). ISS and TRISS means were 31 and 0.6062, respectively. Higher age, ISS and TRISS were associated with mortality (p values of 0.02, 0.01 and 0.03 respectively). Also, lower bicarbonate and higher base deficit and lactate levels were correlated to worse outcome (p values of 0.001, 0.004 and 0.005). No statistical significance was obtained comparing radiological measures to poor outcome. Length of stay mean was 18 ± 16 days, and 21 (55%) developed minor or major in-hospital complication. Mortality rate was very high (52%), being 6 of them early (< 24 hours).

Conclusion: Early identification of patients at risk of poor outcome is of extreme importance in any surgical area. Trauma centers have been managing more injured older patients recently, and further evidence on prediction can lead to early interventions. Age, ISS, TRISS, and bicarbonate, base deficit and lactate levels predict worse outcome.

References:

Disclosure of Interest: None declared
TRENDS IN DEMOGRAPHICS AND INJURIES PRESENTING TO A TERTIARY CARE CENTER IN A DEVELOPING NATION; A TRAUMA REGISTRY ANALYSIS.

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Introduction: Monitoring traumatic injury and care is essential to improve trauma outcomes. We describe patient and injury characteristics of trauma victims presenting at our institution.

Materials & Methods: We reviewed the records of adult (>15 years) trauma patients admitted in ten years period at our institution through our trauma registry. Information on demographics, injury characteristics, injury severity, hospital procedures and outcomes were collected and descriptive analysis was performed.

Results: Total of 1,227 trauma patients reviewed. 86% of patients were male and 80% were below 45 years of age. Traffic accidents accounted for majority of cases (61%) followed by firearm injuries (18%). 6% patients suffered blast injuries. 33% patients had been transferred from another health care facility. The mean injury to ER time was 4.2 hours (± 5.5 hours). Extremity injury was present in 54% of patients followed by injuries to the face (38%) and head (36%). 77% patients had an RTS score of above 7 and the Injury severity score was low (0-15) in 55% patients. Mean hospital stay was 2.3 days with 31% of patients requiring stays of greater than 6 days. 6.4% of total patients died.

Conclusion: The pattern and presentation of injury has been described. Our patients suffer great delays in receiving care. This needs to be addressed to improve trauma outcomes.

Keywords: Trauma Registry; Developing Nation; Trauma Outcomes; Trauma presentation

Disclosure of Interest: None declared
WIDENED MEDIASTINUM ON CHEST X RAY AS AN INDICATOR OF MEDIASTINAL INJURIES: A RELIC OF THE PAST?

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Introduction: Trainees have long been taught to look for “mediastinal widening” on chest X-ray (CXR) to look for evidence of mediastinal injury. We sought to evaluate if this applies in the current era of readily available computed tomographic imaging of the thorax (CT thorax). Our institution has one of the busiest Emergency Departments in Singapore, and sees a large number of trauma patients.

Materials & Methods: A retrospective review of all patients from the Tan Tock Seng Hospital (TTSH) Trauma registry was performed, focusing on patients who received a CT thorax. Radiologist reports were compared for each patient to ascertain the degree of correlation between the two modalities with regard to mediastinal injury, and the films were reviewed by the authors in all cases where findings were uncertain. Patients without either CXR or CT thorax were excluded.

Results: A total of 643 patients were reviewed, of whom 52 (8.8%) had mediastinal injuries. Overall, 18 patients had widened mediastinum on CXR; 10 of these patients (55.6%) had signs of mediastinal injury on CT thorax while 8 (44.4%) did not. Another 42 patients had mediastinal injuries detected on CT thorax but had no mediastinal widening on CXR.

Conclusion: Mediastinal injury was relatively rare in our trauma population, and correlated poorly with the presence or absence of widened mediastinum on CXR. CT thorax should therefore be considered regardless of mediastinal widening in patients who had a worrying mechanism of injury or other injuries associated with rapid deceleration. It is possible that some patients with mediastinal injuries did not receive a CT thorax for other reasons, and hence were not included in our study. CXR still has a key role in the identification and management of other thoracic injuries such as rib fractures, pneumothorax and haemothorax and hence should be done routinely for every trauma patient.

Disclosure of Interest: None declared
A LOOK ON BICYCLISTS AND ROAD ACCIDENTS IN SINGAPORE – ESTABLISHING CAUSES

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Introduction: Bicyclists are group of road users whose safety has become a great concern. Locally, the early part of 2013 showed an increase of 30% in bicyclist-related injuries from 2012. The primary aim of this study was to provide a profile of bicyclist-related injuries. Secondary aims are to determine injury patterns and severity and how it affected patient outcome.

Materials & Methods: This is a retrospective descriptive study on bicyclist-related injuries. It includes patients from 2004-2015, seen an admitted in a Level I trauma center. Outcome measures were injury severity and outcome. Statistical analysis was carried out using SPSS ver19.

Results: Total of 515 bicyclist-related accidents were included in the study. Data analysis for patient characteristics and injury factors used Pearson’s chi-square for univariate analysis and Linear Regression for multivariate analysis to test for association with injury severity (ISS) as well as outcome. Mean age was 48, mostly males. More than half were of Chinese descent. Mean ISS was 16.25. Univariate analysis revealed that injury severity had no association with patient characteristics but was significantly associated with injury factors. Ethnicity and age were found to be significantly associated with outcome. Multivariate analysis was done and it showed that ethnicity, place of injury and type of injury predict severity of injury. When adjusted for patient outcome, it showed that age, ethnicity and type of injury had positive correlation.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Severity of Injury (ISS)</th>
<th>Outcome (Alive/Dead)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>β 0.070</td>
<td>p value 0.114</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>β 0.129</td>
<td>p value 0.003</td>
</tr>
<tr>
<td>Age</td>
<td>β 0.029</td>
<td>p value 0.524</td>
</tr>
<tr>
<td>Place of Injury</td>
<td>β 0.132</td>
<td>p value 0.033</td>
</tr>
<tr>
<td>Day of Injury</td>
<td>β 0.018</td>
<td>p value 0.685</td>
</tr>
<tr>
<td>Time of Injury</td>
<td>β 0.083</td>
<td>p value 0.055</td>
</tr>
<tr>
<td>Type of Injury</td>
<td>β 0.135</td>
<td>p value 0.002</td>
</tr>
<tr>
<td>Use of Helmet</td>
<td>β 0.014</td>
<td>p value 0.740</td>
</tr>
</tbody>
</table>

Image:
Conclusion: This study has provided injury profile for bicyclists. The injury patterns showed that accidents happened mostly on traffic roads. Cyclists encountered commercial vehicles in high impact collisions causing injuries commonly to the head/neck, chest and extremity. Older bicyclists are more likely to sustain severe injuries with higher mortality rate. Therefore, it is important to constantly educate road users of safety guidelines, continuously reinforce established road traffic rules, engage the public on injury prevention, and to use these data as guide for future targeted programs on injury prevention in Singapore.

4. 2012 National Survey on Bicyclist and Pedestrian Attitudes and Behaviors

Disclosure of Interest: None declared
INJURY PATTERNS IN ROAD TRAFFIC VICTIMS COMPARING ROAD USER CATEGORIES: PROSPECTIVE ANALYSIS OF 811 CONSECUTIVE CASES IN THE EMERGENCY DEPARTMENT OF A LEVEL I INSTITUTION IN A LOW-INCOME COUNTRY.

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Introduction: More than a million people die every year on world’s roads and according to current estimates traffic related injuries will become the 5th highest killer worldwide by 2030. Low and middle-income countries carry over 90% of this burden with substantial socio-economic consequences. One of the reasons is that policies to reduce this burden are currently centered on preventive measures and the care of the injured is still neglected. This study aims at describing the crash characteristics and pattern of injuries in an urban area of a middle-income country with particular emphasis on the differential analysis of various road user categories.

Materials & Methods: In this prospective cohort analysis conducted over a period of 5 months in the casualty department of the largest hospital in the city of Douala in Cameroon, all patients admitted after sustaining a traffic related injury were analyzed for crash characteristics, pattern and severity of injury and final outcome after a maximum follow-up period of 1 week. The analysis compared various user categories for different variables.

Results: a total of 811 cases could be analyzed. These included 586 (72.2%) males for a sex-ratio of 2.6/1. Motorized two-wheelers and pedestrians represented overall over 80% of all victims and The most frequent collision involved a motorcycle and a tourist car. Over 95% of victims did not use a protective device. Most patients sustained external soft tissue lesions frequently involving the limbs and face. A total of 280 patients (34.52%) sustained a limb fracture. the most frequently fractured bones were the tibia, fibula and femur. Most injury cases were minor or moderate and collision between a motorcycle and a truck resulted in a significantly more severe injury. Motorized two-wheelers and pedestrian were significantly more exposed to external injuries while car occupants were more exposed to chest and spine injuries.

Conclusion: Crash characteristics in Douala are greatly influenced by the popularization of motorized two-wheelers who are exposed to collision with tourist cars. Victims mostly tend to develop external lesions resulting in minor injuries. However, there is need to emphasize on the need to associate to current preventive measures an appropriate policy of management of the injured.

References:
1. Afukaar FK, Antwi P, Ofosu-Amaah S
2. Labinjo M, Juillard C, Kobusingye OC, Hyder AA

Disclosure of Interest: None declared
**DELAYED ENDOVASCULAR REPAIR OF BLUNT THORACIC AORTIC INJURY**

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**Introduction:** Blunt thoracic aortic injury (BTAI) is the 2nd most common cause of death in blunt trauma patients [1]. Most common mechanisms of injury being motor vehicle collision[2]. Traditional recommended approach to these injuries was open repair with mortality rates approaching up to 30%. Endovascular repair (TEVAR), the widely used approach now offers significantly lower risk of death and spinal cord ischemia in all age groups compared with open surgery [3,4]. Traditionally early endovascular repair ( <24 hours) has been advocated for such injuries, especially grade 3 and 4 injuries. This would present a problem in patients with multiple="multiple" other severe injuries that would need prompt assessment and intervention [1]. We hypothesized that medical stabilization followed by delayed TEVAR (> 24 hours from time of injury) in hemodynamically stable trauma patients is safe, including Grade 3 injuries.

**Materials & Methods:** 14 (9 males and 6 females) patients treated with TEVAR for BTAI between 2006-2011 were analyzed. All patients with blunt traumatic aortic injury were classified into 2 broad groups. The hemodynamically unstable patients ( N=1) underwent emergent repair (endovascular or open). The stable patients (N=13) were directed towards the delayed treatment arm. Delayed TEVAR was performed in these cases after all other injuries were stabilized. Patients were observed for endpoints in the form of mortality and complications Patients were followed up to 30 days with repeated angiographic CT scan.

**Results:** Endpoints such as mortality and complications such as conversion to open repair, stroke, MI, paraplegia, bowel ischemia, endoleaks, renal insufficiency occurred in none of the 13 patients who underwent the delayed endovascular treatment. Type 1 endoleak was observed in 4/13 (30.7%) patients repaired immediately. No Type 2, 3 or 4 endoleaks were observed. Subclavian artery was covered by the stent graft in 7/14 ( 50%) of patients with 3 patient requiring pre-op carotid subclavian bypass (patients post CABG (1/3) and severe CAD (2/3) preserving IMA flow. 30-day follow-up showed 0% mortality and stent related morbidity. Type 2 endoleak was observed in 1/13 patients treated by left subclavian artery embolization.

**Image:**

<table>
<thead>
<tr>
<th>Anatomic Variables</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Associated thoracic injuries</strong></td>
<td></td>
</tr>
<tr>
<td>1. Rib fractures</td>
<td>7/13 patients (54%)</td>
</tr>
<tr>
<td>2. Pulmonary contusion</td>
<td>4/13 patients (31%)</td>
</tr>
<tr>
<td>3. Pneumothorax</td>
<td>3/13 patients (23%)</td>
</tr>
<tr>
<td>4. Hemothorax</td>
<td>4/13 patients (31%)</td>
</tr>
<tr>
<td>5. Mediastinal hematoma</td>
<td>10/13 patients (77%)</td>
</tr>
<tr>
<td><strong>Isolated thoracic aortic injury</strong></td>
<td>0/13 patients (0%)</td>
</tr>
<tr>
<td><strong>Associated extra-thoracic injuries</strong></td>
<td></td>
</tr>
<tr>
<td>1. Neurologic a) operative intervention prior to TEVAR</td>
<td>2/8 patients (25%)</td>
</tr>
<tr>
<td>b) emergent intervention</td>
<td>1/8 patients (12.5%)</td>
</tr>
<tr>
<td>1. Head and Neck a) operative intervention prior to TEVAR</td>
<td>1/4 patients (25%)</td>
</tr>
<tr>
<td>b) emergent intervention</td>
<td>0/4 patients (0%)</td>
</tr>
<tr>
<td>1. Abdominal a) operative intervention prior to TEVAR</td>
<td>3/8 patients (37.5%)</td>
</tr>
<tr>
<td>b) emergent intervention</td>
<td>2/8 patients (25%)</td>
</tr>
<tr>
<td>1. Orthopedic (pelvis/extremity) a) operative intervention prior to TEVAR</td>
<td>7/8 patients (87%)</td>
</tr>
<tr>
<td>b) emergent intervention</td>
<td>4/8 patients (50%)</td>
</tr>
<tr>
<td><strong>Aortic injury grade</strong></td>
<td></td>
</tr>
<tr>
<td>1. Grade II</td>
<td>3/14 patients (22%)</td>
</tr>
<tr>
<td>2. Grade III</td>
<td>11/14 patients (78%)</td>
</tr>
</tbody>
</table>
**Conclusion:** We conclude that routine delayed repair of BTAI with TEVAR is safe in a hemodynamically stable trauma patient, including Grade 3 BTAI. This approach allows for treatment of other life-threatening injuries and may lead to improved patient survival.

**References:**

**Disclosure of Interest:** None declared
Introduction: Damage control surgery (DCS) is an advanced form of surgery which is most effective when performed by the most experienced surgeons on patients with the most severe injuries, who, if treated in a conventional way, have little chance of surviving and it refers to all the procedures carried out with the aim of increasing the survival rate.

Materials & Methods: The study includes 1030 patients undergoing a surgery after being admitted to hospital with a major abdominal and thoracic trauma (ISS≥18) for the five-year period (2011-2015). The patients were divided into two groups, based on whether DCS was implemented initially (group 1) or upon repeated surgery (group 2). The data were collected from the database review: the indications for the implementation of this type of surgery (the surgeon’s assessment that there is excessive intraoperative non-surgical bleeding, hemodynamic instability with high levels of intraoperative blood transfusion≥4000ml), the type and severity of injury, age, multiple comorbidities, laboratory features. Finally, we analyzed intraoperative and early postoperative mortality rates.

Results: CDS procedural measures were carried out in 8.1 % (83 patients). The indications were the surgeon’s assessment of non-surgical bleeding (coagulopathy) in 83% (66 patients) and intraoperative blood recovery ≥4000ml in 17% (14 patients) upon the initial surgery, i.e. uncontrollable bleeding from drains with a high degree of hemodynamic instability following the initial surgery. The overall mortality rate is 61.4% (51 patients). The most frequent cases were: liver damage (49 patients), pelvis and retroperitoneal injuries (19 patients), large blood vessel injuries (7 patients), pancreas injury (2 patients), thoracic injury (6 patients). CDS was implemented initially in 63.8% cases (53 patients), while it was performed in 36.1% cases (30 patients) upon repeated surgery within the time interval ranging from 1 to 12 hours following the initial surgery. In the first group the mortality rate is 47.2% (25 pts), while the mortality rate in the second group is 86.6% (26 patients).

Conclusion: A higher mortality rate in the group of patients who were subsequently treated according to CDS procedural measures indicates the significance of the timely implementation of this method. Underestimation of the severity of injury, belated recognition of the need for CDS implementation, especially the decisions following the initial surgery, lead to the minimum survival rate.


Disclosure of Interest: None declared
Introduction: Injury of the adrenal gland in blunt trauma is difficult to be diagnosed. The routine usage of the whole body computed tomography (CT) scan helps in early diagnosis. It is usually associated with severe injury. We aimed to study the incidence, mechanism of injury, management, and outcome of adrenal injury in blunt trauma patients.

Materials & Methods: CT scan of the abdomen of patients having blunt trauma who were treated at Al-Rahba Hospital, Abu Dhabi between October 2010 and December 2016 were retrospectively reviewed. Patients with adrenal injuries were identified. Studied data of the patients included demography, mechanism of injury, concomitant injuries, GCS, ISS, hospital stay, Intensive Care unit admission, and clinical outcome.

Results: Abdominal CT scans were performed for 1119 trauma patients. Eight (0.72%) patients, all were males, had adrenal hematoma. The median (range) of age was 32 (12-48) years. Adrenal hematomas were in the right side in six (75%) patients, in the left in one patient, and bilateral in another patient. The main mechanism of injury was motor vehicle collision in 7 (88%) patients. The median (range) GCS was 15 (3-15) and the median (range) ISS was 25 (6-38). One patient who had a unilateral adrenal hematoma had a nephrectomy on the same side. One patient died (overall mortality 12.5%).

Conclusion: Blunt traumatic adrenal hematoma is rare. It is associated with high injury severity and mortality.

Disclosure of Interest: None declared
OCCLUSIVE CORONARY ARTERY DISSECTION FOLLOWING A MOTOR VEHICLE COLLISION: A CASE REPORT

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Introduction: Motor vehicle collisions are the most common cause of blunt chest wall trauma. Non-penetrating chest trauma may result in cardiac injuries that can vary from asymptomatic to fatal. Although rare, coronary artery dissection is a potential life-threatening complication of blunt chest trauma.

Materials & Methods: A 22-year-old male with no previous history of cardiovascular disease presented after a high-speed rollover motor vehicle collision. In the trauma bay, he complained of chest pain and dyspnea. His troponin was elevated at 0.094ng/mL. ECG findings were significant for ST elevation in the anterolateral leads, and echocardiogram demonstrated markedly reduced LVEF.

Results: Anterior myocardial infarction was suspected, therefore the patient underwent coronary angiography. He was found to have a proximal LAD artery dissection causing a total occlusion of the mid-LAD artery. He underwent PTCA and BMS placement with successful restoration of blood flow to the distal LAD artery, however LVEF remained low on follow-up echocardiograms.

Conclusion: The manifestations of traumatic cardiac injury may present hours, days, or weeks after the inciting event. Patients complaining of chest pain after sustaining blunt chest trauma should undergo prompt cardiovascular workup. The management of coronary artery dissection remains disputable due to its rare occurrence. Currently accepted treatments include conservative management, angiography with stenting, and surgical revascularization. Patient prognosis is variable and is dependent on the extent of vessel occlusion.

References:

Disclosure of Interest: None declared
OUTCOMES FROM EMERGENCY THORACOTOMY IN TRAUMA
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Introduction: Emergency thoracotomy can be performed either immediately at the site of trauma, in the emergency department or operating theatre as a part of resuscitation for patients in extremis or to provide life-saving treatment in patients with thoracic injury. It remains a procedure associated with high mortality rates, and there is a paucity of data from Asia. This study aims to analyse our 6-year experience with emergency trauma thoracotomy in an acute general hospital in Singapore.

Materials & Methods: This retrospective analysis was based in a single institution with all the emergency thoracotomy performed by general surgeons. All patients who underwent emergency thoracotomy in Khoo Teck Puat Hospital between 2011 and 2016 were studied. Data collected include patient demographics, mechanism of injury, Injury Severity Scores (ISS), surgical approach and post-operative outcomes.

Results: A total of 23 patients underwent emergency thoracotomy, with 8 performed in the emergency department while 15 were performed in the operating theatre. The mechanism of injury was blunt in 20 (87%) patients and penetrating in 3 (13%) patients, with road traffic accidents (70%) the most common mechanism. 6 (40%) patients who underwent emergency thoracotomy in the operating theatre survived beyond 24 hours with 4 (27%) survivors eventually discharged from the hospital with noneurological deficit. None of the patients who underwent emergency thoracotomy in the emergency department survived beyond 24 hours.

Conclusion: Although emergency thoracotomy is associated with high mortality rates, it is a potentially life-saving procedure and can offer a chance of survival in selected patients.

Disclosure of Interest: None declared
Introduction: Native and prosthetic hip dislocations are emergencies. With an ageing population in Singapore that is living longer, the increased incidence of hip fracture and resultant prosthetic implantation has led to a rise in prosthetic dislocations. This study will compare patients with native and prosthetic dislocations presenting to Tan Tock Seng Hospital (TTSH) Emergency Department (ED).

Materials & Methods: A retrospective review was conducted on native and prosthetic dislocations between 1 Jan 2008 and 31 Dec 2015. Patients below 21 years old were excluded. Using descriptive and summary statistics, these factors were compared: demographics, previous dislocations, aetiology, injury pattern, severity, ED and inpatient management, and complications.

Results: Eighty-seven patients (52.1% women) contributed to 117 ED encounters. The ratio of native to prosthetic dislocation was approximately 1:2. Of the 87 patients, 44 had native dislocation, 19 had first prosthetic dislocation and 24 had recurrent prosthetic dislocation, accounting for 47 ED encounters that ranged from 2 to 9 dislocations/patient. Mean age of women (69.0 years) was significantly higher (p<0.001) than men (52.0 years). A higher proportion (p<0.001) of women (78.7%) had prosthetic dislocation compared to men (44.6%). Conversely, a higher proportion (p<0.001) of men (55.4%) had native dislocation than women (21.3%). Native and prosthetic dislocations were caused by high-energy and low-energy transfer events respectively. Mean age of recurrent prosthetic dislocations was 72.0 years (SD 13.6) and women outnumbered men by 1.5:1. Median hospitalisation duration for native, prosthetic and recurrent prosthetic dislocations were 8 days (IQR 3.75-13.25), 2.5 days (IQR 1-8) and 1 day (IQR 1-3) respectively.

Conclusion: Native dislocations secondary to high-energy transfer events were commoner in younger men who required longer hospitalisation. First and recurrent prosthetic dislocations secondary to low-energy transfer events were commoner in elderly women who needed short hospitalisation and hence potential for 24-hour admission should be explored for this group.

Disclosure of Interest: None declared
Introduction: Japan is rushing into an aging society. However, the epidemiology and outcome of advanced elderly trauma are not clear. The purpose of this study was to describe patients’ characteristics and to evaluate the quality of trauma care in patients older than 85.

Materials & Methods: We reviewed 2913 medical records retrospectively in Hyogo Emergency Medical Center from January 2010 to August 2016. Of those, 100 patients satisfied the criteria. Excluding 10 cases with cardiac arrest at arrival, 4 burns and 3 cases without sufficient data, 83 patients were entered in this study. Age, gender, mechanism of injury, injury severity score (ISS), mortality and morbidity were analyzed.

Results: The median age of patients was 89.0 years. There were 41 males and 42 females. Regarding mechanism of injuries, 79 (95.2%) were blunt and 4 (4.8%) were penetrating. Among them, falls and motor vehicle accidents were 35 cases (42.2%) and 25 cases (30.1%), respectively. The Median injury severity score (ISS) was 19 (Inter quartile range: 10-29), and the median probability of survival was 0.91 (IQR: 0.73- 0.96). The median Glasgow Coma Scale was 14 (IQR: 12-15). The overall mortality was 13 cases (15.7%), which included 5 patients with uncontrollable bleeding, and 3 patients with aspiration pneumonia. Additionally, 4 patients were treated with best supportive care. Pneumonia during hospitalization occurred in 12 cases (14.5%), and deep vein thrombosis (DVT) in 11 cases. A previous study reported that mortality, pulmonary compromise, and DVT are 18%, 30.7%, and 11.1%, respectively, in trauma patients older than 75 years with similar severity.

Conclusion: Although morbidity of trauma tended to be higher in the current study, the mortality was not significantly different from previous reports including younger patients. Therefore, our level of care for trauma in advanced elderlies is considered to be acceptable.

Disclosure of Interest: None declared
Introduction: The severity of blunt traumatic injuries has significantly decreased with the improved automotive safety features, 3 points restraints, airbags, impaired driving regulations, construction and industrial occupational safety standards. Non-lethal penetrating injuries with operative surgeries are reduced. So the operative experience is being supplemented by acute care surgery. There are few studies examining this trend.

Materials & Methods: This was a single urban teaching institution with Level 1 trauma and acute care surgery retrospective study from prospective data identifying patients undergoing operative management from Jan 1, 2016 to Dec 31, 2016. Mechanism of injuries, observational and operative management (group 1), emergency non-traumatic surgical admissions and operative surgery (group 2), were identified. Statistical analysis and calculations were done for number of operations per surgeons in each group.

Results: Six surgeries in the trauma and acute care surgery managed all patients. (Group 1). Trauma: Admissions were 1954 (325.6 per surgeon) of which Blunt 1356 (69%), Penetrating 598 (31%). Of these 242 (12%) had surgery, per surgeon 40 (16.5%). From total number of admissions surgery per surgeon only 2%

Group 2 Acute care surgery: Admissions 1459 that was 241.6 per surgeons (16.6%) of these operative surgery was 1387 (95.6%) that was 231 (16.6%) per surgeons.

(1) Appendectomy 171 (12.3%)-open 35 Laparoscopic 136.
(2) Cholecystectomy 406 (29.2%)-open 73 Laparoscopic 321 Robotic 3, with cholangiogram 9.
(3) Exploratory laparotomy for other acute intra abdominal pathology 810 (58.4%).

Conclusion: Our study had limitations for one year study, selection bias being major referral center for many acute care surgical problems. However, we demonstrated from our study there is significant decrease in operative surgery load and experience for trauma surgery with implications of economic impact and paucity of human trauma surgery training for resident and fellows. The experience and economic impact are supplemented by larger volume with acute care surgery. We will continue to study the trend and its impact and will perform multimajor trauma center study in future.


Disclosure of Interest: None declared
DELAYED DIAGNOSIS OF TRAUMATIC DIAPHRAGMATIC INJURY: A 22-YEAR EXPERIENCE IN A SINGLE TRAUMA CENTER
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Introduction: Diaphragmatic injury following blunt or penetrating trauma may be a missed diagnosis in an acute setting. The present study was designed to evaluate the pattern of traumatic diaphragmatic injury (TDI), incidence of associated injuries, clinical courses and predictors of delayed presentation of TDI

Materials & Methods: We reviewed, retrospectively, the medical records of 76 patients who underwent diaphragmatic repair for diaphragmatic injury, including simple laceration or rupture, following blunt or penetrating trauma from 1995 to 2016.

Results: The mean age of the 20 patients at the delayed diagnosis was 49 years (range: 18-71 years). Male to female ratio was 9:1. Median duration between trauma and delayed diagnosis was 3 days (range: 1-744 days). Fourteen patients had left-sided diaphragmatic injuries. Diagnoses of diaphragmatic injury were confirmed in chest X-ray (N=5), computerized tomography (N=4), and incidentally during operation (N=11). Injury sites of the diaphragm were mostly lateral side (N=13). Thoracostomy for ipsilateral hemopneumothorax was performed in 11 patients. Those patients were presented with massive hemothorax. Operative findings showed in 8 of the 20 patients that fractured rib segments caused diaphragmatic injuries. The independent predictors of delayed presentation of TDI were massive hemothorax (p=0.008) and lower fractured rib segment penetrating diaphragm (p=0.047). Mesh repair was utilized in one patient. The mean hospitalization time was 64.2 days (range: 8-387 days). There was one postoperative death.

Conclusion: A high clinical index of suspicion is needed to diagnosed and effectively manage diaphragmatic injury. In severe multiple trauma patients, we should strongly suspect of TDI and never miss a chance to manage properly when dislocated rib segments of the lower chest with massive hemothorax would be proven with imaging modalities, such as CT or chest X-ray.

Disclosure of Interest: None declared
EVALUATION OF BLUNT ABDOMINAL TRAUMA IN THE PEDIATRIC AGES
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Introduction: Trauma is the leading cause of morbidity and mortality in the paediatrics age. The rankings by region injured most of the injuries will be occupied CCT (cranio cerebral trauma) followed by LMT (locomotors trauma) and AT (abdominal trauma) ranks third for frequency of trauma injuries in children. The Aim of our study is recognition and description of the mechanisms that cause BATp (Blunt Abdominal Trauma paediatrics), identify the signs and symptoms that accompany BATp.

Materials & Methods: The study has retrospective character and includes all patients with BATp who presented to emergency department (ED) at the UHT (University Hospital Trauma) by 01/01/2016 –31/05/2016. The sample in the study was taken randomly without any restriction study. Other variables included are those that have to do with; age, gender, mechanism of injury, the examinations performed and timing of their treatment tactics. The level of ISS was used as a measure for measuring gravity of injuries in severe cases with ISS> 15.

Results: In the period under review are presented about 1,685 trauma patient, 695(41.2%) of these cases were hospitalized, which as causes are; a - MVA - 598 (35.4%); b - FfH - 452 (26.8%); c - HsO - 593 (35.1%); d - GSW - 42 (2.4%) cases. In regarding gender distribution have; F - 378 (22.4%), M - 1307 (77.6%) cases. The distribution by age group is such; a - 0-16 years - 231 (13.7%), b - 15-30 years - 547 (32.4%); c - over 30 years - 867 (51.4%) cases. The mortality rate is 26 (3.7%), a satisfactory value in our conditions. Regarding hospitalized cases have this distribution; a - TCC to 310 (44.6%); b - Locomotor trauma 230 (33%); c - Abdominal Trauma 145 (20.8%); d - ORL 10 (1.4%) cases. Regarding the pediatric age they occupy; 231 (13.7%) of total cases presented to hospital 73 (10.5%) cases of trauma at the hospital. In our study involved 1685 patients from these 231 (13.7%) were 0-16 years 378 (22.4%) were female...

Conclusion: The management of abdominal have undergone a considerable evolution in recent years. NOM is successful in more than 90% of cases, although this depends on a number of factors and conditions that are adapted to the conditions of a children, who is in dynamic and constantly increasing. TMAp mortality is calculated depending on the organs damaged: When you have a damaged organ such as the liver, spleen, kidney or pancreas, it is less than 20%; If we have hollow viscus injuries it goes over 20%; If are included the big vessels it arrive over 50%.


Disclosure of Interest: None declared
Introduction: The need for high-tech medical care to patients with wound infections has not lost its significance. This is primarily due to an increase in amount of various types interventions, the steady aging of the population, the growth of the population diabetes mellitus patients. Optimization of the results of treatment of surgical infections is possible due to the introduction of innovative surgical technologies.

Materials & Methods: During the period from 1996 to 2016 in a department of purulent surgery 489 patients with wound infection at the age of 19 to 83 years were treated with the use of plasma flows (PF) Depth necrotizing soft tissue infection corresponded to I-III levels according D.Ahrenholz classification (1991), and the extent - from 18 to 300 sm².

PF were included to the program of surgical treatment of wound infections. We used following variants effects:

1. Surgical mode (dissection and coagulation) - treatment of purulent focus over-temperature torch at the final stage necrectomy. Its purpose - to accelerate the cleansing of the wound site necrosis, suppression of pyogenic microflora, as well as the final hemostasis;

2. Therapeutic mode - impact on the wound surface cooled to 40°C PF- intraoperatively and throughout the postoperative period to stimulate regenerative processes in the wound, cupping of perifocal inflammation.

Results: The use of the plasma flow has allowed significantly reduce the volume intraoperative blood loss and number of necrectomy about 1.6-2 times. Against the background of PF processing marked acceleration in all phases of wound healing - in 1.5-1.8 times in comparison with the control group of patients, treated according to standard procedure (p <0,05).

This is confirmed by cytological and histological studies. Within a few days regressed signs of perifocal inflammation. For 6-8 days marked a distinct wound contraction of vast septic wounds. The bacterial titer wound discharge in 88.5% of patients already on the third day did not exceed the generally accepted safe level.

Conclusion: The use of PF in the cutting-coagulation regime is complementary to classical necrectomy. Regular impact to PF wound accelerates the subsequent repair of wounds, can significantly reduce the degree of microbial contamination of the purulent center, as well as reduce the time of hospital treatment.

Disclosure of Interest: None declared
AN APPRAISAL OF THE LAST 15 YEARS OF TRAUMA RESEARCH IN SOUTH AFRICA: OBJECTIVES, ACHIEVEMENTS, CHALLENGES, LESSONS AND FUTURE TARGETS (2002-2016)

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Introduction: Trauma and Burns constitute a significant component of the Surgical Burden in South Africa, and have been studied and practiced extensively. South African surgeons from the University of the Witwatersrand first reported their practice of Selective Non Operative Management (SNOM) in 1967 and Damage Control in 1986.

Materials & Methods: The aim of the present study is to analyse the trauma and burns papers presented at the last 15 years of Surgical Research Society meetings, identify the leaders of specific areas of research, devise strategies that would enable more institutions to benefit from their expertise, and extrapolate the which pathologies are still waiting for answers in the context of South Africa and other countries with limited resources.

Results: There were a total of 1070 presentations between 2002 and 2016, of which 361 in the trauma fields (293 Trauma Surgery, 58 Burns, 9 ICU/acute care surgery with a trauma component).

There were 200 retrospective and 121 prospective clinical studies, 18 laboratory/basic science studies and 22 questionnaires/systems/database studies, with no percentage changes during the study period.

Most represented topics were: Intensive Care and Trauma Emergency Room: 67, Abdomen 62, Burns 47, Trauma Systems, databases and education 46, Chest 31, while vascular injuries, SNOM and Laparoscopy had around 20 each.

There was a significant slant in the topics predominating at the various universities.

The University of Cape Town had the most presentations on SNOM (18 vs 2 for all the others). Therapeutic laparoscopy was the almost exclusive domain of MEDUNSA after a period at the University of the Witwatersrand by the same academic (9 vs 5 for all the others)

Trauma Systems, epidemiology and databases received a lot of input from The University of Kwa Zulu Natal, Pietermaritzburg Campus (18 presentations vs 29 from all the others), while Burns were equally dominated by Wits and University of Kwa Zulu Natal with 16 each.

Conclusion: Clear areas of expertise have emerged from the assessment of the scientific presentations at SRS meetings, although the principles of SNOM, Damage Control, laparoscopy in trauma, Trauma Registries, modern burn management have long been practiced by most South African academic trauma surgeons. There is a need for inter-institutional standardization of practices as identified by local studies and a coordinated plan for future research.

Disclosure of Interest: None declared
Introduction: Surgical gloves are very thin membranes that (1) do not resist against puncture by sharps and (2) are prone to tears and small perforations given taxing physical usage such as twisting, pulling, stretching and exposure to body fluids and chemicals. Percutaneous injuries expose the members of surgical teams to the risk for contamination by blood-borne pathogens, such as HIV and HCV, and micro-perforated gloves expose the patient to contamination risks from hand flora. A clinical trial has shown that micro-perforated gloves double the risk of surgical site infection (Arch Surg. 2009;144 (6):553-558).

This study assessed the efficacy of an innovative synthetic surgical glove with an integrated disinfecting system (Finessis Aegis) to:

1. reduce transmission of the human immunodeficiency virus (HIV) following a percutaneous injury
2. reduce transfer of bacteria in case of glove micro-perforation

Materials & Methods: A pneumatically activated puncturing apparatus was used to reproducibly simulate a needlestick injury involving a hollow bore needle perforation across a reference (standard double-layer glove) or a Finessis Aegis surgical glove. In-vitro quantitative detection of transmitted HIV infectious viruses was assessed by observing the cytopathic effects in human lymphocytic C8166 T-cell tissue culture.

For the simulated micro-perforation test, the reference glove and Finessis Aegis glove were inoculated with a 10µL bacterial suspension (either Klebsiella Oxytoca or Methicillin Resistance Staphylococcus Aureus) along a 1.5cm slit stretched approximately 1mm wide and surviving bacteria were titrated after a 3minutes contact time.

Results: In case of simulated puncture accident, mean HIV viral loads (log10TCID50) were reduced from 417 viral particles (double glove) to 17 (Finessis Aegis), that is a reduction of 96%.

For the micro-perforation test method, Finessis Aegis achieved an average log10 reduction of 4.02 against Klebsiella oxytoca and 3.60 against Methicillin Resistant Staphylococcus aureus.

Conclusion: The findings of this study suggest that the innovative surgical glove with integrated disinfection system was effective to significantly reduce the transmission of HIV virus in a model of simulated glove perforation, as well as the passage of bacteria in case of glove micro-perforation.

Disclosure of Interest: P. Hoerner Salary, Royalty or Honoraria from: Glove Manufacturer
Introduction: We examined the effects of hypertonic saline and IL-10 deficiency on Immuno-histochemical expression of Bcl-2 (apoptosis regulator) on small intestinal villi after hemorrhagic shock and resuscitation in mice.

Materials & Methods: Male C57BL6/J mice and IL-10 knockout mice (IL-10 KO) weighing 20 to 30 g were anesthetized and the left femoral artery was cannulated. Heparin of 100 units was injected through the catheter. Blood was withdrawn until a mean arterial pressure of 40±5 mmHg was attained. The level of hypotension was maintained for 60 min, and the resuscitation procedure was as follows: HS; hemorrhage shock for 60 min and followed by resuscitation with hypertonic saline (4 ml/Kg of 7.5% NaCl) and shed blood (SB) at the same time, LR; hemorrhage shock for 60 min and followed by resuscitation with lactated Ringer’s solution (2 times the volume of the shed blood) and SB. Samples of small intestine were harvested at 2 h and 4h after hemorrhage and resuscitation. The percentage of Bcl-2 stained villi cells was assessed by immuno-histochemical staining.

Results: Percentage of Bcl-2 stained interstitial cells of small intestinal villi was significantly greater at 2h groups than controls except KO HS at 2h (p<0.05). Further, Bcl-2 stained cells of small intestinal villi in wild HS group at 2h increased more than wild LR group at 2h (p<0.05). There was no significant difference between IL-10 KO group and wild group of LR at 2h. IL-10 KO HS at 2h has significantly less Bcl-2 expression than wild HS at 2h (p<0.01).

Conclusion: It is suggested that hypertonic saline may augment Bcl-2 expression in interstitial cells of small intestinal villi with IL-10 at 2h, however, HS without IL-10 at 2h may not augment Bcl-2 expression.

Disclosure of Interest: None declared
18.61
INNOVATIONS IN WOUND CLOSURE FOR CHALLENGING ABDOMINAL WOUNDS IN TRAUMA
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Introduction: Abdominal closure remains a challenge following trauma and damage control surgery, especially with large abdominal wall defects. An open abdomen may be further complicated by “frozen abdomen”, fistulation, retraction of the fascial layers and infection. Early closure of the open abdomen is a priority.

TopClosure® Tension-Relief System (TopClosure®) is an innovative method that employs stress-relaxation and mechanical creep for skin stretching. Its use has enabled the primary closure of medium to large soft tissue defects.

Materials & Methods: A 7-year-old girl with multiple-penetrating trauma of the abdomen presented 12 hours after initial surgery in Syria. She arrived in septic shock. Her injuries were liver lacerations, multiple perforations of the transverse colon and ileum, an 8x16cm oblique abdominal wall defect, and an open distal humerus fracture. She underwent damage control laparotomy, primary suture of the colon and ileum with temporary closure of the abdomen using a Bagota bag. 12 hours later negative pressure wound therapy (NPWT) was applied to the abdominal wound after relook laparotomy. 5 days later TopClosure® was applied to the lower part of the wound incorporating NPWT to the upper wound. 3 days later this method was repeated and complete primary closure of the abdominal wall was achieved. 4 days later colonic resection was performed for leak at the site of previous colonic repair. A loop ileostomy was raised in the left mid abdomen. TopClosure® remained in situ and enabled definitive closure of the wound. TopClosure® was removed in stages 3 weeks later. Ileostomy closure was performed a month later.

Results: TopClosure® takes advantage of the vesicoelastic properties of the skin using creep and stress relaxation principles. With this method full closure of the abdomen including skin and fascia was possible, eliminating the occurrence of a ventral hernia and complications associated with an open abdomen. A 2-phase procedure was employed (first at the lower part of the wound and then all of the wound) in order to reduce the risk of abdominal compartment syndrome.

Conclusion: This case illustrates the use of simple advanced wound closure technology for early primary closure of an open abdomen mitigating complications associated with challenging abdominal injuries and massive abdominal wall defects. Combining technologies optimised wound closure.

Disclosure of Interest: None declared
Introduction: Trauma is one of the most common causes of morbidity and mortality in the children. Pancreatic injury is the fourth most common solid organ injury. The diagnosis of pancreatic injury is based on clinical presentation, laboratory finding, imaging finding including CT scan, and endoscopic methods. The aim of this study was to evaluate the usefulness of endoscopic retrograde cholangiopancreatography (ERCP) in the diagnosis and treatment of pancreatic trauma in children.

Materials & Methods: Retrospective review of pancreatic injuries in children (≤18 years) from 1988 to 2016 at Wonju Severance Christian Hospital that is a level I trauma center in South Korea.

Results: Twenty-nine children with pancreatic injury were included in the analysis. Injuries included grade I (n=6), grade II (n=12), grade III (n=6), grade IV (n=5). Blunt abdominal trauma was the injury mechanism in all cases except one penetrating injury. Fifteen patients underwent ERCP, preoperatively (n=13) and postoperatively (n=2). Pancreatic duct injury was confirmed with ERCP in 7 patients. Two patients were found to have duct injury which was not found in pre-ERCP CT image. In ERCP groups, the initial treatment modalities of pancreatic duct injury patients were surgery in 1 patients, endoscopic stent insertion without further surgical intervention in 4. Two patients underwent postoperatively ERCP because of pseudocyst formation and pancreatic duct stricture. In not preoperative-ERCP groups, 4 patients was performed operation. (25% not preoperative-ERCP vs 7.6% preoperative-ERCP). There was no pancreas related mortality.

Conclusion: ERCP is necessary for the accurate diagnosis of pancreatic duct injury in children and can be an effective treatment modality to avoid unnecessary operation.

Disclosure of Interest: None declared
ANALYSIS OF 46 BLUNT TRAUMA PATIENTS APPROACHED BY LAPAROSCOPY IN A SINGLE CENTER IN BRAZIL

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Introduction: Despite advances in laparoscopic surgery and the increased use of such method in the emergency setting, there are still limitations to the adoption of laparoscopy in trauma surgery. This is especially true in blunt trauma patients, partially because of concerns about safety of minimally invasive surgery in that population. This study provides an analysis of management and outcome of blunt trauma patients who underwent laparoscopic approach.

Materials & Methods: Retrospective chart review of consecutive patients blunt trauma patients admitted in a tertiary hospital in Brazil. We collected demographic, admission, intra and postoperative data. Laparoscopic approach was divided in screening, diagnostic and therapeutic, according to indication and intraoperative decisions. Complications were recorded using Clavien-Dindo’s classification.

Results: Forty-six patients were included in the analysis. Thirty were male (69%), mean age was 29 years-old. The most common mechanism of injury was motor-vehicle accident in 27 (58%) followed by being run-over (22%). Mean RTS, ISS and TRISS were 7.535, 19 and 96.7%, respectively. The most prevalent indication for laparoscopy were the finding of free fluid with no parenchymal injuries in 28 cases (60%) followed by the presence of the seat belt sign (19%). Of the laparoscopic procedures, 25 showed lesions in the abdomen, and 14 required conversion for repair. In other 13 patients, identified injuries were totally managed by laparoscopy. Main reasons for conversion were the need for bowel suture or resection, and moderate hemoperitoneum, in 9 and 4 patients, respectively. There were no missed injuries. Only one serious complication (Clavien ≥ 3) was observed. Unnecessary exploratory laparotomies were avoided in 84.7% of the patients.

Conclusion: The success of laparoscopic intervention in blunt trauma victims is largely dependant of careful patient selection and technical skills. One of the main advantages of such method is the avoidance of unnecessary laparotomies and the postoperative complications of open surgery. Despite limitations, a great number of blunt trauma patients can be managed by laparoscopy, benefiting from a minimally invasive approach.

References:

Disclosure of Interest: None declared
EXPLORING THE ROLE OF BLOOD ALCOHOL CONCENTRATION ON THE DEVELOPMENT OF IN-HOSPITAL ALCOHOL RELATED DELIRIUM FOLLOWING TRAUMATIC INJURY

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Introduction: Alcohol related delirium is one of the complications seen in in-hospital setting following trauma. Prevention of delirium may shorten the hospital course. History of alcohol abuse in the past is not always available at the time of hospital admission. Therefore, the purpose of this study was to evaluate the utility of testing the blood alcohol concentration (BAC) at the time of hospital arrival following trauma to predict the development of alcohol related in-hospital delirium.

Materials & Methods: Four years of data from the National Trauma Data Bank (2007-2010) was utilized for this study. All patients over 13 years old, whose BAC was tested upon hospital arrival were eligible for inclusion. Patients with blood alcohol levels above the legal limit (0.08%) were considered positive for alcohol intoxication, and if no alcohol was identified in the blood, the patients were considered negative for alcohol intoxication. Patients’ age, race (white vs. nonwhite), sex, drug test result, injury type, mechanism of injury, injury severity score (ISS), and Glasgow Coma Scale (GCS) total were examined in this study. Bivariate analysis was performed to compare baseline patient characteristics using Chi-Square and Wilcoxon rank sum tests. Multivariate logistic regression analysis was also performed in order to identify whether an association between blood alcohol level and delirium exists, while controlling for other clinical factors.

Results: From a total of 576,863 eligible patients, 181,901 (31.53%) tested positive for alcohol intoxication and 234 (0.04%) patients experienced in-hospital delirium. The initial bivariate analysis revealed statistically significant differences between the two alcohol intoxication level groups (negative vs. positive) on all baseline patient characteristics (age, sex, race, drug test result, injury type, ISS, and GCS total, P<0.001) as well as in the development of delirium (0.02% vs. 0.1%, P <0.001), respectively. The multiple logistic regression analysis showed that having a BAC above the legal limit resulted in an increase in the odds of in-hospital delirium by 5.912 (95% CI: [4.414, 7.920], P<0.0001) while controlling for the other clinical patient factors.

Conclusion: Based on the findings of this study, a positive patient screening for BAC above the legal limit can be used to help predict the development of in-hospital delirium.

Disclosure of Interest: None declared
SPECTRUM OF INTENTIONAL INJURIES IN THE JUVENILE POPULATION TREATED AT A LEVEL ONE TRAUMA CENTRE: A SOUTH AFRICAN PERSPECTIVE

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Introduction: South Africa has one of the most violent societies worldwide. The national homicide rate is 34 per 100000; young males form the majority of this cohort. Comprehensive injury surveillance in low and middle-income countries is limited and there is paucity of data describing the epidemiology and outcomes of intentional injuries within the juvenile population. The aim of this study is to describe and analyse the pattern of intentional injuries seen in juvenile patients presenting to a level one trauma centre in South Africa.

Materials & Methods: Ethical approval was obtained for this study. The Electronic Trauma Health Registry (eTHR) Application of the Trauma Centre at Groote Schuur Hospital in Cape Town was interrogated over an 18-month period (April 2014-December 2016) for all patients (Aged 15 – 19 years, WHO definition for Juvenile Age Group) treated for non-accidental trauma. The data was then analysed using descriptive statistics.

Results: Over the study period, 2903 juvenile patients were admitted to the trauma centre. Intentional injuries (N = 1468; 50.6%) accounted for half of the study cohort. Usable data for this study from eTHR was available for 1134 patients. Within this cohort 145 (12.8%) patients were victims of gang-related violence. Penetrating injuries were seen in 775 (68.3%) patients, of whom 357 (46.1%) sustained knife injuries and 296 patients (38.2%) sustained gunshot wounds. The most affected body region was the head (N = 156; 13.8%), followed by the thorax (N = 113; 10%). Permanent disability resulting directly from injury was seen in 2.5% (n = 28) and the overall mortality was 1% (n = 11).

Conclusion: Intentional injuries are common within the juvenile population group in Cape Town. Penetrating injuries and gang-related activities account for a large subset of these patients. Whilst the overall mortality is only 1%, the permanent disability rate is 2.5% and is likely to have significant public health and economic ramifications for the South African health care system in the future.

Disclosure of Interest: None declared
EFFECT OF ANTI-PLATELETS OR ANTI-COAGULANTS IN SEVERELY INJURED GERIATRIC TRAUMA PATIENTS
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Introduction: While studies have shown that there is an associated increase in morbidity and mortality in elderly patients on anti-platelets/anti-coagulation who suffered trauma resulting in intra-cranial haemorrhage, there is little data on the effect of such drugs on trauma patients. This study aims to look at our population of trauma patients and determine if pre-injury anti-platelet/anti-coagulation therapy is a risk factor for developing complications in severely injured trauma patients.

Materials & Methods: The Tan Tock Seng Hospital trauma database for 2015 was reviewed and 89 severely injured (ISS >16) trauma patients whom were 65 or older were identified. Their medical records were reviewed for use of single anti-platelet agent, dual anti-platelet agents or anti-coagulants. The patient demographics, mechanism of injury, outcomes, length of stay and blood product transfusion requirements were characterized.

Results: 89 patients, including 56 male patients and 33 female patients were identified. Mean age was 79.7 (65-96) years old, and mean ISS was 23.0. Injury patterns were mainly falls (n= 77) and motor-vehicular accidents (n=12). 39 (43.8%) patients were on single anti-platelet agents (aspirin or clopidogrel), 2 (2.2%) patients were on dual-antiplatelets, 8 (9.0%) patients were on anti-coagulants.

31 (34.8%) patients passed away. Of the patients who died, 15 (48.4%) patients were on single anti-platelet agent, 1 (3.2%) was one dual antiplatelet agents, and 4 (12.9%) were on anti-coagulant.

There was no difference in the blood product transfusion between patients who received anti-platelet agents and patients who were not on any anti-platelet agents; although patients who were on anti-platelet agents tend to receive platelet transfusion.

Conclusion: There appears to be no significant difference in mortality between patients who received anti-platelet agents and anti-coagulants. However, more research needs to be done in this area.

Disclosure of Interest: None declared
A STUDY OF PROFILE OF ARTERIAL TRAUMA AT A VASCULAR SURGERY CENTER
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Introduction: Vascular and arterial trauma though less common, poses a challenge to general and trauma surgeons faced by such situations, specially cases of polytrauma. Prompt recognition and optimum management are not frequent. Outcomes pertaining to mortality and limb salvage are bleak in the vast Indian subcontinent with delayed presentation and transfer time periods. This study was designed to analyse the profile of arterial trauma and the outcomes thereof, at a Vascular Surgery Centre in a Tertiary care setting.

Materials & Methods: A prospective review of all patients with arterial injuries, whether traumatic or iatrogenic between Jan 2015 and Dec 2016 was done. Demographics, admission data and outcomes were reviewed. Follow-up ranged from two weeks to one year.

Results: There were a total of 54 cases of arterial injuries including 6 females. The age range was 7 to 60 years(Mean=34.27). There were 40 cases of arterial injury and 14 cases of iatrogenic trauma. 27 cases presented in less than 24 hours and complete arterial transections were found in 24 cases. There were two mortalities and 4 amputations(3 after Popliteal artery injuries). Of those who presented in less than 24 hours there was only one amputation while all other limbs were salvaged with a limb salvage rate of 96.29%. The limb salvage rate in late presentations was 88.89%. Popliteal artery was the commonest artery to be injured(n=20) and vehicular accidents were the commonest mode of injury(n=14). Repair was most frequently done with native vein from other limb in 23 cases. 10 cases required an Endovascular or Hybrid approach with stent coverage for optimum management. Poor prognostic markers for limb salvage were increasing time to present to the Vascular Surgery centre, popliteal artery transection, carotid artery injury, increasing age of patient, associated venous injury.

Conclusion: Vascular trauma accounts for 1% to 16% of all cases of trauma as per available literature. This study highlights the variety of arterial injuries that Indian surgeons are confronted with, accidental and iatrogenic and the importance of attempting limb salvage even in cases with delayed presentation. This is probably the largest study on Vascular trauma from India and highlights the significance of prompt recognition, decision making and availability of Vascular expertise in optimally managing cases of arterial trauma.

Disclosure of Interest: None declared
IS LONGER PREHOSPITAL TIME ASSOCIATED WITH LOWER BODY TEMPERATURE AT HOSPITAL ARRIVE?

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Introduction: Hypothermia is one of the lethal triad and should be avoided during the prehospital activities. We hypothesized that the longer prehospital time (PT) decreased the trauma patients’ body temperature (BT) on admission.

Materials & Methods: This study used the data in the Japan Trauma Data Bank (JTDB) 2004-2015 for 44338 patients who transported directory to the hospital without data deficits for their age, prehospital time (PT), body temperature (BT) on admission, Injury severity Score (ISS), and in-hospital survival (HIS). The population was divided into four groups at the quartiles of PT as the short (S), the long (L), the longer (Ler), and the longest (Lest) for the analysis. The median temperatures were compared across groups.

Results: The median prehospital time was 48 (32-70, IQR) minutes. The short group (SG) presented within 32 minutes from the scene. For SG, LG, LerG, and LestG, the median temperatures (MT) were 36.35, 36.39, 36.44, and 36.50 degrees Celsius (p<0.001). The median ISSs for four groups were 14, 13, 11, and 10, respectively (p<0.001, Kruskal Wallis test).

Conclusion: We concluded that the PT did not affect the BT on admission. More severe patients were transported faster in this cohort. These indicated that the prehospital protocol has satisfactory well functioned for transport and maintaining BT in Japan.

Disclosure of Interest: None declared
Introduction: Theodore Billroth had a profound influence on medical and surgical training in the United States. Materials & Methods: The direct links between Billroth and current interns in Buffalo are detailed. Billroth trained Harvey Cushing the father of Neurosurgery. After moving to Harvard Cushing trained John D. Stewart. Dr. Stewart moved to Buffalo, New York in 1941. Among his many trainees was John Border who is well known to this Society. Border trained the current Chief of Trauma and several senior faculty. They strive to educate the current house staff. Results: Current surgical trainees in Buffalo are linked to Billroth by six degrees of separation. Conclusion: An intern on the trauma service in Buffalo is separated from Professor Billroth by six degrees of connection. Disclosure of Interest: None declared
ASSESSMENT OF EFAST TRAINING FOR FINAL YEAR MEDICAL STUDENTS IN AN EMERGENCY MEDICINE CLERKSHIP

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Introduction: Extended Focused Assessment Sonography for Trauma (EFAST) is an important bedside tool in the management of multiple trauma patients. We aimed to evaluate the assessment of our EFAST education in the Emergency Medicine Clerkship (EMC) for final year medical students and its correlation with knowledge and other practical skills.

Materials & Methods: A total (54) final year medical students were trained on performing EFAST on simulated patients during their 4-week clerkship. Students received an hour of didactic lecture, a 4-hour practical sessions on human models, and completed a minimum of three EFAST examinations on trauma patients. Finally, the EFAST performance was evaluated on a simulated trauma patient using a standard evaluation form during an Objective Structured Clinical Examination (OSCE). The marks of 51 students who completed the final exam were analyzed.

Results: The overall passing rate of the EFAST station was 88% (n: 45). EFAST station mark was significantly higher in males compared with females (p=0.013). EFAST station mark significantly correlated with other OSCE stations marks (p=0.027, rho=0.31), and with the final EMC mark (p=0.032, rho=0.3), but not with the final written exam.

Conclusion: Final year medical students demonstrated effective EFAST learning as measured by examination performance. The EFAST final marks were highly correlated with other OSCE station marks and final clerkship marks, but not the final written exam mark which assesses a different cognitive learning domain.

Disclosure of Interest: None declared
HURDLES AND AID OF SAFE HELMET WEARING IN PREVENTION OF ROAD TRAFFIC ACCIDENT IN INDIA

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Introduction: Length of road network, vehicle/human population, and adherence to road safety regulations are among various factors on which the incidence of Road Traffic Accidents (RTA) depends. RTA may cause injuries, fatalities, disabilities and catastrophic economic loss to the patients. That's the reason for calling this decade, 2011-2020, as the Decade of Action on Road Safety. As a signatory of Brasilia Declaration, we are committed to reduce the rate and fatalities of RTA. Motorcycle crash statistics concluded that, helmets reduce the death rates and serious injury in an accident. The reduction in deaths is estimated at about 25%. Previous studies suggested that the effect of helmets upon vision and hearing has been used as an argument against helmet wearing.

Materials & Methods: A questionnaire based survey was undertaken in urban and rural population of North India, to look upon what factors are deterring the riders to avoid helmets and how the literacy of riders, the speed and road type is going to affect the decision. We also measured the effect of helmets upon vision and hearing in two road traffic conditions, high ways and crowded market area.

Results: Total of 480 patients in 4 groups were studied depending upon type of helmet i.e. racer, partial coverage helmets, helmets without chin guards and no helmet at all. Restriction of vision and hearing and over all riding comfort was assessed using subjective 10 point Likert scale in two urban road traffic conditions i.e. high ways and a crowded market place. In highway conditions racer helmet was most comfortable but restriction of vision and hearing was greatest. While in crowded market place riders with partial coverage helmets faced less restriction of vision and hearing.

Conclusion: Compared with the no helmet condition, the partial coverage helmet reduced vision to the side which was less than the full coverage helmet. With the particular helmets employed in the study, the aperture provided by the full coverage helmet actually permitted a wider visual angle than did the partial coverage helmet.


Disclosure of Interest: None declared
MEASUREMENT OF LANCET COMMISSION ON GLOBAL SURGERY INDICATORS IN COLOMBIA: A PILOT STUDY IN MEDELLIN

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Introduction: Surgery has recently emerged as a global health priority in recognition of its potential for alleviating the global burden of disease. The Lancet Commission on Global Surgery (LCoGS) was launched in 2014 to address the gaps in knowledge that exist in the state of surgical care. The Commission identified 6 core indicators for assessing surgical burden:
1. Access to a surgical facility within 2 hours
2. Specialist surgical workforce density
3. Surgical volume
4. Perioperative mortality rate
5. Protection against impoverishing expenditure
6. Protection against catastrophic expenditure
Colombia was one of the first Latin American countries to begin the process of data collection and analysis for the LCoGS indicators.

Materials & Methods: A pilot study was completed in Medellin, Colombia from June – July 2016. Data for Indicator 1 was provided by the municipal emergency response entity Metrosalud. The state of the prehospital system -a proxy for Indicator 1- was qualitatively assessed through shifts on Metrosalud ambulances. Data for Indicators 2 and 3 was requested and received from the large referral hospital San Vicente. Interviews were conducted with administrators at San Vicente, Metrosalud, and the Ministry of Health to investigate additional data availability.

Results: Analysis of the data provides preliminary insights and highlights challenges to indicator assessment. The average ambulance response time from Jan-May 2016 was 11.25 minutes. However, hospital wait time data must also be collected to accurately represent time to operative intervention. The surgical workforce at San Vicente includes both physicians and residents and consists of 39 anesthesiologists, 23 surgeons, and 18 obstetricians. While these numbers may appear to be low, placing this data into context requires patient population density breakdowns. 8,200 surgeries took place in June 2016 at San Vicente; of those, 3,300 (40%) were emergent procedures that took place in the ER operating room (OR), while the others were prescheduled and carried out in specific ward ORs. Therefore, a focus on trauma prevalence would require data by OR to maximize accuracy.

Conclusion: This data is the first collected and shared from any of the LCoGS research projects in Colombia. The insights from and next steps in indicator data collection, analysis, and interpretation will not only guide project planning as this project scales up nationally in Colombia, but will also prove valuable to other Latin American countries facing similar research roadblocks.


Disclosure of Interest: None declared
Introduction: Worldwide, 90% of injury deaths occur in low- and middle-income countries (LMIC). Road traffic crashes (RTCs) are increasingly common and result in more death and disability in the developing world than in the developed world. We aimed to examine the pre-hospital case fatality rate from RTCs in Malawi.

Materials & Methods: A retrospective study was performed utilizing the Malawian National Road Safety Council (NRSC) registry from 2008-2012. The NRSC data were collected at the scene by police officers. Victim, vehicle, and environmental factors were used to describe the characteristics of fatal collisions. Case fatality rate was defined as the number of fatalities divided by the number of people involved in RTCs each year. Logistic regression analysis was used to determine predictors of crash scene fatality.

Results: A total of 11,467 RTCs were reported by the NRSC between 2008 and 2012. Of these, 34% involved at least one fatality at the scene. The average age of fatalities was 32 years and 82% were male. Drivers of motor vehicles had the lowest odds of mortality following RTCs. Compared to drivers, pedestrians had the highest odds of mortality (OR 39 [34, 45]) followed by bicyclists (OR 26 [22, 31]). The average case fatality rate was 17%/year, and showed an increased throughout the study period.

Conclusion: RTCs are a common cause of injury in Malawi. Approximately one-third of RTCs reported by the police involved at least one death at the scene. Pedestrians are particularly vulnerable, exhibiting very high odds of mortality when involved in a road traffic collision. We encourage to use these data to develop strategies in LMIC countries to protect pedestrians and other road users from RTCs.

Disclosure of Interest: None declared
Introduction: Perineal trauma in children can be a life-threatening and surgically challenging condition in the absence of a standardized therapeutic approach. Colostomy remains an important decision in the presence of perineal, anorectal injury and/or gross soiling. We describe a polytrauma patient sustained severe perineal injury managed without stoma creation. Because there are no clear guidelines to manage the perianal injury in children, so we try the conservative management and the result is very nice.

Materials & Methods: Case presentation

Results: A pediatric patient with a polytrauma sustained severe perineal injury can be managed without stoma creation.

Conclusion: Because there are no clear guidelines to manage the perianal injury in children, so we try the conservative management and the result is very nice.

Disclosure of Interest: None declared
Introduction: Trauma surgeons learn extensively from the military in their practice. Critical decision making is a major pillar of trauma surgery. Consecutive errors in decision making can lead to disastrous consequences. These occur in the cognitive, affective, or psychomotor domains. This presentation aims to analyze the seven consecutive mistakes that Ferdinand Magellan made to be killed in Mactan Battle.

Materials & Methods: Ferdinand Magellan started his trip around the world from Spain in 1519 towards the west aiming to reach the Spice Island (Indonesia now) and then Spain. He by mistake arrived to Mactan Island in the Philippines and was killed there at 1521 by Lupo Lupo, the chieftain of Mactan Island. The decision making process and actions of Magellan in this event is analyzed and compared with those decisions made by his slave (Enrique of Malacca) who survived and completed the trip around the world.

Results: The seven consecutive mistakes that led to the death of Magellan during this battle were two in the cognitive domain (miscalculation and lack of knowledge); four in the affective domain (ignoring the setting, refusing help, getting angry, and not knowing when to stop) and one in the psychomotor domain (distraction). His slave avoided all these mistakes and could survive the battle and finish the trip around the world. These errors are exactly the same that surgeons make in disastrous situations.

Conclusion: Trauma surgeons continue learning from the military. Errors that lead to disastrous outcomes are usually consecutive having a Swiss cheese effect.

Disclosure of Interest: None declared
THE FIRST OBSEVATIONAL SURVEY OF CHILD RESTRAINT USE IN QATAR:
IDENTIFYING NATIONAL PRIORITIES AND FUTURE DIRECTIONS FOR CHILD PASSENGER SAFETY

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Introduction: Properly utilized child restraint systems reduce serious death and road traffic injuries [RTI’s] to children under 5 years by 80 to 90% (1). In Qatar, a high-income rapidly developing country, RTI’s are a leading cause of child deaths (2) and child restraint use is not mandated by law despite most RTI deaths, for 0-5 year olds, affecting unrestrained front passengers (3). This is the first report, to describe actual child restraint use among young children, from Qatar and the Gulf Region.

Materials & Methods: A roadside observational study was conducted, as part of Young Kids in Safe Seats [YKISS] Study, a National Priority Research Program Grant of the Qatar Foundation [NPRP 7 - 1681 - 3 – 429], in Qatar, from May-June 2015. 18 trained observers completed 240 hours of observations, collecting data on the estimated age of children and their restraint use.

Results: 2,232 vehicle observations were performed and 2,087 children under the age of 5 were observed. 730 children under 5 were unrestrained (35%) and 543 were improperly restrained (26%). Ten percent of children under 5 were in the front passenger seat, unrestrained and/or on an adult’s lap. When classified by age, children under 2 years [U2Y] were more likely to be improperly restrained than children aged 2-5 years [2-5Y] (p=.001). However, 2-5Y were more likely to be unrestrained than U2Y (p=.001). Among U2Y, 71% were improperly restrained, 18% were unrestrained and only 10% were properly restrained. For 2-5Y, 18% were improperly restrained and 38% were unrestrained.

Conclusion: This survey provides the evidence based for age-appropriate programs to improve child passenger safety in Qatar. For U2Y, improving proper restraint use, and for 2-5Y, sustaining restraint use beyond this stage, should be the priorities. This should begin with the enforcement of the current law banning children under 10 years from riding in the front seat and culminate with the passage and enforcement of a national law mandating child restraint use.


Disclosure of Interest: None declared
FALLS FROM HEIGHTS IN CHILDREN: A NEWSPAPER REPORTING OF INCIDENCE AND RISK FACTORS IN THE UNITED ARAB EMIRATES

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Introduction: Falls are the second leading cause of injury-related hospitalization for all ages, accounting for about 30% of injury admissions. Details on child falls from heights are not easily accessible. Our aim was to assess the incidence, activities and risk factors for falls from windows/balconies in children in the UAE using newspaper clippings.

Materials & Methods: We used a retrospective study design to assess all national newspapers and government statistics for reports of child falls from heights (windows, balconies etc.) during 2005-2015. A structured form was designed. Data collected included demography, place of injury, activity during injury, together with personal, equipment, and environment factors. We electronically searched UAE national Arabic and English newspapers for fall incidents. Official letters were written to health authorities in order to obtain death reports on falls. The cases were verified to exclude duplications and data were entered into an Excel sheet. Analysis included checking for completeness of reporting on pertinent variables.

Results: Data from health authorities were lacking details on personal and environmental risk factors and could not be studied. Newspaper clippings documented 52 fall incidents during the study period. 68% (n=34) were boys, 11.9% (n=5/42) were UAE-nationals, mean age was 4.6 years (Range: 1-15 years). 51% (n=27) were from the Emirate of Sharjah. 29 children fell from windows and 17 from balconies. Information on activity was available only in 19 reports, from these 7 children were climbing the furniture, 3 were playing, 2 were sleeping, 7 were other activity. Information on supervision was provided in 22 cases (10 were supervised by mother/father/family member, 1 by maid and 11 children were not supervised). 42 children died (81%) and 10 children (19%) were hospitalized and survived the fall incident.

Conclusion: Newspapers proved to be useful to study paediatric falls from heights. It is necessary to improve window safety by installing window guards and raising awareness.

Disclosure of Interest: None declared
BOTH THE MULTIPLICATIVE AND SINGLE WORST INJURY ICISS UNDERPERFORM IN URBAN INDIAN UNIVERSITY HOSPITALS

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Introduction: Trauma accounts for 9% of all deaths worldwide, killing almost five million people annually. More than one million of these deaths occur in India (1, 2). A key aspect of trauma care research is outcome comparisons between contexts (3). One tool to adjust such comparisons for trauma severity is the International Classification of Diseases Injury Severity Score (ICISS) (4). This study aimed to compare the prediction of 30-day and 24-hour mortality of two different ICISS versions; the multiplicative (mICISS) and the single-worst-injury (swiICISS), in trauma patients admitted to four public university hospitals in urban India.

Materials & Methods: The data used was from the project Towards Improved Trauma Care Outcomes in India. Published survival risk ratios were used to calculate mICISS and swiICISS for the 200 most recent non-surviving patients and the surviving patients during the same period (5). Score performance was measured in discrimination and calibration.

Results: The 30-day prediction swiICISS discriminated and calibrated best with an area under the receiver operating characteristics curve of 0.668 (95% CI 0.645 - 0.690) and a calibration slope of 0.830 (95% CI 0.708 - 0.940) (Table) (Figure).

<table>
<thead>
<tr>
<th>Score</th>
<th>AUROCC (95% CI)</th>
<th>Calibration slope (95% CI)</th>
<th>Calibration intercept (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mICISSm30d</td>
<td>0.618 (0.597 - 0.638)</td>
<td>0.269 (0.219 - 0.325)</td>
<td>0.071 (0.046 - 0.096)</td>
</tr>
<tr>
<td>swiICISSm30d</td>
<td>0.668 (0.645 - 0.690)</td>
<td>0.830 (0.708 - 0.940)</td>
<td>-0.038 (-0.068 - -0.003)</td>
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<tr>
<td>mICISSm24h</td>
<td>0.527 (0.480 - 0.569)</td>
<td>-0.007 (-0.073 - 0.059)</td>
<td>0.051 (0.039 - 0.062)</td>
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<tr>
<td>swiICISSm24h</td>
<td>0.509 (0.456 - 0.544)</td>
<td>0.110 (-0.456 - 0.329)</td>
<td>0.041 (0.024 - 0.091)</td>
</tr>
</tbody>
</table>

Abbreviations: mICISSm30d = 30 day mortality derived Multiplicative ICISS; swiICISSm30d = 30 day mortality derived Single worst injury ICISS; mICISSm24h = 24 hour mortality derived Multiplicative ICISS; swiICISSm24h = 24 hour mortality derived Single worst injury ICISS
Conclusion: The 30 day mortality swiCISS was the only score to calibrate on a satisfactory level. None of the scores had an acceptable discrimination. Developing an injury severity score in India is a complex but essential task for improved trauma care, the swiCISS showed potential and may be material for future studies when more data is available.

References:

Disclosure of Interest: None declared
DEVELOPMENT OF AN INDIAN VERSION OF THE INTERNATIONAL CLASSIFICATION OF DISEASE INJURY SEVERITY SCORE, A RETROSPECTIVE COHORT STUDY.
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Introduction: Trauma was estimated to cause 4.8 million deaths globally in 2013 and 90 per cent of these deaths have been estimated to occur in low and middle income countries (LMIC) such India[1–3]. Trauma scores like the International Classification of Diseases Injury Severity Score (ICISS) has been used with great success in trauma research, adjusting for different contexts and injury severity[4–9]. Until this date no valid trauma score has been developed for the Indian context. Therefore, we wanted to derive and validate a new version of ICISS using trauma patients admitted to four public university hospitals in urban India.

Materials & Methods: The dataset of 16047 patients from the Towards Improved Trauma Care Outcomes (TITCO) database in India was split into a derivation and validation sample. All injuries in the dataset were assigned an international classification of disease (ICD) code. Two Survival Risk Ratios (SRR), for mortality within 24 hours and 30 days respectively, were then calculated for each ICD-code and used to calculate corresponding ICISS. Score performance was measured using discrimination and calibration. Calibration was measured by calculating the calibration slope and intercept and by plotting a calibration curve. Discrimination was assessed by calculating the Area Under the Receiver Operating Characteristics Curve (AUROCC).

Results: Predictions of 30-day mortality show an AUROCC of 0.618, calibration slope of 0.269 and calibration intercept of 0.071. Estimates of 24-hour mortality consistently show low AUROCCs and negative calibration slopes. (Table 1)

Conclusion: Conclusions: The developed ICISS for 30-day overestimate mortality and the 24-hour score show no correlation at all. Therefore, implementations into clinical or policy contexts cannot be recommended. This study has further demonstrated the problems with developing a functioning trauma score for the Indian context. Instead we recommend redoing the analysis when more data is available and including other versions of ICISS.


<table>
<thead>
<tr>
<th>ICISS</th>
<th>Derivation sample</th>
<th>Validation sample</th>
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<tbody>
<tr>
<td></td>
<td>AUROCC</td>
<td>Calibration slope</td>
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<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>m30d+</td>
<td>0.633 (0.626-0.646)</td>
<td>0.300 (0.271-0.333)</td>
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<tr>
<td>m30d+</td>
<td>0.606 (0.594-0.619)</td>
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<tr>
<td>m24h+</td>
<td>0.519 (0.496-0.541)</td>
<td>0.079 (0.041-0.12)</td>
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<tr>
<td>ICISSm24h</td>
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</tr>
<tr>
<td>m24h+</td>
<td>0.494 (0.460-0.510)</td>
<td>-0.01 (-0.03-0.01)</td>
</tr>
<tr>
<td>ICISSm30d</td>
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</table>

ICISS: International classification of disease injury severity score, AUROCC: Area Under the Receiver Operating Characteristics Curve, m30d: Mortality within 30 days, m24h: mortality within 24 hours

Disclosure of Interest: None declared
AIR VS. GROUND TRANSPORTATION: ANALYSIS OF 15,000 PATIENT TRANSFERS FROM SCENE TO LEVEL I TRAUMA CENTER
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Introduction: Improvements in Helicopter Emergency Medical Services (EMS) remain one of the highest priorities for the National Transportation Safety Board. The aim of this study was to identify the optimal mode of transportation from scene to level I trauma center (L1-TC).

Materials & Methods: We performed a retrospective cohort analyzing our State Trauma Registry (2012) to identify all patients transported from scene to L1-TC. Patients were grouped by mode of transportation (air or ground). Data on demographics, injury severity, location, and response times were obtained. Distances were computed using geocodes. Nonparametric generalized additive linear regression model was fitted to predict total response time based on distance to L1-TC.

Results: Of 15,032 patients, distance was computed in 10,971 patients: 1,701 by air and 9,270 by ground. Air transfers resulted in longer transport time (6.3 min) when injury occurred within a 30 mile-radius from L1-TC (p=0.001). Patients transferred by air were more severely injured (p<0.0001). There was no difference in mortality for transfers within 30 miles adjusting for ISS, GCS, age, and gender (p=0.45).

Conclusion: Helicopter EMS is an expensive resource that needs to be used judiciously. Regardless of injury severity patients injured within 30 miles of L1-TC should be transferred by ground.

Disclosure of Interest: None declared
TRIUMA CARE IN SCOTLAND - AN EVALUATION OF CURRENT SERVICE PROVISION USING THE WHO EMERGENCY CARE SYSTEM ASSESSMENT TOOL.

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**Introduction:** Scotland is currently developing a national trauma system. In order to establish a baseline level of trauma service provision, allowing both evaluation of areas requiring further development and the evaluation future progress, this project utilised the recently produced World Health Organisation (WHO) Emergency Care System Assessment Tool (ECSAT). The WHO are currently assessing the robustness of the ECSAT for use as an international tool for trauma system assessment. The aims of this project were to characterise current trauma service provision in Scotland using standardised methodology, provide a benchmark against which development in Scotland’s trauma system can be assessed at future points, identify potential areas for improvement in current trauma care and contribute to the international piloting of the ECSAT.

**Materials & Methods:** The ECSAT is a questionnaire survey containing a mixture of yes/no answers, multiple choice ‘roadmap’ questions and free text entry. The ECSAT was distributed to selected policy makers and senior clinicians in Scotland and the responses collated to form consensus opinions on various aspects of trauma service provision. Results were analysed to identify strengths and weaknesses of the current system and prioritise areas for future development. Feedback from respondents on the functionality of the ECSAT questionnaire was also collected.

**Results:** 15 completed responses to the ECSAT were received from individuals with a range of specialties and roles within Scotland. Median scores were calculated from ‘roadmap’ questions referencing stages of development, showing the relatively advanced level of trauma care in many areas. Areas with lower median scores were identified for focus on future development. Feedback on the ECSAT mainly related to definitions and question terminology, but also highlighted the length and time taken to complete the questionnaire.

**Conclusion:** The results of the ECSAT identified areas where work and resources should be directed for further development of a trauma system in Scotland. In particular, quality improvement, trauma specific education and training, the application of systematic trauma care in rural environments, communication between facilities within a trauma system and rehabilitation service needs were highlighted. Feedback on the ECSAT itself indicated few serious issues, with the tool overall producing useful and usable results.

**References:**

**Disclosure of Interest:** None declared
THE RATIONALE FOR MANDATING GERIATRIC TRAUMA SERVICES IN TRAUMA PROGRAMS

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Introduction: Trauma centers across America have begun developing specialized trauma services to manage geriatric patients. In August 2009, our trauma center developed a multi-disciplinary trauma service G60 (> 60 years) managed by the trauma surgeon.

Materials & Methods: After IRB approval, our Registry was queried for all patients ≥ 60 years treated between January 1, 2006 and December 31, 2014. Patients were divided into a pre-August 2009 as non-G60 (nG60, n+694) and post-August 2009 as G60 (G60, n+2011) program. Patient demographics (age, sex), injury parameters (cause of injury, Injury Severity Scoring - ISS), clinical outcomes (ICU length of stay – ILOS, Hospital length of stay HLOS), discharge disposition, mortality and trauma patients transferred to our hospital were recorded. Impact of variant ISS between nG60 and G60 were corrected by dividing HLOS and ILOS by ISS prior to statistical analysis to produce rHLOS and rILOS.

Results: Multi-disciplinary management allowed for a significant (p-value: 0.0006) reduction in rILOS in the G60 population. The ng60 patients had poorer outcomes and were 3.4x more likely to be discharged to long term acute care facilities. Mortality was significantly (p-value: 0.0001) higher in the nG60 (8%) relative to the G60 (5%) group.

Conclusion: The benefits of the G60 program are achieved through multidisciplinary management. A reduction in rILOS, improved discharge disposition and decreased mortality were noted irrespective of ISS for the G60 group. We believe the Committee on Trauma should consider incorporating the geriatric trauma service model as an essential requirement for trauma centers.

Disclosure of Interest: None declared
MEDICAL STUDENT PROGRAMS WITHIN ACADEMIC GLOBAL HEALTH PROVIDE A MODEL FOR SURGICAL SYSTEMS EXPANSION IN LATIN AMERICA’S ESSENTIAL AND EMERGENT SURGICAL DISEASE BURDEN

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Introduction: The academic collaboration between high income and low-to-middle income countries is of crucial value as the global burden of emergent and essential surgery, to include traumatic injury, is on track to become the world’s foremost healthcare issue. As surgical systems strengthening (SSS) is fundamental to any sustainable essential and emergent care paradigm, acute care surgeons are seeking to involve medical students in the endeavor. However, no specific tracks exist for longitudinal education of medical students specifically within academic global surgery, highlighting the need for a distinct model.

Materials & Methods: In 2016, medical schools in the United States and Latin America initiated a scholarly global health program consisting of two longitudinal academic tracks: the Chancellor’s Global Scholars (CGS) and Distinction in Global Health (DGH). The tracks were designed to provide intramural-funded transnational student culminating experiences. In the same year, a Global Surgery partnership was created between the corresponding divisions of Acute Care Surgery (ACS) medical school faculties. A one-year retrospective qualitative review was conducted to determine the students’ engagement within a newly developed global surgery program focusing on SSS efforts.

Results: In the inaugural year of the program, there were 35 CGS applicants and ten DGH applicants, from an entering United States medical school class of 190. Two (of five accepted) CGS students and one (of three accepted) DGH students selected global surgery faculty (ACS faculty participating in SSS in Cali and Medellin, Colombia) as mentors. The students spent 12 total weeks of elective time participating in culminating experiences, including: programmatic transnational internal review board and research ethics process improvement; accessibility of pre-hospital care and its link to trauma registry; and pilot work linking core surgical indicators1 to trauma program development.

Conclusion: As essential and emergent surgical disease is to become the largest global healthcare burden, the early involvement of the next generation of surgeons is pivotal. The establishment of scholarly global health programs has afforded medical students active roles in academic global surgery projects in trauma systems strengthening in Colombia. In doing so, such programs expand global health education, as medical schools aim to address the mounting global essential and emergent surgical disease burden.


Disclosure of Interest: None declared
SURGICAL TREATMENT OF SPONTANEOUS PERFORATION OF THE DISTAL ESOPHAGUS BY TRANSABDOMINAL APPROACH WITH MEDIAN FRENOTOMY AND OMENTOPLASTY

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Introduction: 58-year-old male, septic and in respiratory difficulty. Spontaneous perforation of the distal esophagus, about 24 hours of evolution. Left pleural effusion. After the introduction of a transthoracic drain on the left, fluid and food debris were withdrawn.

Materials & Methods: Iatrogeny accounts for 50-60% of esophageal perforations. Boerhaave's syndrome (BS), a spontaneous perforation resulting from a sudden increase in intraesophageal pressure caused by straining or vomiting, accounts for approximately 10%. Other causes of spontaneous perforation are related with caustic ingestion and esophageal diseases in general. In most cases of BS the tear occurs at the left posterolateral aspect of the distal esophagus and extends for several centimeters. In about 50% of the cases, clinical presentation mimicks more frequent pathologies. Physical examination is usually not helpful but crepitation, from subcutaneous emphysema, can be an important finding. A pleural effusion may be detected, usually left-sided. Plain chest radiography and water-soluble contrast studies and CT scan should be promptly obtained. Endoscopy has a role but the endoscope itself can extend the perforation and introduce air into the mediastinum.

Results: The surgical approach was transabdominal, with median frenotomy (Pinotti). The lack of coincidence between the esophageal rupture, right anterolateral, and the rupture site of the left mediastinal pleura called the attention to a possible double mechanism of injury, with the lesion in the pleura related with a nasogastric tube. After exposure of the esophagus and washing of the mediastinum, we proceeded to the primary repair of the wound and to the preparation of a long flap of omentum to be left in the anterior mediastinum, for protection. A suction drain was left on the left side, near the ruptured pleura. A jejunostomy (Witzel) was left for early feeding. The patient has been discharged home 40 days later.

Conclusion: The mortality of untreated BS is nearly 100%. Treatment includes IV fluids, immediate antibiotherapy and surgery. Even with early surgery (<24 h), the risk of death is around 25%. With delays (>24 h) it may go up to more than 50%. BS is rare and literature demonstrates wide disparities in management. Primary repair is appropriate for ruptures diagnosed early. For ruptures diagnosed late, T-tube drainage may be the simplest way to manage the condition.

References:

Disclosure of Interest: None declared
18.85
SERUM C-REACTIVE PROTEIN AND D-LACTATE CAN PREDICT STRANGULATION IN INTESTINAL OBSTRUCTION: AN OBSERVATIONAL STUDY.

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Introduction: Serum C- Reactive protein and D-Lactate have been proposed as markers of intestinal ischemia. The purpose of this prospective observational study is to find whether serum-CRP and serum D-Lactate can help in predicting strangulation in cases of acute intestinal obstruction.

Materials & Methods: A total of 50 consecutive patients were included in the study after excluding patients of comorbid medical illness and patients with findings other than obstruction or strangulation. The serum values of C-Reactive Protein and D-Lactate were measured and compared between obstruction with strangulation and obstruction without strangulation. Receiver Operating Characteristic Curve was drawn and Cut-off values for the diagnosis of strangulation was calculated along with calculation of Sensitivity, Specificity, Positive Predictive Values and Negative Predictive Values.

Results: Fourteen patients who were diagnosed with strangulated bowel obstruction had significantly higher values of Serum C-Reactive Protein and D-Lactate when compared to thirty six patients of simple bowel obstruction (116 vs 40 mg/l and 5.4 vs 2.7 mmol/l respectively, p<0.05). Using ROC analysis the AUC (Area Under Curve) of Serum C-Reactive Protein and D-Lactate was Found to be 0.785 and 0.775 respectively for bowel strangulation. Using a cut-off value of 60 mg/l for C-Reactive Protein the sensitivity, specificity, PPV and NPV were 87.5%, 58.3%, 48.3%, 91.3% respectively. Using a cut-off value of 4.5 mmol/l for D-Lactate the sensitivity, specificity, PPV and NPV were 75.0%, 69.4%, 52.7%, 86.2% respectively.

Conclusion: Serum C-Reactive Protein and D-Lactate can be useful and reasonable markers for predicting strangulation in cases of acute intestinal obstruction in an emergency setting.


Disclosure of Interest: None declared
THE TREATMENT OUTCOMES OF LOWER DIGESTIVE TRACT PERFORATION IN OUR INSTITUTION

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Introduction: The lower digestive tract perforation is common in elderly population. Due to the comorbidities and nature of the perforation site, sepsis can develop rapidly which result in high mortality rate. The mortality rate is reported about 15 to 30% in Japan. Timely diagnosis and surgical management is crucial. This time, we collected the data of lower digestive tract perforation cases in our institution.

Materials & Methods: From March, 2008 until March, 2016, 66 surgery were performed for lower digestive tract perforation in our institution. The perforated appendicitis and anastmotic leakage were excluded. We analyzed the preoperative state, underlying disease, presence of sepsis, perforation site, cause, surgery method, complications, and mortality.

Results: The sex ratio was male 28 to female 38. The mean and median age were 74.3 and 77.5 years old. 58 patients were diagnosed as sepsis preoperatively. Among the sepsis group, 17 were defined as severe sepsis and 6 as septic shock using the previous definition. Diabetes mellitus, chronic heart disease and cerebrovascular disease were prevalent among this population. The average Sequential Organ Failure Assessment (SOFA) score was 1.68 and median was 1. The perforation site were: sigmoid colon=39, small intestine=11, rectum=6, cecum=4, descending colon=2, others=3. The cause of perforation were: diverticulum=28, cancer=8, iatrogenic=6, idiopathic=5, bowel obstruction=4, incarcerated hernia=4, fecal impaction=3, others=6. The operation method were: Hartmann operation=35, partial resection and primary anastomosis=9, simple closure=6, anastomosis and diverting enterostomy=6, simple closure and diverting enterostomy=4, enterostomy=4, others=2. The complication rate was 28.9% (n=19). Surgical site infection was leading (n=9). The mortality was 18.2% (n=12) and cause were: septic shock=4, MRSA pneumonia=1, aspiration pneumonia=2, aspiration and suffocation=3, cancer death, cerebral infarction=1. And the average time to the operation was 17.5 hours in the death group and 11.8 hours in the survival group.

Conclusion: The lower digestive tract perforation easily shift to sepsis and mortality rate is still high. In this study, the mortality rate in our institution was relatively low. But we have to improve the survival rate furthermore. The time to the operation was shorter in the survival group than the death group, therefore we concluded it is very necessary to do surgical management as soon as possible and obtain source control.

Disclosure of Interest: None declared
18.87
PROTHROMBIN COMPLEX CONCENTRATE REVERSAL OF COAGULOPATHY IN EMERGENCY GENERAL SURGERY PATIENTS

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Introduction: Coagulopathy can delay or complicate surgical diseases that require emergent surgical treatment. Prothrombin complex concentrates (PCC) provide concentrated coagulation factors which may reverse coagulopathy quicker than plasma (FFP). We aimed to determine the time to operative intervention in coagulopathic emergency general surgery patients who received either PCC and/or FFP. We hypothesize that PCC utilization more rapidly normalizes coagulopathy compared to FFP.

Materials & Methods: Single institution retrospective analysis was performed on coagulopathic EGS patients during 2/1/2008 to 8/1/2016. Patients were divided into three groups 1) PCC alone 2) FFP alone and 3) PCC and FFP. The primary outcome was the duration from clinical decision to operate to the time of incision. Secondary outcomes included: ΔINR (initial INR - preprocedure INR), rate of INR correction per hour, INR rebound (increase in INR post-operatively), reoperation for bleeding, thromboembolic complications, 30-day mortality, number and type of blood products used, duration of hospital and intensive care unit stay. Summary and univariate analyses were performed.

Results: Coagulopathic EGS patients (n=183) received the following blood products: PCC (n=20, 11%), FFP alone (n=119, 65%) and PCC/FFP (n=44, 24%). The mean (±SD) patient age was 71±13 years; 60 % were male. The median (IQR) Charlson comorbidity index was similar in all three groups (PCC=5(4-6), FFP=5(4-7), PCC/FFP= 5(4-6), p=0.33). The mean (±SD) dose of PCC administered was similar in the PCC/FFP group and the PCC alone group (2539±1454 units vs 3232±1684, p=.09). The mean (±SD) FFP units administered was greater in the FFP group compared to the PCC+FFP group (3.5±1.9 vs 3.0±2.5 units, p=0.03). The mean (±SD) time to incision in the PCC alone group was significantly lower than the FFP alone group (6.0±3.6 vs 8.8±5.0 hours, p=0.01). The mean time to incision in the PCC+FFP group was also significantly lower than the FFP alone group (7.1±3.6 vs 8.8±5.0, p=0.03). The incidence of thromboembolic complications was similar in all three groups. Secondary outcomes are presented in table 1.

Conclusions: PCC, alone or in combination with FFP, reduced INR and time to surgery effectively and safely in coagulopathic EGS patients without an apparent increased risk of thromboembolic events, when compared to FFP use alone.

Disclosure of Interest: None declared
Introduction: Acute appendicitis is still a diagnostic challenge. Different scoring systems are designed to aid in the diagnosis of this common disease, including Alvarado score, recent Appendicitis Inflammatory Response Score, etc. Ultrasonography is widely used imaging modality that increases diagnostic accuracy, but false negative result rate is relatively high, leading to increased risk of misdiagnose acute appendicitis. Limitations of this diagnostic methods led us to development of new diagnostic scale.

Materials & Methods: Retrospective study of 231 proved acute appendicitis cases was performed to detect the most sensitive and specific clinical signs and lab parameters. Using this data and statistical analysis we developed diagnostic scoring system, that included clinical signs, blood test and ultrasonography results. Prospective study included 43 consecutive patients with suspected acute appendicitis. Physical examination, ultrasound, laparoscopy and appendectomy were performed by the same surgeon. Diagnosis of appendicitis was confirmed or excluded histologically in all specimens.

Results: Our scoring system allowed to diagnose appendicitis in 27 of 28 histologically proven cases, to exclude it correctly in 14 of 15 cases. According to protocol, 4 patients with equivocal diagnostic scale result underwent laparoscopy that diagnosed appendicitis in one case (false-negative result). Histology didn’t confirm acute appendicitis in one case (false-positive result). Diagnostic scale sensitivity was 96.4%, specificity 93.3%, accuracy 95.3%, positive predictive value 96.4%, negative predictive value 93.3%. Negative appendectomy rate was 3.7%.
### Table: Diagnostic Scoring System for Acute Appendicitis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain in RLQ</td>
<td>2</td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>1</td>
</tr>
<tr>
<td>Migration of pain to the RLQ</td>
<td>2</td>
</tr>
<tr>
<td>Muscle defense or rebound tenderness</td>
<td>3</td>
</tr>
<tr>
<td>Body temperature $\geq$ 37.2</td>
<td>1</td>
</tr>
<tr>
<td>WBC count $10.0-14.9 \times 10^9/\text{l}$</td>
<td>1</td>
</tr>
<tr>
<td>WBC count $\geq 15.0 \times 10^9/\text{l}$</td>
<td>2</td>
</tr>
<tr>
<td>Segmented neutrophils 70-84%</td>
<td>1</td>
</tr>
<tr>
<td>Segmented neutrophils $\geq 85%$</td>
<td>2</td>
</tr>
<tr>
<td>Primary US signs of AA</td>
<td>4</td>
</tr>
<tr>
<td>Secondary US signs of AA</td>
<td>2</td>
</tr>
<tr>
<td>US signs of other disease</td>
<td>-4</td>
</tr>
</tbody>
</table>

0-4 = not likely appendicitis  
5-6 = equivocal, CT or laparoscopy required  
7-17 = probably appendicitis

**Conclusion:** First results showed that developed scoring system is highly sensitive and specific in detecting acute appendicitis. It could aid in selecting patients who require immediate surgery or those who require further evaluation. Proper prospective randomized trial evaluating the effect of such scoring system must be performed before recommending this scoring system for wide use.

**Disclosure of Interest:** None declared
COMPARATIVE STUDY OF EMERGENT ABDOMINAL SURGERY CASES IN THEIR 80S AND 90S
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Introduction: In emergent surgery, sometimes it is necessary to perform emergency operations under poor general condition and insufficient preoperative examinations, thereby the risk of postoperative complications seems to be high. Especially in the 90s, risk assessment before surgery is extremely important for judgment of indication for surgery because there are cases not to choose surgery if the risk of postoperative complication is expected to be high. In this study we compared the perioperative results of cases undergone emergent abdominal surgeries between the 80s and 90s.

Materials & Methods: About 66 cases in the 80s and 30 cases in the 90s that were undergone emergent abdominal surgeries from June 2008 to November 2016. We compared the operative risk predicted using P-POSSUM score system with perioperative results between 80s and 90s based on medical records.

Results: The female ratio was 30.3% and 69.7% in the 80s and in the 90s, respectively. The preoperative AHA-PS was class 2E 10.6 % and 3E 89.3% in the 80s, class 3E in all the 90s patients. The diagnosed diseases were hernia 25.8% and 30.0% in the 80s and 90s, respectively, ileus 28.8% and 20.0%, intestinal perforation 21.2% and 20.0%, acute appendicitis or cholecystitis 10.6% and 20.0%, SMA thrombosis or NOMI 10.6% and 6.7%, others 3.0% and 3.3%. There was no significant difference in proportion. In the 90's, it was more necessary to use vasopressor, ventilator, and CHDF after the operation. Clavien-Dindo Classification of Grade III and above were 31.8% and 39.9% in the 80s and in the 90s, respectively, postoperative mortality was 9.1% and 23.3%. The predicted mortality rate were (80.1% in the dead group vs. 21.9% in the non-fatal group; p <0.001) in the 80s and (35.3% vs. 17.2%; p = 0.038) in the 90s when the operative risk was evaluated by the P-POSSUM score.

Conclusion: There were more postoperative complications in the 90s than in the 80s, requiring vasopressors, ventilator and CHDF. The surgical risk assessment with the P-POSSUM score is predicted to be higher than it actually is, but it is considered useful for evaluating the degree of risk.

Disclosure of Interest: None declared
WHAT IS THE INTEREST OF THE DAMAGE CONTROL IN SEVERE BALLISTIC TRAUMA?
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\textsuperscript{1}surgery, \textsuperscript{2}Anesthesiology, HMRU Constantine, CONSTANTINE, Algeria

Introduction: What is the interest of the Damage control in severe ballistic trauma?
Severe ballistic lesions are the cause of hemodynamic disorders, metabolic disorders and early coagulopathy, leading to a high mortality rate, their management must be well thought out and above all adapted to each situation.

The purpose of this retrospective study is to evaluate the feasibility and results of shortened laparotomy and early interventions, especially for second-hand patients

Materials & Methods: Included in this study patients initially operated for severe thoracic abdominal trauma, Who were reoperated 24 to 72 hours after a shortened laparotomy, or after initial surgery in another community hospital.

Results: The study included 73 male patients with an average age of 31.2 years, 12 patients initially treated with damage control due to the severity and complexity of the lesions, while 61 patients were transferred from Other hospitals in the area after surgery for multiple and severe injuries. The initial assessment was in favor of haemorrhagic shock in 15 cases, respiratory distress in 10 cases, a postoperative peritonitis in 37 cases, associated metabolic disorders in 43 patients, and an infectious syndrome in 28 cases. 14 patients were on assisted ventilation at their arrival, 39 patients had associated multiple lesions. The lesions revealed, unrecognized lesions and releases of the digestive anastomoses.
Given the complexity and severity of lesions on the one hand and the patient's condition on the other, we have often adopted a conservative attitude.
24 (32.87%) complications in sequelae, dominated by abscesses, digestive hemorrhage, pulmonary embolism. Two patients required a second surgical revision for persistence of hemorrhage. Seven patients (9.58%) died in the sequel.

Conclusion: The severity of the lesions and the quality of the initial management are predictive factors in the mortality of the gunshot wounded, the damage control surgery and the Early Secondary Revision in doubt over unrecognized lesions and post complications is a valid strategy.

Disclosure of Interest: None declared
EXTERNAL VALIDATION OF THE HELSINKI COMPUTED TOMOGRAPHY SCORE IN THE PREDICTION OF MORTALITY IN SEVERE TRAUMATIC BRAIN INJURY

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Introduction: Traumatic Brain Injury (TBI) is a public health problem. It is a pathology that causes significant mortality and disability in Colombia. Different calculators and prognostic models have been developed in order to predict the neurological outcomes of these patients. The Helsinki computed tomography (CT) score was developed for prognostic purposes in TBI. We aimed to examine the accuracy of the prognostic discrimination and prediction of mortality of the Helsinki CT score in a cohort of trauma patients with severe TBI in a university Hospital in Colombia.

Materials & Methods: We analyzed 145 patients with severe TBI treated in a regional trauma center in Colombia over a 2 year period. Bivariate and Multivariate analyses were used. The discriminatory power of the score, its accuracy and precision was assessed by logistic regression and as the area under the receiver operating characteristic curve. Shapiro Wilks, chi² and Wilcoxon test were used to compare the real outcomes in the cohort against the predicted outcomes.

Results: The median age of the patient cohort was 37 years, and 86.9% were male. The median injury severity score (ISS) was 27, the median GCS motor score was 3, the basal cisterns were closed in 37.93% of the patients and a midline shift of >5mm was seen in 41.98%. The six-month mortality was 24.8%, and the Helsinki CT score predicted a mortality of 26% p <0,0001 (AUC 0,724 IC 95% 0,628-0,820).

Conclusion: The Helsinki CT score predicted mortality at 6 months in patients with severe head trauma in a university hospital in Colombia. The Helsinki CT score is useful for predicting early death and the prognosis of patients with TBI.


Disclosure of Interest: None declared
Introduction: Trauma is considered a public health problem, different scores are using for predicting mortality. The aim of this study was to evaluate whether the shock index, given by the formula SI = heart rate / systolic blood pressure (HR/SBP), is useful for predicting mortality at 24 in trauma patients admitted to the emergency department of a university hospital in Colombia.

Materials & Methods: We evaluated shock index (SI) at admission and generating a dichotomous variable with two groups: Group A (SI < 0.9) and Group B (SI > 0.9). We evaluated the initial type of resuscitation used (colloids, crislatolides and blood). Bivariate and Multivariate analyses were used. For evaluated the correlation between shock index and the type of resuscitation the discriminatory power of the score, its accuracy and precision was assessed by logistic regression and as the area under the receiver operating characteristic curve. Shapiro Wilks, chi2 and Wilcoxon test were used.

Results: 900 patients were analyzed, 57.22% (515) had SI < 0.9, and 42.78% (385) SI > 0.9. The mean age for groups A and B was 32.4 and 35.4 respectively. Injury Severity Score mean was 5.8 and 16.3 (p=0.001) respectively. Mortality at 24 hours after injury for SI > 0.9 group was 24.9% in blood resuscitation and 75.09% in Crystalloid Resuscitation (p = 0.001).

Conclusion: An initial shock index greater than 0.9 implies a worse prognosis 24 hours after injury. Shock index allows evaluating the effectiveness of resuscitation in emergency department in a university hospital in Colombia. Shock index is a quick and applicable score.

Disclosure of Interest: None declared
EDUCATION IN TRAUMA: AN EDUCATIONAL ALTERNATIVE THAT PROMOTES INJURY PREVENTION

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Introduction: The trauma is considered a public health problem, different programs are designed to prevent injuries. The aim of this study was to evaluate the effectiveness of an educational model that measures the perspective of adolescents regarding the rules of road safety, alcohol and road accidents in Colombia.

Materials & Methods: A pedagogical model where the use of road safety element was evaluated and what was the perspective and experiences of adolescents regarding alcohol and road accidents in Colombia was created. Continuous recovery education days where images and videos projected traffic accidents, as was the process of hospital care were made, and what are the consequences left by this type of injury. Once this educational process is analyzed which was the behavior and impact of the program on adolescents.

Results: 160 Young entered the educational program. The mean age was 17.5 ± 3.91 years. The test results indicated that 80% of adolescents did not use a safety element when driving a vehicle was found that NO step helmet use 72.5% (116) 24, 37% (39) (p = 0.0001) driving a vehicle under state allcoramiento step of 49.37% (79) to 8.12% (13) (p = 0.0001) driving a vehicle without a seat belt step of 75.65% (121) 20% (32) (p = 0.0001).

<table>
<thead>
<tr>
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<th>Before educational n=160</th>
<th>After educational n=160</th>
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<tr>
<td>Seat belt use when driving</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>39(24.37%)</td>
<td>128(80%)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>121(75.6%)</td>
<td>32 (20%)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Helmet use when driving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>44(27.5%)</td>
<td>121(75.63)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>116(72.5%)</td>
<td>39(24.37%)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Alcohol consumption when driving</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>79(49.37%)</td>
<td>13(8.12%)</td>
<td>0.0001</td>
</tr>
<tr>
<td>No</td>
<td>81(50.63%)</td>
<td>147(91.88%)</td>
<td></td>
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<td>Seat belt use as a car passenger</td>
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<tr>
<td>Yes</td>
<td>75(46.87%)</td>
<td>78(48.75%)</td>
<td>0.0185</td>
</tr>
<tr>
<td>No</td>
<td>85(53.13%)</td>
<td>82(51.25%)</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: The creation of an educational model aimed at the prevention of injuries caused by traffic accidents shown to be effective in generating changes in customs and perspectives of adolescents regarding alcohol and road safety standards in Colombia.

Disclosure of Interest: None declared
CLINICAL SAFETY OF RENAMING ENCAPSULATED FOLLICULAR VARIANT OF PAPILLARY THYROID CARCINOMA: IS NIFTP TRULY BENIGN?

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Introduction: Renaming encapsulated follicular variant of papillary thyroid carcinoma (EFVPTC) to noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFT-P) was recently suggested to prevent the overtreatment, cost, and stigma associated with this low-risk entity. The purpose of this study is to further assess the clinical outcomes of reclassifying EFVPTC to NIFT-P.

Materials & Methods: We searched synoptic pathologic reports from a high-volume academic endocrine surgery hospital from 2004 to 2013. Inclusion criteria were unifocal, noninvasive, fully encapsulated FVPTC larger than 1 cm, with no papillary architecture, mitosis or necrosis, and no evidence of other variant pathology. Only patients whose primary pathology was performed at the institution were examined to ensure complete examination of the tumor capsule to exclude invasion or margin involvement. Those without clinical follow-up were excluded.

Results: Forty-one patients met the strict inclusion criteria of NIFT-P. The average age was 42 and 78% were female. Mean follow up was 60 months (range 7-126). Surgical management included 12 total thyroidectomies, 29 lobectomies of which 25 were followed by completion operations; 21 patients (50%) received postoperative radioactive iodine throughout the time period. In this cohort, 2 patients were identified with synchronous metastatic nodal disease and one had lung metastases, providing 3 critical events (7.3%).

Conclusion: Although the authors fully support the de-escalation of aggressive treatment for low risk thyroid cancers, clinicians should be aware that NIFT-P may not behave in a benign fashion and surveillance is warranted.

Disclosure of Interest: None declared
THE CLINICOPATHOLOGICAL FEATURES AND OUTCOMES OF PEDIATRIC DIFFERENTIATED THYROID CARCINOMA
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Introduction: Differentiated thyroid carcinoma (DTC) is uncommon in child, but with high rates of recurrence. It has been reported that pediatric DTC has a better prognosis than adults. Higher rate of recurrence is also reported in pediatric DTC by comparison with adults. However, half of the research studied patients under 20 or 21 years old, which may covered up some significant characters of child DTC. And detailed clinicopathologic features of pediatric DTC were seldomly studied. This retropective study assessed the clinicopathological features and long-term outcomes of differentiated thyroid carcinoma (DTC) in child under 18 years old.

Materials & Methods: We reviewed patients with DTC under 18 years old seen during recent 16 years. The clinicopathological features and outcomes were analyzed by comparison with patients of 19-20 years old and 21-44 years old.

Results: Sixty four children with DTC ( median age 16 years old (range 5-18) ) were studied. The ratio of female and male was about 5:1, but no difference was found by comparison with adult of 21-44 years old. No difference was found in multifocality, but DTC in child showed lager tumor size ( p < 0.01 ), higher rate of extrathyroidal extension ( p = 0.039 ), more local or pulmonary metastasis ( p = 0.001, p < 0.001 respectively ) than adult thyroid carcinoma. High rate of Hashimoto's thyroditis (17/47) without influence of pathological feathures and 2 children with diabetes were found in patient under 18-year-old. No differences, except for distant metastasis, were found by the comparison of clinicopathological features between patients under 18 years old and 19-20 years old. Pediatric DTC patients possessed highest rates of persistent/recurrent disease, though only 1 child with DTC died of airway obstruction.

Conclusion: Differentiated thyroid carcinoma in children has more aggressive behavior characterized by a high rate of extrathyroidal extension, local and pulmonary metastasis. Pediatric DTC has low mortality, but active treatments are needed for the high risk of disease persistence or recurrence. Hashimoto's thyroditis may be associated with the pathogenesis or mechanism of pediatric DTC.

Disclosure of Interest: None declared
LESS IS MORE: THE IMPACT OF MULTIDISCIPLINARY THYROID CONFERENCE ON THE TREATMENT FOR WELL-DIFFERENTIATED THYROID CARCINOMA

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Introduction: Radioactive iodine (RAI) is used as an adjuvant treatment for well-differentiated thyroid carcinoma (DTC) in intermediate-high risk patients, however can cause significant adverse effects at higher doses. In 2006, we implemented a multidisciplinary thyroid conference (MDC) to better plan the management of thyroid cancer patients. This study assessed the clinical impact of a MDC on use of RAI in an academic hospital.

Materials & Methods: A prospective thyroid database (2003-2014) collected patient and tumor characteristics, RAI doses, and tumor recurrence rates. Patients treated with total thyroidectomy for DTC > 1 cm were stratified based on American Thyroid Association (ATA) risk classification as low, intermediate or high risk. RAI treatment regimens were compared before initiation of MDC (2003-2005) and after establishment of MDC (2007-2009). RAI doses were defined as low (≤75mCi), intermediate (76-150 mCi) and high (>150 mCi). We also analyzed RAI dosages after the release of revised 2010 ATA guidelines (2012-2014).

Results: Patient demographics and tumor characteristics were comparable between the before MDC group (n=71) and the after MDC group (n=80). When stratified by ATA group, there was a significant decrease in the number of patients who received high dose RAI in the intermediate and high-risk groups (p=0.02 and p=0.02) without an increase in 5-year tumor recurrence (8%). On multivariate analysis, positive nodal status, lymphatic invasion and tumor size >2 cm were predicative (p<.01) for receiving high dose RAI, however, patient presentation at MDC conference was a negative predictor (p<.03). There were no significant changes in RAI dosages after release of the 2010 ATA guidelines.

Table 1: RAI DOSAGE STRATIFIED FOR ATA RISK GROUP

<table>
<thead>
<tr>
<th>RAI treatment</th>
<th>Before MDT (n=71) 2003-2005</th>
<th>After MDT (n=80) 2007-2009</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk</td>
<td>N= 26</td>
<td>N=24</td>
<td>-</td>
</tr>
<tr>
<td>≤150 mCi</td>
<td>26 (100%)</td>
<td>24 (100%)</td>
<td></td>
</tr>
<tr>
<td>&gt;150 mCi</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Intermediate risk</td>
<td>N= 34</td>
<td>N=44</td>
<td>0.02</td>
</tr>
<tr>
<td>≤150 mCi</td>
<td>23(68%)</td>
<td>39 (89%)</td>
<td></td>
</tr>
<tr>
<td>&gt;150 mCi</td>
<td>11 (32%)</td>
<td>5 (11%)</td>
<td></td>
</tr>
<tr>
<td>High Risk</td>
<td>N=13</td>
<td>N=14</td>
<td>0.02</td>
</tr>
<tr>
<td>≤150 mCi</td>
<td>7 (54%)</td>
<td>13 (93%)</td>
<td></td>
</tr>
<tr>
<td>&gt;150 mCi</td>
<td>6 (46%)</td>
<td>1 (7%)</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: Implementation of a thyroid malignancy multidisciplinary conference significantly decreased use and dosage of RAI given to patients without increased tumor recurrence. Patients with DTC can be treated effectively with lower dose RAI, thereby decreasing adverse effects without compromising disease-free survival. Treatment for patients with intermediate-high risk thyroid carcinoma is optimized by a coordinated multidisciplinary approach.

Disclosure of Interest: None declared
MODIFICATION OF THE SURGICAL STRATEGY FOR THE DISSECTION OF THE RLN USING CONTINUOUS INTRAOPERATIVE NERVE MONITORING
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Introduction: The use of Intraoperative Neuromonitoring (IONM) has an impact on Recurrent Laryngeal Nerve Palsies (RLNP) in difficult neck surgeries. The aim of this study was to describe first experiences using Continuous IONM.

Materials & Methods: Retrospective analysis of all consecutive patients who underwent thyroid and parathyroid surgeries using C-IONM. The use of IONM is systematic in our center since 2008 and C-IONM was used in difficult cases since 2012. Surgical maneuvers were modified when adverse electrophysiologic findings were noted. Patients with persistent loss of signal (LOS) underwent postoperative laryngoscopy.

Results: One hundred and one patients (of 1586 neck surgeries) were included, with 159 nerves at risk. Nineteen patients with 30 nerves at risk had LOS, which was temporary (resolved before end of surgery) in 13 patients (12.9%) and persistent (no signal at the end of the procedure) in 6 patients (5.9%); these 6 patients had RLNP at postoperative day one. These 19 LOS led to a modification in surgical approach: in 6 patients, the traction on the thyroid was released, in 4 patients a superior approach to the RLN was used, in 2 an inferior approach and in 4 both approaches were used.

In 3 of the 6 patients with persistent LOS, LOS occurred at electrode placement on the Vagus Nerve, leading to a change in procedure: in all 3, distal placement of the electrode was performed and ipsilateral dissection could be performed with C-IONM; in 2 patients, the intended bilateral surgery was stopped after the first side and they both had a complete recovery of RLN within 2 months, followed by surgery on the second side. The third patient had a complete recovery at 6 months. In the 3 other patients, LOS occurred on the RLN (one accidental section of anterior branch of a branched RLN, one probable thermal lesion and one over-traction). The RLNP recovered within 1 and 6 months in 2 patients, and in the third, RLNP persisted after 6 months (overall: 1/101=1%).

Conclusion: C-IONM provides real-time evaluation of the RLN function, allowing for adaptation of surgical maneuvers to prevent RLNP. In our opinion, it is particularly useful in difficult cases like redo neck surgeries, invasive thyroid cancer, intra-thoracic goiter and large or posterior goiters. Furthermore, care should be given at electrode placement on Vagus Nerve.

Disclosure of Interest: None declared
THE MECHANISM OF DEPRESSIVE LIKE BEHAVIOR IN HYPOTHYROIDISM RATS INDUCED BY TOTAL THYROIDECTOMY: ALTERED SEROTONIN SYSTEM IN LHB-DRN-PFC PATHWAY

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Introduction: Depressive like behavior could be observed both in hypothyroidism rats and patients, which suggests the altered thyroid hormone levels might be closely associated with mental disorders. Further more, decreased 5-hydroxytryptamine (5-HT) level in some brain regions could also be found in hypothyroidism rats with depressive like behavior. However, the mechanism that how hypothyroidism affects mental disorders is unclear. Our study aims to discuss the mechanism of depressive like behavior in hypothyroidism rats induced by total thyroidectomy.

Materials & Methods: 40 rats were divided into two groups (operation and sham), open filed test (OFT) and forced swimming test (FST) were performed to detect the depressive like behavior 6 weeks after operation. The expression of Cytochrome C oxidase (COX) in lateral habenular (LHb) and dorsal rapheal nuclei (DRN) were observed by histochemistry, the expression of thyroid hormone receptor β (THRβ) and β calmodulin-dependent protein kinase type II (βCaMK II) in LHb, the expression of tryptophan hydroxylase (TPH2), 5-hydroxytryptamine 2A receptor (5-HT2A-R), 5-hydroxytryptamine transporter (5-HTT), monoamine oxidase-A (MAO-A) in prefrontal cortex (PFC) were detected by Western Blot.

Results: Compared with the sham, the operation group showed a significant depressive like behavior as declined moving distance in OFT, decreased climbing time and increased immobile time in FST. COX was higher expressed in LHb and lower expressed in DRN of the operation group compared with the control. The expression of THRβ and βCaMK II in LHb were also up-regulated in operation group. In PFC, the expression of TPH2 was down-regulated and the 5-HT2A-R, 5-HTT, MAO-A were up-regulated in operation group compared with the control.

Conclusion: Depressive like behavior could be induced by hypothyroidism, which might result from the depressed serotonin system in the LHB-DRN-PFC pathway.

Disclosure of Interest: None declared
SURVIVAL ANALYSIS AND ADVANCES IN IMMUNOHISTOCHEMISTRY FOR MEN 2 GENE TESTING IN MEDULLARY THYROID CARCINOMA.

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¹University of Sydney Endocrine Surgical Unit, ²Department of Endocrinology, ³Department of Anatomical Pathology, Royal North Shore Hospital, Sydney, Australia

Introduction: Medullary thyroid cancer (MTC) is a rare tumour of neuroendocrine origin with a more aggressive profile than differentiated thyroid cancer. Our aims were to determine prognostic factors and disease free survival of MTC patients and to report current advances in immunohistochemistry and its potential role in confirming sporadic disease.

Materials & Methods: A surgical series of consecutive patients with MTC managed within two Endocrine surgical Units was studied retrospectively. The primary outcome measure was disease free survival. Survival analysis was performed on the basis of sporadic and familial disease determined by routine RET testing. Histopathologic MTC slides from 68 patients known to have sporadic MTC were tested for HRASQ61R, a common somatic RAS mutation in MTC, via immunohistochemistry (IHC) using a rabbit clone antibody.

Results: A total of 186 patients were found to have MTC from 1980 to 2015. There were 81 males and 105 females with a mean age of 53.1. A total of 38 (20.4%) patients were MEN 2 positive. Sporadic MTCs had a higher pre-op calcitonin (7385.7 vs 1412.9), tumour size (23.5mm vs 12.8mm) and distant metastasis (18.2% vs 10.5%) Multivariate analysis showed age (p=0.05), MEN status (p=0.003) and pre-operative calcitonin levels (p=0.007) to be significant independent predictors of survival. The overall 5-year survival was 100% for familial MTC and 82% for sporadic MTC. The 5-year disease free survival was 88% for familial MTC and 50% for sporadic MTC. IHC revealed that 7 (10.3%) of the 68 sporadic MTC patients were found to have the HRASQ61R mutation. IHC had 100% specificity in confirming sporadic MTC.

Conclusion: The genetic status of MTC strongly influences survival. The use of IHC appears to have accuracy in determining RAS mutations in sporadic MTCs. IHC could save time and costs in genetic testing of sporadic mutations in the future and preclude the need for RET mutation testing in patients who are thought unlikely to harbour a germline mutation.


Disclosure of Interest: None declared
LIPOSARCOMA: BOIDAE OF THE RETROPERITONEUM

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1Christian Medical College, vellore, India

Introduction: Retroperitoneal sarcoma accounts for 16% of all soft tissue sarcomas, Liposarcomas being the commonest type. Liposarcomas pose problems due its ubiquitous localization and the proportions it reaches before being symptomatic. Therapeutic challenge remains of treating this, “not so fatal but morbid” tumour.

Aim: To study their clinical pattern, histopathological spectrum, at-risk group for recurrence and assess pitfalls in management.

Materials & Methods: Prospectively stored electronic database of all patients with diagnosed retroperitoneal liposarcomas between September 2011 and August 2016 was compiled and analyzed.

Results: 23 patients were diagnosed to have Liposarcoma. Age ranging from 32 years to 75 years. There was definite male preponderance. Abdominal swelling being the commonest symptom. CT abdomen was done in all. Size on imaging was more than 10 cms in all, but 2 patients. Excision was done in 2, Debulking was done in 18 and en bloc resection in 3. Kidney was the commonest organ that needed to be sacrificed. Histopathological spectrum ranged from well differentiated to dedifferentiated tumours. Total number of operations done were 34, with a recurrence rate of 60%. Adjuvant radiation therapy was used in 19% and adjuvant chemotherapy was used in 52%.

Conclusion: Nomenclature of operation types needs standardization. Aggressive operative procedures like compartmental resection or en bloc resection be advocated with caution, given the high recurrence despite the aggressive approach. Newer modalities of therapy be tried in neo-adjuvant setting to improve overall survival and disease free survival

References:

1: Matthew T. Hueman, MD, Joseph M. Herman, MD, MSc, Nita Ahuja, MD,*
   aThe Johns Hopkins University School of Medicine, 600 North Wolfe Street, Blalock 665, Baltimore, MD 21287, USA

2: Aggressive Surgery in Retroperitoneal Soft Tissue Sarcoma Carried Out at High-Volume Centers is Safe and is Associated With Improved Local Control
Sylvie Bonvalot, MD, PhD1, Rosalba Miceli, PhD2, Mattia Berselli, MD3, Sylvain Causeret, MD1, Chiara Colombo, MD3, Luigi Manieri, MD2, Hatem Bouzaïene, MD1, Cécile Le Peuch, MD4, Paolo Giovanni Casali, MD5, Axel Le Cesne, MD6, Marco Fiore, MD3, and Alessandro Gronchi, MD3

3: Histologic Subtype and Margin of Resection Predict Pattern of Recurrence and Survival for Retroperitoneal Liposarcoma
Samuel Singer, MD,* Cristina R. Antonescu, MD,† Elyn Riedel, MA,‡ and Murray F. Brennan, MD*

4: Management of Primary Retroperitoneal Sarcoma (RPS) in the Adult: A Consensus Approach From the Trans-Atlantic RPS Working Group

Disclosure of Interest: None declared
**26.02 VALIDATING THE APPEND CLINICAL PREDICTION RULE FOR ACUTE APPENDICITIS.**

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**Introduction:** Right iliac fossa (RIF) pain accounts for a significant proportion of acute admissions to general surgical services each year with appendicitis being one of the most common underlying diagnoses. The clinical diagnosis of appendicitis continues to challenge clinicians which is reflected in high negative appendicectomy rates. Clinical prediction rules (CPRs) are one method used to diagnose appendicitis and reduce negative appendicectomy rates. The APPEND score is a CPR recently developed in the Counties Manukau population. The aim of this prospective cohort study was to validate this novel CPR.

**Materials & Methods:** All patients presenting with RIF pain were enrolled into the study over a six-month period. The study was powered to detect a 7% difference in negative appendicectomy rates which required 384 patients. The primary outcome was the negative appendicectomy rate. Secondary outcomes were the diagnostic indices of the CPR and number of radiological investigations performed. Results from the current prospective cohort were compared to those of the retrospective cohort used to develop the APPEND score.

**Results:** 437 patients with a mean age of 33 ± 16 were enrolled. 53.8% of these patients were male. The negative appendicectomy rate in the prospective cohort was 9.2% (95% CI: 5.3%, 13.2%) compared to a rate of 19.8% (CI 16.2, 23.4%) in the retrospective cohort. After adjusting for confounders, age, gender, ethnicity, APPEND score, HR, SBP and temperature, the odds of a negative appendicectomy was 2.3 time higher (95% CI; 1.26, 4.3, P value 0.007) in the retrospective cohort. An APPEND score of ≥ 5 was 87% specific for ruling in appendicitis with a positive predictive value of 94%, while a score of ≤1 was 100% sensitive in ruling out appendicitis with a negative predictive value of 100%. The AUC from ROC analysis was 0.88 (95%CI:0.85-0.91). There was no significant difference between the number of CT scans performed in the two populations

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>0.9</td>
<td>0.9</td>
<td>0.8</td>
<td>0.7</td>
<td>0.6</td>
</tr>
<tr>
<td>Specificity</td>
<td>0.8</td>
<td>0.7</td>
<td>0.6</td>
<td>0.5</td>
<td>0.4</td>
</tr>
<tr>
<td>PPV</td>
<td>0.6</td>
<td>0.5</td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td>NPV</td>
<td>0.9</td>
<td>0.8</td>
<td>0.7</td>
<td>0.6</td>
<td>0.5</td>
</tr>
<tr>
<td>Efficiency</td>
<td>0.7</td>
<td>0.6</td>
<td>0.5</td>
<td>0.4</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Conclusion:** The APPEND clinical prediction rule was a useful tool in the diagnosis and management of appendicitis in all patient who presented with RIF pain. It showed a significant reduction in the negative appendicectomy rates.

**References:**

**Disclosure of Interest:** None declared
TRANS-UMBILICAL OPEN APPENDECTOMY: A GOOD MINIMALLY INVASIVE ALTERNATIVE TO OPEN APPENDECTOMY IN PATIENTS WITH CONCOMITANT UNCOMPLICATED UMBILICAL HERNIA? A SINGLE CENTER EXPERIENCE ON 53 PATIENTS.

A. Chichom-Mefire¹,*, F. Dikongue Dikongue², L. M. Guifo³, G. Bwelle⁴, J.-M. Bob-Oyono⁴
¹Faculty of Health Sciences, University of Buea and Regional Hospital Limbe, Cameroon, Buea, ²Douala Gynaeco-obstetric and Paediatric Hospital, Douala, ³Hospital University Center, ⁴Central Hospital, Yaoundé, Cameroon

Introduction: Laparoscopic approach is now considered gold standard for the operative management of acute appendicitis though there is still some controversy about its superiority over conventional open appendectomy. In this era of minimally invasive approaches in surgery, a lot of emphasis is placed on cosmetics and early recovery. In the absence of laparoscopic facilities, some alternative minimally invasive approaches have been proposed.

Materials & Methods: This is a 6 years single center experience using the umbilical ring to perform an open appendectomy in patients with concommitant non-complicated umbilical hernia. In this technique systematically performed under general anaesthesia with complete muscle relaxation, a 2 to 3 centimeters curved infra-umbilical incision is used. After routine dissection and resection of the hernia sack, a pair of Farabeuf retractors is used to expose the caecum and appendix in the right iliac fossa (image 1). The appendectomy in then performed either “ex-vivo” after exteriorization of the caecum or “in-vivo” when the caecum cannot be mobilized. The hernia repair is then performed by insertion of a mesh or by a simple suture.

Results: Over the study period, this technique was used on 53 patients (37 males and 17 females, mean age 19.9 years) who presented with an acute appendicitis and a concomitant umbilical hernia discovered during abdominal examination. The mean length of skin incision was 2.8 centimeters and the size of umbilical ring after dissection of the hernia sack ranged from 1 to 4.5 with a mean of 2.69 cm. The caecum could be exteriorized in 41 patients and the appendectomy was performed “ex-vivo”. Conversion to Gridiron incision was necessary in 1 patient (1.9%) for uncontrollable bleeding of the mesoappendix on a fixed caecum. the umbilical hernia was repaired with a mesh in 13 patients (24.5%) and a suture repair in all other cases. The mean operation time was 44.3 ±36.8 minutes. Two patients developed a superficial surgical site infection managed conservatively. The hospital stay ranged from 1 to 10 days with a mean of 2.4 days.

Image:
Conclusion: Trans-umbilical appendectomy is feasible and could be a good alternative to laparoscopic appendectomy with a low conversion rate. However, there seems to be a significant risk of superficial infection which needs to be confirmed on a larger sample.

Disclosure of Interest: None declared
Introduction: Inflammatory pseudo tumor (IPT) is an uncommon neoplasm of unknown etiology and is developed in numerous anatomic sites. The occurrence of IPT in the spleen is extremely rare with only sporadic case reports and small case series reported in the literature. The IPTs that occur in the spleen and liver are typically associated with Epstein-Barr virus (EBV). IPT of the spleen is frequently asymptomatic and is typically picked up as an incidental finding on imaging study. This tumor is composed of proliferation of spindle cells of unknown origin and etiology that mimic other tumors at clinical and histological evaluation. Surgical removal for this lesion is treatment of choice and there is few reported case with recurrence and metastasis.

Materials & Methods: The present study reports on IPT of the spleen that was incidentally found in a 73-year-old woman and increased gradually in size during a period of 3 years. Abdominal ultrasonography revealed a well-circumscribed splenic mass, and abdominal computed tomography confirmed the presence of a well-circumscribed, delayed enhanced lesion in the splenic hilum with impression of benign tumors such as hematoma or lymphoma, or malignant tumor less likely.

Results: The patient underwent an uncomplicated laparoscopic splenectomy for definitive histologic diagnosis. Gross findings of specimen showed 3x 3x 3.5 cm sized whitish mass with small necrotic foci. Under microscopic examination, IPT-like follicular dendritic cell associated with EBV was observed.

Conclusion: EBV associated IPT of spleen is rarely developed benign tumor which is indistinguishable from malignant lesions such as lymphoma on imaging study.

Disclosure of Interest: None declared
26.05
SACROCOCCYGEAL PILONIDAL SINUS: A COMPARATIVE STUDY OF EXCISION WITH LAYING OPEN AND BASCOM’S TECHNIQUE
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Introduction: Pilonidal Sinus is a disease that most commonly arises in the hair follicles of the natal cleft of the sacrococcygeal area of young adults. Principles of treatment require eradication of the sinus tract; complete healing of the overlying skin and prevention of recurrence.

Materials & Methods: Over a period of ten months, from October 2015 to July 2015, sixty three male patients with Sacrococcygeal Pilonidal sinus disease were prospectively studied in Tikrit Teaching Hospital. Thirty five patients were operated on by midline excision with laying open and healing by secondary intention, without closure, group (A); the remaining twenty eight patients were operated on by Bascom’s method, group (B). The principle outcome measures recorded were duration of hospital stay, duration of complete healing, wound Infection, abscess formation and recurrence of the disease. Data were analyzed by using T-Test and Chi square. P value equal or less than (≤ 0.05) was considered significant

Results: The age range was from fourteen to fifty years with a mean age of (29.4±6.03) years in group (A) and (29.2±5.93) years in group (B). The mean duration of the disease was (20.2±8.7) months in group (A) and (17.6±7.8) months in group (B). The majority being drivers, with their main presenting symptom being discharge at the lower back in forty six patients (73.01%), either serous, serosanguineous or purulent. Duration of hospital stay was longer in patients of group (A) than those of group (B), (P = 0.049). Duration of complete healing was longer in patients of group (A) than those of group (B), (P = 0.002). The cases of longer duration of healing were due to wound infection and abscess formation. After the period of follow up (one to nine) months, the difference in postoperative complications in both groups were not significant, (P = 0.237).

Conclusion: Bascom’s method is the ideal operation for a symptomatic Sacrococcygeal Pilonidal sinus. It has the advantages of short hospital stay, early wound healing, low frequency of wound infection and no recurrence of the disease and subsequently reduction of the total cost and rapid return to work.


Disclosure of Interest: None declared
A LATE ADOLESCENT GIRL WITH RECTAL DUPLICATION CYST IN BANGLADESH: CASE REPORT
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Introduction: Intestinal duplications, originally described in 1941, are congenital cystic lesions resembling and associated with part of the gastrointestinal tract. Rectal duplication is the rarest of all duplications and adolescence presentation of rectal duplication cyst is quite unusual which is reported here

Materials & Methods: A 17 year female presented with right gluteal lump in Surgery inpatient department and was diagnosed at first as a case of Dermoid cyst in accordance with history, clinical findings and investigation with Computed Tomography and Magnetic Resonance Imaging. She underwent surgery and was found to have a smooth cystic mass

Results: The soft cystic mass was later found to be a Rectal Duplication cyst in histopathology

Conclusion: High index of suspicion with other differentials can lead to early diagnosis and complete cure of the condition.

References:

Disclosure of Interest: None declared
26.07  
EFFECT OF URINARY CATHETERIZATION ON POST-OPERATIVE URINARY COMPLICATIONS AND PATIENTS SATISFACTION IN LAPAROSCOPIC OBESITY SURGERY  
M. Kalhor1,*  
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Introduction: This trial is about these side effects and probably benefits of these procedures performing without any catheterization.

Materials & Methods: This RCT was performed on two groups of morbidly obese patients that underwent LRYGB. The intervention group includes 40 patients who were not catheterized before operation and the control group includes 40 patients who were catheterized before operation. After the operation, we have assessed fluid intake and output during operation, in the operation day, first and second post operation day and UTI symptoms, urine culture, urinary and perineal complaints, urinary continence and retention evidences, subjective urinary discomforts and patient satisfaction due to urinary catheterization in both groups and the results were analyzed.

Results: There were no significant differences in baseline characteristics between two groups. Urinary retention after removal of catheter was not significant between two groups. Urinary incontinence after removal of catheter, Rate of UTI and sterile pyuria, the rate of dissatisfaction of the catheterization was significantly different between two groups.

Conclusion: In non-prolonged laparoscopic obesity surgeries, urinary catheterization may be unnecessary and we can manage the patient's body fluids balance without urinary catheter, perfectly. The post-operative catheter based urinary complications are significantly reducing due to this approach.

Disclosure of Interest: None declared
Introduction: Soft tissue sarcoma (STS) are rare solid tumors of mesenchymal origin. The sarcomas of the limbs represents 60% of all sarcomas. The surgical treatment has evolved from amputation to limb-sparing techniques. A multidisciplinary approach is of paramount importance in their treatment. In this study we have tried to analyze the management and its results in patients with STS of the extremities treated in a single institution.

Materials & Methods: A retrospective analysis of the demographic and histopathological characteristics of patients who underwent surgery for STS of the limbs between 2010-2013. Although retrospective analyses are important to identify factors independently associated with prognosis, they are limited in their ability to provide survival estimates for individual patients. Nomograms are increasingly accepted as models in which identified prognostic factors can be incorporated into a scoring system and used to predict likelihood of DSS. We have used the postoperative sarcoma-specific death nomogram of the Memorial Sloan Kettering Cancer Center (MSKCC) and compared the likelihood of disease-specific survival (DSS) with the results verified in our series.

Results: 152 patients were identified with a mean age of 60 years. 55.3% (84) were women. Most of the lesions (76.3%) were located to the lower limb. Lesions with more than 10 cm were described in 44.1%. The most frequent histological type was liposarcoma (30.9%). High-grade neoplasias represented 66.4% of the sample. R0 resection margins were achieved in 65.1%. The percentage of patients who underwent neoadjuvant and adjuvant treatments was 11.2% and 54.6%. The OS and DSS at 4 years was 70% and 78%. A high degree of malignancy was a poor prognostic factor. The DSS at 4 years predicted the MSKCC nomogram for low and high-grade sarcomas was 96% and 71%. In our study, the DSS rate at 4 years was 100% for low grade sarcomas and 68% for high grade sarcomas.

Conclusion: STS of the limbs are heterogeneous group of neoplasms with different prognoses. A multidisciplinary approach such as the one we preconize in our Institution is mandatory in order to obtain the best results in survival. The main prognostic factor identified was the degree of malignancy. The survival rates were similar to those predicted by the MSKCC nomogram, but our goal in the near future is to improve this results using pre-op RT with an acceptable rate of complications.

www.mskcc.org/nomograms/sarcoma/post-op/worksheet
Blay JY., 100 Questions on Soft Tissue Sarcoma. 2nd Edition

Disclosure of Interest: None declared
PEDIATRIC OSTEOMYELITIS: ANALYSIS OF 220 CASES IN FIJI
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Introduction: To assess the demographic variables, average length of stay and to calculate the incidence of pediatric osteomyelitis in Fiji. Micro-organism profile was also analysed as was the outcomes for treatment.

Materials & Methods: A retrospective review of medical records of pediatric patients presenting to the 3 divisional hospitals in Fiji (CWM, Lautoka and Labasa) over a 5 year period (2006-2010) with a diagnosis of osteomyelitis

Results: 220 patients were identified. An annual incidence of 18 cases/100 000 pediatric population was identified. The highest incidence was in the ethnic Fijian population (21/100 000). Males were at a higher risk of developing osteomyelitis (21/100 000 vs 11/100 000 for females). The age-group most commonly affected were children between 5-9 years (20/100 000). Staph aureus was identified as the causative organism in 76% of all positive blood and pus cultures and it was sensitive to cloxacillin in 100% of cases. The most common ante-cedent factor identified was trauma (48%) followed by skin sepsis (31%). 67% of cases had chronic osteomyelitis with the most common presentation being an abscess (48%). The mean admission duration was 11.8 days. The most commonly involved bone was the tibia (54%). Chronic osteomyelitis was most likely to require an operation in addition to antibiotics as compared to acute (85 vs 24%). The success rate of treating acute osteomyelitis, which was defined as no clinical or radiological evidence of disease 6 months after treatment was 92% and that of chronic was 61%.

Conclusion: Pediatric osteomyelitis poses a significant problem in Fiji especially in the male, ethnic Fijian population between 5-9 years of age. The chances of complete resolution after treatment of acute osteomyelitis is very good therefore early diagnosis and treatment are advocated.

Disclosure of Interest: None declared
INFORMED CONSENT AND THE ROYAL COLLEGE OF SURGEONS' GUIDE TO GOOD PRACTICE – ARE PATIENTS GIVING FULLY INFORMED CONSENT?

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Introduction: Following the United Kingdom Supreme Court ruling of Montgomery vs Lanarkshire, the Royal College of Surgeons published guidance in the form of ‘Consent: Supported Decision-Making’ to help surgeons on the legal requirements on consent and patients’ right. This study assesses the current state of consent in practice.

Materials & Methods: A retrospective study at a district general hospital of the consent process for elective orthopaedic operations over a 3 week period. Electronic records including consent forms and clinic letters were assessed against 14 criteria from the Royal College guidelines which were selected following discussion from the consultant body. Exclusions criteria included unavailable records, local anaesthetic procedures and cancellations.

Results: 89 patients (49 M:39 F, median age 54) had the following explained and documented during consent:
- Explanation of diagnosis (87.8%), Nature of treatment (82.0%), Benefits (57.3%), Risks (71%), Likelihood of success (28.1%), Follow-up process (33.7%), Alternative treatments (21.3%), Risks of alternatives (14.6%), Right to refuse (3.6%). Key points were recorded in 98.7% whilst 10% were given multimedia to take home. Only 6.7% of patients were given time to go and think about consent. Copy of clinic letters were sent to the patient and General Practitioner in 100% of cases.

Conclusion: Although documentation of diagnosis, nature of treatment and risks was satisfactory, more work needs to be done to improve consent document to meet new medico-legal requirements. Informing patients of the likelihood of success, offering alternative treatment options and their risks as well as the right to refuse treatment must be documented in order to avoid the potential for legal challenges further down the line. The introduction of proforma checklists, giving patients information leaflets and time to reflect will help protect surgeons and safeguard patients’ right to informed consent.


Disclosure of Interest: None declared
Introduction: Exposure risk of infections to blood borne pathogens while handling the patients of unknown status had been a matter of concern for medical care providers. Incompliance and lag in use of safety measures as universal precautions had been a major risk factor for contact based infections. Despite the availability of detailed guidelines, the knowledge and compliance with standard precautions vary among medical care providers and have been found to be inadequate in both developed and developing countries. The aims and objectives of the study were to observe the compliance in following the protocols and use of universal precautions by emergency medical staff (residents and nursing staff).

Materials & Methods: Prospective questionnaire based study conducted in emergency department of UP RIMS & R, Saifai, Etawah for the duration of 6 months i.e. January 2015 to June 2015

Results: In our study incompliance towards use of eye ware was maximum followed by Handwash. A total fall of 90.09% was noted in lag of use of universal precautions at the end of the study most probably due to daily reminder by questionnaire.

Conclusion: Risk of exposure while handling of patients in emergency is a big threat to every medical care providers and it is unfortunate that maximum of these exposures are due to their incompliant behaviour. A simple reminder towards the use of universal precautions can largely prevent exposure based infections.

Disclosure of Interest: None declared
ASSESSING PROCESS COMPLIANCE WITH THE WHO SURGICAL SAFETY CHECKLIST: EARLY EXPERIENCE WITH THE CLEAN CUT PROGRAM MEASUREMENT STRATEGY IN CAMBODIA

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Introduction: We developed a checklist-based program – Clean Cut – to increase adherence to evidence-based perioperative infection prevention measures and decrease infections. We sought to identify barriers to checklist implementation at a trauma hospital in Battambang, Cambodia but noted ambiguity in the surgical team’s understanding of checklist item completion. Our data collection process evolved to emphasize the capturing of observed practices, as opposed to subjectively defined tasks, to elicit accurate information about performance of perioperative checklist items.

Materials & Methods: Perioperative data were initially collected via a paper form and converted to a mobile REDCap tool (Tool 1). We noted discrepancies with what was actually happening and how data were recorded, so we modified our tool to ask questions that were observation-based (Tool 2). The data collectors were retrained to appropriately answer the updated Tool 2.

Results: We observed 700 cases between August 2015 and October 2016. Two items were inaccurately documented. The hospital reported 100% compliance with confirmation of sterility (as measured by verbal confirmation of sterility using Tool 1, which asked, “Was instrument sterility confirmed? [Y/N]”, figure 1a) despite the absence of sterile markers in routine use to confirm instrument sterility. A simple intervention of using sterile indicator tape inside each instrument tray as visual confirmation of sterility was implemented on week 14 (striped arrow). Tool 2 asked, “Was there a sterile marker inside the instrument tray? / “Did the sterile marker change color?” and demonstrated high-adherence to sterility confirmation (figure 1b). Reported postoperative sponge counting was also 100% using Tool 1, which asked, “Was a sponge and instrument count done? [Y/N]” (figure 2). Upon introduction of the electronic tool (black arrow) the data collectors were instructed to mark “yes” only if they observed the count being performed, introducing some variability in their response. At week 36 (white arrow), Tool 2 was introduced asking, “How many sponges were counted” at both the beginning and end of the operation; compliance was notably more variable when true sponge counting was observed and recorded.

Image:
Conclusion: Capturing directly observable behaviors is the best mechanism for assessing compliance. This study highlights the importance of asking specific performance-oriented questions using direct observation in order to determine changes in process adherence.

Disclosure of Interest: None declared
DEVELOPMENT OF A FEEDBACK GUIDE FOR POSTGRADUATE RESIDENTS ON RECEIVING FEEDBACK FROM FACULTY IN THE OPERATING THEATRE AT AGA KHAN UNIVERSITY HOSPITAL
AN ACTION RESEARCH STUDY

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Introduction: Direct observation of residents in clinical encounters by faculty and assessment for learning is a key component of postgraduate training programs. Learning through interactions between residents and faculty is influenced by multiple factors at faculty, resident and contextual levels. The feedback provided may be used by the receiver to contemplate behaviour change. The receptivity of the resident to the feedback is a key to learning. Studies have shown discordance between intended feedback by faculty and that received by trainees. Tips for trainees have been proposed to make best use of feedback which provide strategies to reflect, interact and respond to feedback from faculty. These tips are environment specific. This study sought to develop Feedback tips into a resident driven action research tool to improve receptivity of feedback from faculty at AKUHN.

Materials & Methods: Action research study design. Consented first-year residents from general surgery, anaesthesiology, obstetrics and gynecology underwent direct observation in the operating room by faculty after which they received feedback. They then participated in focus group discussions lasting 90-120 minutes during which they expressed their feelings and perceptions towards their feedback, identified problems and proposed remedies. The discussions were audio recorded, transcribed verbatim, verified, anonymized and analyzed using NVIVO 10 software. Giorgi phenomenological qualitative analysis was used to develop themes. They were then introduced to the tips of making the best use of feedback in an interactive workshop. They reflected on their experience, identified with and modified the tips into a guide to best suit the academic and workplace environment. The residence response to the guide was then analyzed.

Results: The residents had a broad understanding of the concept of feedback and were familiar with the qualities of good feedback. Their experience with the ‘Twelve tips’ triggered the development of SORTeD Feedback guide. The guide improved receptivity, reflection and formulated a road map for action.

Conclusion: This study developed a resident-driven guide that has increased receptivity and use of feedback from faculty by postgraduate residents. The guide has potential for use in other feedback encounters outside the operating room. A change in strategy towards more trainee-driven reflection and solutions should be considered. Longer term studies to evaluate utility, retention and behaviour change of the SORTeD guide can be done.

Disclosure of Interest: None declared
LEADING THE CHARGE FOR CHANGE IN SURGICAL CARE AT A FRONTLINE HOSPITAL IN ETHIOPIA
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Introduction: The tenuous relationship between surgeons and integrated emergency surgical officers (IESO) (non-specialist surgical providers) has been at the center of less than ideal surgical care provision in Ethiopia including gaps in quality, volume, appropriate and timely referrals, and ultimately patient safety. Building a collaborative team environment that is focused on improved patient and surgical ecosystem outcomes are two of the key components of the GE Foundation supported Safe Surgery 2020 project in Tigray and Amhara regions of Ethiopia. Safe Surgery 2020, through the Surgical Society of Ethiopia, also identified mentors from the referral hospital to facilitate implementation of the surgical leadership plan each surgical team developed during training.

Materials & Methods: Jhpiego, in partnership with the Ministry of Health, Surgical Society of Ethiopia, Dalberg, and Johns Hopkins University, facilitated a five day leadership training in June 2016, including competencies in problem-solving, communication, and team-building with an emphasis on surgical patient safety. During the initial training, the surgical team from Alamata Hospital and the assigned mentor from its referral hospital Mekele University Hospital co-developed a nine-month project plan to reduce surgical site infections, improve surgical outcomes and reduce referrals of emergency and essential surgeries to the regional hospital.

Results: The surgical team at Alamata hospital systematically engaged their hospital’s most senior surgeon and hospital administrator (CEO) to participate in their project team and support them to implement their action plan, which prioritized using the WHO surgical safety checklist during each surgery. The team’s enthusiasm to work together, with support from their facility’s leadership, and guided by the WHO checklist has resulted in early increases in surgical volume and work climate, and reductions in Cesarean section referrals, surgical site infections, and mortality.

Conclusion: Surgical training has traditionally emphasized decision-making and operative technique for individual patient care, skills which are critical for a surgeon’s clinical role. But surgeons- and their teams- will only achieve efficient and universal coverage of essential surgery when systems-level barriers are addressed. We need a cadre of surgical leaders in a multidisciplinary team to be an army of change agents at the district level, equipped to ensure the access and availability of safe surgical care.

Disclosure of Interest: None declared
NEGATIVE PRESSURE WOUND THERAPY FOR SALVAGE OF AORTIC GRAFT INFECTION
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Introduction: Aortic graft infection is a tragic and often fatal complication after ascending aorta replacement. Infection can be life-threatening. Surgical removal of the prosthesis is advocated. However often, such an undertaking is not possible as it is technically challenging, with the patient often in poor medical condition. We present five cases where the ascending aortic graft was successfully preserved using negative pressure wound therapy (NPWT).

Materials & Methods: Five patients who were diagnosed with infected prosthetic aortic graft and who underwent treatment with negative pressure wound therapy followed by flap reconstruction between January 2007 and December 2016 were included the study. They were followed up to see the success of this type of treatment. Two representative cases are presented.

A 51-year-old man with acute aortic dissection, who had undergone prosthetic graft replacement of the ascending aorta, presented two months later with purulent discharge from the sternotomy wound. Surgery revealed necrosis of the sternal bone as well as frank pus around the prosthetic graft. NPWT with continuous saline irrigation was used as a bridging process. Once the inflammatory markers had returned to normal, a free anterolateral thigh flap with the vastus lateralis muscle included was used for reconstruction. The patient recovered well.

A 48-year-old man with acute aortic dissection underwent aortic grafting of the ascending aorta. He developed signs of infection one week post surgery. Debridement and immediate NPWT with continuous saline irrigation were done. Once the inflammatory markers were in the normal range and the wound showed good granulation, it was reconstructed with bilateral PM advancement flap. The prosthetic aortic graft was preserved with no further complications.

Results:
The prosthetic aortic grafts were preserved in the 5 patients with no further wound complications. NPWT with or without continuous irrigation was exchanged at 3-7 day intervals.

Conclusion: NPWT with or without continuous normal saline irrigation is a treatment option in the preservation of infected prosthetic aortic grafts. It can be used as a bridging process until definitive treatment. Further reconstruction with flaps are often required. Its application should be considered in those patients where removal of the prosthetic aortic graft presents as likely mortality risk.

References:

Disclosure of Interest: None declared
Introduction: Spontaneous hemopneumothorax (SHP) is accumulation of > 400 ml of blood in the pleural cavity in association with a primary spontaneous pneumothorax. It is rare and can be life-threatening when complicated by hemodynamic instability. Management interventions include: conservative treatment with chest tube insertion, and/or surgical intervention. However, optimal management strategy remains controversial notably on indications and timing of surgery. The aim of this study was to review our institution’s experience with surgical management of SHP.

Materials & Methods: This was a single-center retrospective review of all cases of SHP undergoing surgery at our institution from January 2000 to June 2016.

Results: Out of 491 primary spontaneous pneumothorax cases undergoing surgery at our institution during the study period, there were 33 cases of SHP. Mean age was 29 years, and there were 31 males. Three patients presented with hemodynamic instability, and 10 patients required blood transfusion pre-operatively. Mean initial drainage upon chest tube insertion was 650 mls. Mean time from chest tube insertion to surgery was 37 hours (1 – 189 hours). Surgical approaches included thoracotomy (n=5), and video-assisted thoracoscopic surgery (n=28). No video-assisted thoracoscopic surgery cases required conversion to thoracotomy. The source of bleeding at surgery were torn adhesions (n=25), bleeding ruptured bullae (n=2), and torn adhesions with bleeding ruptured bullae (n=2). In 4 patients, no source of bleeding was identified. There was no mortality. One patient had to undergo surgery for a contralateral pneumothorax on post-operative day 3. Three patients had a prolonged air leak (>=5 days). Mean length of chest tube drainage was 4 days (1-15 days), while mean length of hospital stay was 6 days (3-15 days). One patient developed a recurrent ipsilateral pneumothorax during follow-up.

Conclusion: Our study demonstrates that early surgical intervention for SHP can be performed with minimal morbidity and mortality.

Disclosure of Interest: None declared
OUTCOMES OF ACUTE KIDNEY INJURY (AKI) IN PATIENTS UNDERGOING MAJOR GASTROINTESTINAL SURGERY (OAKS)
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Introduction: Acute kidney injury (AKI) is associated with increased morbidity and mortality following cardiac surgery. However, there is lack of reliable evidence on the patterns of AKI following major gastrointestinal surgery. This multicentre study set out to determine the incidence and impact of AKI following major gastrointestinal and liver surgery.

Materials & Methods: This prospective multicentre cohort study identified adults undergoing either elective or emergency gastrointestinal resection, liver resection or reversal of ileostomy or colostomy, according to a pre-specified protocol [1]. The primary end point is AKI incidence within 7 days of surgery, defined by Kidney Disease Improving Global Outcomes (KDIGO) guidelines. Secondary outcome is the 30-day adverse event rate as measured using the Clavien-Dindo scale. Statistical analysis was performed using R Studio (V3.1.1, Boston, MA).

Results: A total of 5,427 patients from 176 centres in the UK were included in this study. Pre-operative serum creatinine was measured in 81% of patients and post-operative serum creatinine was measured in 98% of patients. The overall AKI rates were 13% (713/5427). Of those who developed AKI, 33% (232/713) patients had major complications (Grade III – V) as compared to 14% for the entire cohort. A bootstrapped multivariate logistic regression model was used grouping patients into low (<10%), medium (10 to 20%) or high AKI risk groups (>20%), based on six clinically plausible factors: age, sex, ASA grade, chronic kidney, laparoscopy, preoperative use of angiotensin-converting-enzyme inhibitor (p<0.001, C statistic = 0.66).

Conclusion: AKI is common in patients undergoing major gastrointestinal surgery as identified from this large prospective multicentre study. A pre-operative risk score to identify patients at risk of AKI will be useful in guiding post-operative management and hence reducing long term renal dysfunction.

Disclosure of Interest: None declared
Introduction: Leiomyosarcoma of the inferior vena cava is a rare neoplasm affecting almost 1:100,000 people. Prognosis is poor and potential curative-intent operations may require challenging multivisceral resections and vascular reconstructions. Literature is scarce in such subject. We describe the experience of two large institutions in treating patients with this rare tumor.

Materials & Methods: retrospective chart review of patients treated in two hospitals in São Paulo, Brazil, from 2005 to 2013. Demographic, clinical and operative data were collected. Postoperative oncologic outcome was analyzed.

Results: Eight patients were identified and included. Mean age was 59 ± 15 years, seven were female (87.5%). The most common complaint was right upper quadrant abdominal pain followed by vague abdominal pain. Comorbidities were present in 4 patients, mostly hypertension, and ASA score was 1 in four patients, 2 in three patients and 3 in one patient. All patients were treated with radical intent. R0 resections were obtained in 6 patients (75%). Five patients underwent multivisceral resection, being the kidney the most resected organ (4 cases), followed by liver segments and adrenal gland. No cardiopulmonary or venovenous bypass were used during the procedures. Inferior Vena Cava tumor location was described using Kulaylat’s classification. Mean tumor size was 13.5 ± 6.7 cm. Vascular reconstruction was necessary in five patients, mostly using grafts. Venous ligation was the option in 3 patients. According to FNCLCC Grading System, grades I, II and III were present in 2, 1 and 5 patients, respectively. None of the patients were subsequently managed with adjuvant treatment. The overall survival in 3, 5 years was 100% and 25%, respectively. Disease free survival in 3 and 5 years was 57% and 20%, respectively.

Conclusion: Leiomyosarcoma of the inferior vena cava is a rare retroperitoneal neoplasm. Multivisceral resections remain a surgical challenge. The treatment demands largely experienced surgeons and the impact of microscopic free margins remains unclear. Vascular reconstruction depends on several aspects regarding mainly the tumor’s location. Despite optimal management, overall oncologic prognosis is relatively poor.


Disclosure of Interest: None declared
34.03
AUTOLOGOUS LIPOTRANSFER FOR OSTEOMYELITIS – A REPORT OF A NOVEL METHOD AND SYSTEMATIC REVIEW OF THE LITERATURE

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Introduction: Currently autologous bone grafting represents the clinical gold standard in patients with bone defects of any kind. However, this is associated with significant pain and donor-site morbidity. Application of autologous lipotransfer (fat grafting or lipofilling) in surgery has become very popular. Stem cells from adipose tissue are known for their regenerative and reparative effects. This study reports the use of autologous lipotransfer for treatment of chronic osteomyelitis in a 26 years old patient and a formal systematic review of the literature.

Materials & Methods: A 26 years old woman suffering from chronic tibial osteomyelitis was initially treated with surgical debridement and antibiotics followed by water assisted abdominal liposuction and autologous lipofilling. MRI and CT scans where performed 2 and 6 weeks postoperatively. Further follow up consists in combined MRI and CT scans after 6 and 12 months respectively. In addition, a formal systematic review of clinical trials investigating the use of autologous lipotransfer for osteomyelitis was conducted. Eligibility criteria included any type of clinical study, excluding stem cell transfer and experimental animal or cell studies.

Results: The patient remained asymptomatic and showed no signs of recurrence of osteomyelitis. The bone defect cavity showed vascularized adipose tissue after 6 weeks with early signs of osteogenesis. The foot and ankle disability index was as high as 100 (highest score). The systematic review search initially identified 266 studies after duplicates removed. After screening for eligibility, 6 manuscripts were further assessed for eligibility of which none met the inclusion criteria.

Conclusion: According to the results of the systematic review, this is the first study reporting the successful use of autologous lipotransfer in a patient suffering from chronic osteomyelitis with early signs of osteogenesis. This may replace bone grafting in the future in selected cases. Autologous lipotransfer appears to be simple, safe and a minimal invasive technique as an important alternative to current treatment algorithms. There is a need for further both clinical and experimental research focusing on the mechanism of osteogenesis following autologous fat grafting.

Disclosure of Interest: None declared
Study of Copper, Zinc and Selenium Associated with Superoxide Dismutase, Catalase and Glutathione Peroxidase Level in Serum of Breast Cancer Patients of North India

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Introduction: Breast cancer is second most common cancer in females of India. Trace elements and antioxidant enzymes have been found involved in development and prevention of malignancies including breast cancer. This study aims to find out association between trace elements: copper, zinc and selenium along with antioxidant enzymes: SOD, Catalase, Glutathione peroxidise levels in breast cancer patients of various clinical stages.

Materials & Methods: This cross-sectional prospective study is conducted in department of general surgery, King George’s Medical University, Lucknow, U.P., India. Blood sample of 152 breast cancer patients were analysed and matched with 152 controls. Unpaired t-test is used to compare the antioxidant enzymes and trace elements between cases and controls. The plasma level of copper, zinc, selenium and antioxidant enzymes (SOD, Catalase, Glutathione peroxidase) were analysed in both groups to find out any statistically significant correlation.

Results: Plasma copper levels are higher in cases with mean of 132.43±6.10 vs controls 113.58±11.70 with p<0.0001. Plasma zinc levels (case: 88.25±6.30, control: 109.92±8.33, p<0.0001) and selenium (case:3.27±0.18, control: 3.33±0.22 (p<0.0001)) are lower in breast cancer patients. Mean levels of Superoxide dismutase (case: 9.49±6.25, control: 27.04±4.39, p<0.0001), Catalase (case: 0.09±0.08, control: 0.29±0.24, p<0.0001) and Glutathione peroxidase (case: 16.96±10.20, control: 46.70±14.18, p<0.0001) are observed to be lower in breast cancer patients. Blood level of Superoxide dismutase, Catalase and Glutathione peroxidase are found to have a direct correlation while Plasma levels of Copper has inverse correlation with advanced stages of breast cancer.

Conclusion: Lower levels of antioxidant enzymes (Superoxide dismutase, Catalase and Glutathione peroxidase) and selenium found in breast cancer patients along with higher copper levels suggest that these metals and antioxidant enzymes play role in etiopathogenesis and aggressiveness of disease. This gives insight to initiate research for additive therapy of antioxidants and selenium in patients of breast cancer to achieve better outcome.

Disclosure of Interest: None declared
Introduction: Chronic postoperative pain is one of the leading causes for loss of quality of life after inguinal hernia repair. It is suggested that postoperative pain may have a larger impact on patients than recurrence. It has been indicated that laparoscopic inguinal hernia repair may be considered as pain prophylaxis. The aim of this study is to evaluate patient history and outcome of all patients who presented with chronic pain and/or recurrent hernia.

Materials & Methods: All patients who presented with signs of chronic pain and/or recurrence after laparoscopic and/or open inguinal hernia repair 2007 to 2017 were included. Patients were investigated for recurrence and isolated nerve entrapment of branches of the ilioinguinal, iliohypogastric and genitofemoral nerve by clinical examination, neurological examination, coloured duplexsonography and in special complex cases by CT scan/MRI. All patients are seen for follow-up up to 1 year after operation.

Results: 175 patients presented with clinical signs of recurrence and chronic pain at our day surgery clinic. In 114 patients we performed an open hernia repair with special suture-mesh repair after tailored neurectomy of an entrapped nerve branch, mostly of the ilioinguinal nerve. The specimen was sent for pathological examination which demonstrated major chronic nerve injury. 24/41 patients after laparoscopic inguinal hernia repair, who often suffered preoperatively from inguinal pain according to their history, were successfully treated and were pain free; 17 patients were not admitted for operation for personal reasons and/or concomitant diseases.

Conclusion: Chronic postoperative pain is in fact a threat to quality of life. Preoperative evaluation of pain may identify isolated nerve entrapment which may be hidden in laparoscopic hernia repair leading to postoperative chronic pain. This is not a large study, however, it is important to be aware of the own results.

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Long-term follow-up after mesh removal and selective neurectomy for persistent inguinal postherniorrhaphy pain.

Disclosure of Interest: None declared
CLINICAL PREDICTION RULES FOR APPENDICITIS IN ADULTS: WHICH IS BEST?

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Introduction: Clinical prediction rules (CPRs) provide an objective method of assessment in the diagnosis of acute appendicitis. While there are a number of available CPRs for diagnosing appendicitis, it is unknown which performs best. The aim of this study was to identify all available CPRs for diagnosing appendicitis in adults and assess how well they perform.

Materials & Methods: A systematic review was performed in accordance with the PRISMA guidelines. Studies that derived or validated a CPR were included. Their performance was assessed using sensitivity, specificity and area under curve (AUC) values.

Results: Thirty-four articles were included in this review. Of these, 12 derived a CPR and 22 validated these CPRs. A narrative analysis was performed as meta-analysis was precluded due to heterogeneity and quality of included studies. The overall best performer in terms of sensitivity (92%), specificity (63%), and AUC values (0.84-0.97) was the AIR score but only a small number of studies validated this CPR. Although the Alvarado and Modified Alvarado scores were the most commonly validated, performance results were variable. The Alvarado score outperformed the modified Alvarado score in terms of sensitivity, specificity and AUC values.

Conclusion: Thus, there are 12 CPRs available for diagnosing appendicitis in adults. The AIR score appeared to be the best performer. Due to the heterogeneity and quality of available studies, however, definitive conclusions cannot be made.

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Disclosure of Interest: None declared
COMPARISON BETWEEN APPENDECTOMY AND ANTIBIOTIC THERAPY FOR TREATMENT OF UNCOMPPLICATED ACUTE APPENDICITIS

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Introduction: Recently, the use of antibiotics instead of surgery for treatment of acute appendicitis has been widespread. Some studies advocated that initial conservative treatment was the best therapeutic choice for acute appendicitis with abscess. However, the best strategy for treatment of uncomplicated appendicitis is still controversial. The aim of this study was to compare outcomes of antibiotic therapy with appendectomy for uncomplicated appendicitis.

Materials & Methods: This is an observational, retrospective cohort study of patients with uncomplicated acute appendicitis in our hospital between April 2014 and May 2016. We divided the patients into two groups (the surgery group, the antibiotic group), and investigated clinical characteristics and outcomes of each group. Our indication of surgery for uncomplicated appendicitis depended on the patients' choice, who got enough information about recurrence rate of conservative treatment and complications of each treatment. We often recommend surgery to such patients with fecalith or with severe abdominal pain.

Results: There were 100 patients in the surgery group and 43 patients in the antibiotic group. The median age of the surgery group was 30 years and that of the antibiotic group was 25 years (p = 0.477). The median body temperature of the surgery group was 37.0 °C and that of the antibiotic group was 37.1 °C (p = 0.140). The median leukocyte count of the surgery group was 13.7 10^9/L and that of the antibiotic group was 13.5 10^9/L (p = 0.722). The median C-reactive protein of the surgery group was 0.77 mg/dL and that of the antibiotic group was 2.39 mg/dL (p = 0.019). The rate of the patients with fecalith in the surgery group was 51% and that in the antibiotic group was 21% (p < 0.001). The median hospital-stay of the surgery group was shorter than the antibiotic group (4 days vs. 7 days, p < 0.001). The complications rate was not statistically difference between each group (7% vs. 5%, p = 0.607). In the antibiotic group, 97% improved without surgery. The rate of recurrence of the antibiotic group was 18%.

Conclusion: Uncomplicated acute appendicitis can be treated successfully not only with appendectomy but with antibiotic therapy. However, the hospital-stay of patients with the surgery group was shorter than with antibiotics, and there is a risk of recurrence after antibiotic treatment. We should explain these facts to patients enough and decide the way of treatment for uncomplicated acute appendicitis with patients.

Disclosure of Interest: None declared
DIVERTICULAR DISEASE OF THE VERMIFORM APPENDIX
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Introduction: Diverticular disease of the vermiform appendix (DDA) is rare with an incidence of 0.004% to 2.1% in appendectomy specimens. Appendicular diverticulitis (AD) is hence a rare cause of right-lower-quadrant (RLQ) pain. Although computed tomography (CT) scan of the abdomen may pick up the diagnosis, it is diagnosed on appendectomy histology. We present a retrospective case series of DDA.

Materials & Methods: The histopathology reports of 2305 appendectomy specimens from Jan 2011 to Dec 2015 were reviewed. 2164 (93.9%) specimens confirmed acute appendicitis and 141 (6.1%) patients had other pathology. 110 (4.8%) patients had normal appendix, 22 patients (0.95%) had DDA, 6 (0.3%) patients had appendicular endometriosis and appendix was absent in 3 (0.1%) specimens.
The demographic, clinical and operative data of the 22 DDA patients is presented. Modified Alvarado score, Andersson score, Systemic Inflammatory Response Syndrome (SIRS) criteria and quick Sepsis-related Organ Failure Assessment (qSOFA) scores were calculated.

Results: The incidence of DDA is 0.95% (n=22). Eight patients (36.4%) had AD. Fourteen (63.6%) patients had appendicular diverticulosis. Mean age of 22 DDA patients was 39.5 years (range 23-87), with male preponderance (n=12, 54.5%). Median modified Alvarado score was 8 (range 4-9) and median Andersson score was 5 (range 2-8). 14 patients (63.6%) had SIRS and none had high qSOFA score. CT scan was done in 17 (77.3%) patients and; all patients, except one, were reported as acute appendicitis. 11 (50%) patients were accessed by laparoscopy including one with single incision laparoscopy. 10 (45.5%) patients had perforation with local abscess. There were six 30-day readmissions and no mortality.

Conclusion: DDA is a distinct clinical pathology and typically presents after teens. Despite high incidence of AD with perforation with local abscess, the morbidity is minimal.

Disclosure of Interest: None declared
A COMPARISON OF ETHNIC OUTCOMES FOLLOWING LAPAROSCOPIC VENTRAL HERNIA REPAIR IN SOUTH AUCKLAND, NEW ZEALAND – A RETROSPECTIVE REVIEW

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Introduction: Disparities in surgical care and outcomes have been previously reported in studies for many surgical procedures and conditions. Additionally, studies within New Zealand have found that significant ethnic disparities in access to and through health care services exist between Indigenous New Zealanders (Māori) and New Zealand Europeans. This retrospective cohort study investigated the experience of laparoscopic ventral hernia repair (LVHR) within a single institution. The overall aim of this study was to compare disparities in the demographics and outcomes of our patients following LVHR.

Materials & Methods: A retrospective cohort review was performed for all patients who underwent LVHR at Counties Manukau Health from January 1st, 2013 to December 31st, 2015.

Results: A total of 267 ventral hernias were repaired in 254 patients (New Zealand Europeans, n=148; Māori, n=44; Pacific, n=33; and Other, n=29). New Zealand Europeans were significantly older (54.0 ± 13.2) than Māori (47.3 ± 12.6) (p=0.014). Mean BMI was significantly higher in Māori (38.9 ± 7.0) compared to New Zealand Europeans (33.6 ± 6.7, p<0.005) and Other ethnicities (p=0.001). Median ASA scores were not significantly different between groups (p=0.891). There were no significant ethnic differences in overall length of stay, receipt of opioid analgesia in the first 24 hours following surgery, and complication rate.

Conclusion: Whilst ethnic disparities in patient characteristics were observed, there did not appear to be ethnic disparities in post-operative outcomes following LVHR.

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EARLY RESPONSE EVALUATION WITH DIFFUSION-WEIGHTED MRI IN SI-NET HEPATIC METASTASES – RESULTS FROM A RANDOMIZED STUDY COMPARING HAE AND RADIOEMBOLIZATION

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Introduction: Hepatic artery embolization (HAE) is an established therapy for patients with hepatic metastases from small intestinal neuroendocrine tumors (SI-NET). A novel treatment option is radioembolization with 90Y-labeled microspheres (SIRT), where the main antitumoral effect is achieved by irradiation. Response evaluation is currently done after 3 months, but the possibility of earlier response evaluation would be desirable. Diffusion-weighted MRI (DWI) is a functional investigation providing information about the tumor microenvironment. Viable tumors show a low apparent diffusion coefficient (ADC), which is increased after successful antitumoral treatment due to destruction of cell membranes and reduction of cellular density.

Materials & Methods: 20 patients with SI-NET hepatic metastases will be randomized to either HAE or SIRT. Response assessment with DWI at baseline and 1 month is compared with measurement of longest diameter (LD) of lesions, RECIST 1.1 and biochemical markers chromogranin A and tU-5HIAA at baseline and 3 months.

Results: Nineteen tumor lesions from 6 first patients included were evaluated (3 HAE and 3 SIRT). Average decrease of LD was 31% (range 4-62%). There was significant inverse correlation between baseline ADC and relative decrease of LD at 3 months and significant correlation between the relative increase in ADC at 1 month and decrease of LD at 3 months. Decrease of LD after HAE was 46±9% and after SIRT 22±12%, resulting in partial response (RECIST1.1) for 3/3 HAE and 1/3 SIRT-patients. Chromogranin A was reduced with 48% (range 22-71%) and tU-5HIAA with 28% (range 0-43%) at 3 months, no significant difference between treatment groups.

Conclusion: ADC seems to predict response after embolization of hepatic metastases from SI-NET. Due to limited data no difference in treatment response can be found between HAE and SIRT.

Disclosure of Interest: None declared
**Introduction:** Pancreatic neuroendocrine tumors (pNET) are classified as rare diseases with a prevalence of 2/100,000. As a result of improved recognition and imaging, incidence rises over the past decades. Efficacy of treatment of patients with pNET is highly dependent on tumor type and grade, requiring experience and knowledge in selecting the appropriate therapy. To develop optimal treatment strategies, more insight in the prognosis and treatment outcomes is needed.

**Materials & Methods:** Patients diagnosed with pNET in the Netherlands between 2008 – 2013 were retrospectively analyzed through a nationwide, population based registry (Dutch Cancer Registry (NKR)). Survival analyses were performed for different sub-populations based on tumor stage, tumor grade or first-line treatment.

**Results:** In total, 614 patients were included, 261 patients died. Median follow-up was 25.7 months. Sixty-five patients were diagnosed with pNET in 2008, 120 patients in 2013. Median age at diagnosis was 62 years (IQR 19-90). Grade was determined in 256 patients (42%) > 141 G1, 63 G2, 39 G3. Lymph node metastases were seen in 178 (29%) distant metastases in 289 (47%) patients. Increasing tumor grade and stage were associated with worse survival. Nodal status significantly affected survival (median survival 84 vs 29 months, p<0.001), in both localized (p=0.003) and distant metastatic disease (p=0.028). Five-year survival was 27% with and 79% without distant metastases (median survival 84 vs 18 months, p<0.001). The effect of distant metastases on survival was more significant in lower tumor stages (T1-2 p<0.001, T3 p=0.015, T4 p=0.128). Resection in case of metastatic disease showed better 5 year survival compared to systemic treatment (87% vs 28%, p=0.004). Without surgery, patients with advanced disease had better survival with systemic treatment than without any treatment (28% vs 15%, p=0.015); independent of tumor stage (T1-2 vs T3-4, p<0.001). Nodal status, distant metastases, surgery, targeted therapy and nuclear therapy were independently associated with better survival in multivariate cox regression for patients with G1 and G2 tumors.

**Conclusion:** The incidence of pNET nearly doubled between 2008 and 2013. Pathological confirmation of tumor grade needs to be improved, since tumor grade, together with distant/nodal metastases, and therefore tumor stage, affects survival the most. Indications for survival benefit when surgical resection is performed in patients with metastatic disease is supported by this data.

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Introduction: Small intestinal neuroendocrine tumors (SI-NETs) are the most common form of neoplasm in the small bowel. Following lymph node metastasis (LNM) and liver metastasis, peritoneal carcinomatosis (PC) is the third most common metastatic site. Identification of primary tumors (PT) and PC is difficult, even with modern cross-sectional imaging, and the gold standard for patients suited for surgery is therefore laparotomy with palpation of the entire small bowel and survey of the entire abdomen. Some centers have employed laparoscopic resection with the disadvantage of not being able to palpate the small bowel for multiple PTs that are present in a third of all patients. This study was designed to determine preoperative detection rates of PT, LNM and PC with Somatostatin receptor PET (\(^{68}\text{Ga-DOTA-SSA-PET/CT}\)) and i.v. contrast-enhanced computed tomography (CE-CT), and to clarify whether modern functional imaging can make the need for palpation of the bowel during surgery obsolete and thus enable oncologically adequate laparoscopic resection.

Materials & Methods: A single-center, retrospective observation study of a total of 28 patients with SI-NET, who before primary tumor surgery underwent both \(^{68}\text{Ga-DOTA-SSA-PET/CT}\) and CE-CT. The detection rates of PT and PC for CE-CT and PET/CT were compared to the findings in the surgical and histopathological reports, which were used as the standard of reference. Appropriate statistical tests were used and significance was set to p<0.05.

Results: Out of 82 PT, 43 PT were not detected by any imaging modality. More PT lesions were detected with \(^{68}\text{Ga-DOTA-SSA-PET/CT}\) (n=39 [47.5%]) than with CE-CT (n=10 [12.2%], p<0.001). Although \(^{68}\text{Ga-DOTA-SSA-PET/CT}\) identified significantly more PC lesions than CE-CT (78% and 38%, p=0.004, respectively), the patient-based sensitivity and specificity of \(^{68}\text{Ga-DOTA-SSA-PET/CT}\) was lower compared to CE-CT (63% vs 75% and 90% vs 100%, respectively).

Conclusion: Data showed that compared to CE-CT, \(^{68}\text{Ga-DOTA-SSA-PET/CT}\) detected more primary tumors and PC lesions. Some tumors were only seen in one of the modalities and \(^{68}\text{Ga-DOTA-SSA-PET/CT}\) should therefore be performed as a fully diagnostic CE-CT in the preoperative imaging work-up of SI-NETs wherever applicable. Some primary tumors are not visible by these imaging modalities and palpation of the small bowel remains crucial during surgery in these patients, making laparoscopic resection oncologically inadequate in many patients.

Disclosure of Interest: None declared
**Introduction:** In Japan, preoperative chemoradiation therapy (CRT) has not been established as a standard treatment compared to western countries. We previously conducted a phase II trial to evaluate preoperative radiation therapy (RT) + S-1 for locally advanced rectal cancer and proved its safety with respect to short-term outcomes (Inomata M et al, Mol Clin Oncol. 2016). This study aimed to evaluate the feasibility of RT + S-1 in terms of long-term outcomes in patients with locally advanced rectal cancer.

**Materials & Methods:** A multi-institutional, prospective, phase II trial (UMIN000003396) was conducted from April 2009 to August 2011 in which 37 patients with histologically proven rectal carcinoma (T3-4, N0-3, M0) who underwent preoperative RT (total dose of 45 Gy/25 Fr) + S-1 (80-120 mg/day) were enrolled. Total mesorectal excision with D3 lymphadenectomy was performed in 36 patients during 4-8 weeks after completing preoperative RT + S-1. In this study, we analyzed late adverse events, overall survival (OS), and disease-free survival (DFS) and revealed the predictive factors of recurrence using univariate (log rank test) and multivariate (Cox regression analysis) analyses.

**Results:** Age, sex, and clinical stages were 59 (32–79) years, 24 men and 13 women, and stage II (n = 10)/III (n = 27), respectively. Severe late adverse events occurred in three patients (8.1%). Enterocutaneous fistula, ovarian injury, and diarrhea occurred in one patient each. The 3-year DFS and 3-year OS rates were 65.6% and 85.7%, respectively. Median follow-up period was 42 months. Local recurrences developed in four patients (10.8%), and distant metastases in eight patients (21.6%). Multivariate analysis revealed that a high CEA level (>5.0 ng/mL) before CRT and "post-CRT progressive disease in RECIST" were significantly associated with a high incidence of recurrence (all, P < 0.05).

**Conclusion:** A multi-institutional, prospective, phase II trial demonstrated that preoperative RT + S-1 for locally advanced rectal cancer is feasible in terms of long-term outcomes.


**Disclosure of Interest:** None declared
Introduction: A significant number of colon and rectal cancer patients receive complex surgical care remote from residence. We hypothesize that colon and rectal cancer readmission rates will differ after accounting for differences in travel distance from primary/index hospital and correlate with increased cost and mortality.

Materials & Methods: Using the SEER-Medicare database, 47,362 patients were identified. A stratified analysis was performed according to 30-day readmissions in colon and rectal cancer patients. Travel distance was calculated between patient and providers’ zip codes using Google map and SAS. Multivariate analysis was performed and overall survival was estimated using the Cox Proportional Hazards Model.

Results: Thirty-day readmissions occurred in 14.7% of the study cohort, of whom 26.9% were to a non-index hospital. In the colon and rectal cancer cohort, readmissions were 14.5% and 15.1%, respectively. Rectal cancer patients had an increased likelihood of readmission by 7% (IRR 1.07; 95% CI 1.00-1.14). Factors associated with risk of readmission were male gender, race, advanced disease, length of stay, discharge disposition, Charlson score, and poverty level (p<0.05). Greater distance traveled increased likelihood of readmission in rectal cancer patients (IRR 1.21; 1.07-1.37) but not in colon cancer patients (IRR 1.13; 95% CI 0.92-1.40). Median cost accrued for readmissions was $16,000. Travel distance did not affect mortality.

Conclusion: Travel distance impacts readmission rates in rectal cancer patients and accrues health care costs; however, it does not impact mortality. Discharge readiness to decrease readmissions and cost is essential for rectal cancer patients discharged from index hospitals.

Disclosure of Interest: None declared
CLINICAL FUNCTION AFTER TME AND RECTAL REPLACEMENT. SWISS PROSPECTIVE RANDOMIZED MULTICENTER TRIAL (SAKK 40/04) COMPARING SIDE-TO-END, COLON-J-POUCH AND STRAIGHT COLOANAL ANASTOMOSIS

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Introduction: Objective: To compare 5 cm colon-J-pouch (A), side-to-end anastomosis (B) and straight coloanal anastomosis (C) as reconstruction techniques after rectal cancer surgery with respect to defecation quality (evacuation problems/fragmentation of stools), stool frequency, surgery related morbidity and mortality.

Materials & Methods: Methods: Prospective, randomized multicenter trial comparing the results of coloanal reconstruction utilizing the same form of resection (total mesorectal excision, TME) and three currently practiced techniques for rectal reconstruction. Primary endpoint: Validated composite evacuation score at 12 months, a score ranging between 0 and 21 points with a lower score meaning better evacuation, which was compared among the three reconstruction techniques using pairwise two-sided Steele’s multiple comparison Wilcoxon tests. A difference of 3–4 points was prospectively considered to be of clinical importance. Secondary endpoints included a validated composite incontinence score at 12 months, a score ranging between 0 and 24 points with a lower score meaning better functioning.

Results: A total of 336 patients were included. One patient withdrew his consent after randomization. 111 patients were randomized to arm A (5 cm colon J-pouch), 112 to arm B (side-to-end anastomosis) and 112 to arm C (straight coloanal anastomosis). The protocol enabled the surgeon to break the randomization due to certain safety reasons. As a result of this, in 20.3%, a non-randomly assigned type of reconstruction was performed. This resulted in 63 patients in arm A, 95 patients in arm B and 99 patients in arm C respectively for the per protocol population, which was used for the analysis.

Median composite evacuation scores at 12 months after surgery were 6 (range 0–18), 6 (range 0–15), and 7 (range 0–19) for treatment arms A, B, and C, respectively. None of the three comparisons yielded a statistically significant difference for the composite evacuation score. In addition to this, no statistically significant overall difference among the treatment arms could be found using a Kruskal-Wallis test (p = 0.2) for the composite incontinence score.

Conclusion: In the early phase, 6 and 12 months postoperatively after TME no clinically relevant and statistically significant difference could be detected between the three different types of reconstruction.

Disclosure of Interest: None declared
LONG-TERM ONCOLOGIC OUTCOMES FOLLOWING ANASTOMOTIC LEAK AFTER ANTERIOR RESECTION FOR RECTAL CANCER: LESS CHEMOTHERAPY, MORE METASTASES

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Introduction: The evidence regarding the impact of anastomotic leak (AL) after anterior resection (AR) for rectal cancer on oncologic outcomes is controversial, and there are no data about the prognostic relevance of the International Study Group of Rectal Cancer (ISREC) AL classification. The aim of this study was to evaluate the oncologic outcomes in patients with AL after AR for rectal cancer. The prognostic value of the ISREC AL grading system was also investigated.

Materials & Methods: It is a retrospective analysis of a prospectively collected database including all patients undergoing elective AR for stage I-III rectal cancer (April 1996-September 2011). AL severity was defined according to the ISREC criteria. A multivariable analysis was performed to identify predictors of poor survival.

Results: A total of 532 patients underwent curative AR (69% laparoscopic) for high (36%) or mid-lower (64%) rectal cancer. AL rate was 9.8%. With a median follow-up of 68 (range, 12-242) months, 5-year overall survival (OS) rate was 67.6% in patients with AL and 86.9% in those without AL (P<0.001). AL was also associated with poorer 5-year disease-free survival (DFS) (48.4% vs. 81%; P<0.001). No significant differences were observed between ISREC grade A, B and C leaks. Local recurrence rate was 9.6% among patients with AL and 4.7% among those without AL (P=0.232). Distant metastases developed in 42.3% of patients with AL and in 16.6% of those without AL (P<0.001). AL was an independent predictor for poorer OS (HR 2.93; 95% CI 1.17-4.89) and DFS (HR 5.52; 95% CI 2.35-12.98) on multivariable analysis. Adjuvant chemotherapy was more likely not administered or delayed after AL (47.2% vs. 27.5%, P<0.001).

Conclusion: AL after curative AR for rectal cancer is associated with poor survival and a higher rate of distant metastases, regardless of severity. The reduced rate of adjuvant chemotherapy in AL patients might play a major role.

Disclosure of Interest: None declared
SURGICAL QUALITY OF LAPAROSCOPIC AND OPEN CME WITH CVL FOR COLORECTAL CANCER.
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Introduction: A surgical treatment plays an important role of local control including primary tumor removal and lymph node dissection, in spite of any surgical approaches, such as laparoscopic and open approaches. A quality of surgery in Japanese randomized controlled clinical trial were assessed by evaluation of the photo documentation of both open (OP) and laparoscopic (LAP) surgeries.

Materials & Methods: A multi-institutional randomized-controlled trial was conducted to evaluate open and laparoscopic Japanese D3 resection (complete mesocolic excision + central vessel ligation) for stage II/III colon cancer. A total of 1057 (OP, 528; LAP, 529) eligible patients were enrolled. For quality control, it was ensured that the surgeries were performed by accredited surgeons, and a central committee reviewed each surgery on the basis of the submitted photographs of the resected field, and specimen.

Results: For right-sided tumors, right and ventral side of the superior mesenteric vein were dissected around the surgical trunk. The rate of D3 resection was 98.5% (131/133) in the OP arm and 100% (136/136) in the LAP arm. For left-sided tumors, removal of lymph nodes at the root of inferior mesenteric artery is performed with high ligation. Preservation of left colic artery and ligation of the root of superior rectal artery is permitted. The rate of D3 resection were 97.9% (322/329) and 98.2% (320/326), respectively. Sufficient length of the resected longitudinal margin was ensured in all cases. 5-year OS was 90.4% (95%CI: 87.5-92.6%) in OP, and 91.8% (89.1-93.8%) in LAP. 5-year RFS was 79.7% (76.0-82.9) in OP and 79.3% (75.6-82.6) in LAP.

Conclusion: Long-term outcomes of lap and op approaches are almost identical and better than expected in Japanese RCT. Laparoscopic D3 resection, nearly equal to CME with CVL, would play an important role leading to fair oncological outcomes for colorectal cancer.

Disclosure of Interest: None declared
THE CUMULATIVE INCIDENCE OF METACHRONOUS PERITONEAL METASTASES OF T4 COLORECTAL ADENOCARCINOMA

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Introduction: There is an ongoing debate about the necessity of hyperthermic intraperitoneal chemotherapy procedure in pT4 colorectal cancer patients. It has been demonstrated that these patients have an increased risk of metachronous peritoneal metastases (PM). The aim of this study was to evaluate the cumulative incidence of metachronous PM in pT4 colorectal cancer patients in a tertiary care center.

Materials & Methods: This was a retrospective cohort study of patients undergoing a first resection of a pT4 colorectal cancer in a tertiary hospital between 2003 and 2012. Primary outcome was the cumulative incidence of metachronous peritoneal carcinomatosis (isolated or combined). For cumulative incidence analysis failure was defined as peritoneal metastasis occurrence during the follow-up period. Uni- and multivariate survival analyses were performed using Cox-proportional hazards models.

Results: A total of 191 pT4 colorectal cancer patients (M/F = 95/96) with a median age of 70 years (range 33–98) years were identified. Patients with an UICC tumor stage IV (n=83) or a local R2 resection status (n=10) were excluded from further analyses. Of the remaining 96 patients, 41 (43%) were classified as UICC stage II and 55 (57%) as UICC stage III. A R0 resection was achieved in 90 patients (94%). Isolated or combined metachronous PM occurred in eleven (12%) and 13 patients (14%) respectively accounting for an overall metachronous PM rate of 25%. The 3- and 5-year cumulative incidence rates for metachronous PM were 14% (95% confidence interval (CI) 8%–26%) and 23% (95% CI 12%–40%). The 3-year cumulative incidence rate in R0 resected patients was 13% (95% CI 4%–25%) compared to 50% (95% CI 9%–99%) in patients with R1 resection. Five-year overall survival rates for patients without PM, with isolated PM, and combined metachronous PM was 79% (95% CI 65%–88%), 10% (95% CI 6%–36%), and 31% (95% CI 8%–58%) respectively.

Conclusion: With a 5-year cumulative incidence of 23% the occurrence of metachronous peritoneal metastases in pT4 colorectal cancer patients is high. Especially regarding the disastrous five-year overall survival estimates in this group of patients, the installation of a modified follow-up program may be helpful.

Disclosure of Interest: None declared
Introduction: We performed laparoscopic complete mesocolic excision (CME) with mesofascial separation based on embryology for treatment of left colon cancer. We emphasize that an understanding of the embryology and adequate tension between the visceral layer of the mesocolon and fusion fascia allows for precise mesofascial separation during laparoscopic complete mesocolic excision. We show our surgical procedure using video record.

Materials & Methods: After stretching the rectum, a medial approach was performed by separating between the mesorectum and prehypogastric nerve fascia plane. Dissection proceeded behind the rectum. Adequate tension between the rectum and retroperitoneal fascia was very important during the procedure. The dissection proceeded behind the inferior mesenteric artery (IMA). Then, the peritoneal dissection proceeded behind the inferior mesenteric vein, and the separation between the mesocolon and fusion fascia was performed. The dissection proceeded behind IMA with preservation of the hypogastric nerve, left ureter, and left gonadal vessels. The origin of IMA was divided to resect lymphatic drainage system, preserving the hypogastric nerve plexus. The mesofascial plane between the mesocolon and fusion fascia was separated to dissect the entire enveloped mesocolon. After the lateral attachment was dissected, the dissection proceeded between the mesorectum and prehypogastric nerve fascia plane behind the rectum. After marking of dissection line at 5cm distal to tumor, the mesorectum was dissected to expose the rectum. The rectum was clamped for irrigation with saline through the anus, intracorporeally transected using an articulating linear stapler. The specimens were extracted from the abdomen through the umbilical incision. An intracorporeal double stapling technique was performed to complete the anastomosis.

Results: CME completeness was graded as the mesocolic and intramesocolic plane in 45 and 4 patients, respectively. The mean number of lymph nodes retrieved was 15, and lymph node metastasis was identified in 17 patients. The mean operative time and intraoperative blood loss were 282 min and 38 g, respectively. One patient had an intraoperative complication and five patients had postoperative complications. No other complications occurred. The length of hospital stay was 12 days.

Conclusion: Laparoscopic CME based on embryology is a safe and feasible procedure for treatment of left-sided colon cancer.

Disclosure of Interest: None declared
PRESENTATION OF THE ROUVIERE’S FISSURE ON FILIPINOS UNDERGOING ELECTIVE LAPAROSCOPIC CHOLECYSTECTOMY

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Introduction: Identification of the Rouviere’s fissure prior to dissection in laparoscopic cholecystectomy is recommended in performing a safe surgery. We collated the different presentations of this fissure in our subset of Filipino patients and came about with a classification system in order to come up with a classification system that can be used to further deliniate its role in performing a safe laparoscopic surgery.

Materials & Methods: Patients undergoing elective laparoscopic cholecystectomy at the De La Salle University Medical Center in Dasmarinas City, Cavite, Philippines from 2010-2015. We performed a video review to collate the different presentations of the Rouviere’s fissure and came up with a simple classification system.

Results: A total of 370 patients were included in the study, 170 (50%) of which did not present with the Rouviere’s fissure. Among those that presented, an open type of fissure comprise 112 (65.9%). Among these patients, 83 (74.1%) have a horizontally oriented fissure and 29 (25.9%) have an obliquely oriented fissure. On the other hand, patients with a fused type of fissure comprise 58 (34.1%), and 38 (65.5%) have a horizontally oriented fissure and 20 (34.5%) have an obliquely oriented fissure. A classification system was done to collate these presentations.

Image:
Conclusion: We have collated the different presentation of the Rouviere's fissure in our subset of Filipino patients and devised a classification system that can be further used to know the association of the the Rouvier's fissure in preventing intraoperative events or complications, if any, during laparoscopic cholecystectomy.

References:

Disclosure of Interest: None declared
Introduction: Different chemotherapeutic agents have been proposed for use in cytoreductive surgery with hyperthermic intraperitoneal chemotherapy (CRC/HIPEC), however, superiority of any single agent remains unclear. The goal of this study was to compare outcomes in patients treated with mitomycin C-based HIPEC to those perfused with oxaliplatin.

Materials & Methods: We retrospectively reviewed 56 consecutive patients who underwent CRC/HIPEC and had perfusion with either oxaliplatin or mitomycin C (MMC) between 2006 and 2016. We used Cox regression analysis was used to compare survival with stratification for Charlson’s comorbidity index, peritoneal cancer index (PCI) and complete cytoreduction (CC) score.

Results: Forty patients had MMC used for perfusion, and 16 patients had oxaliplatin. The mean age was 53.9 (11.6) vs. 49.6 (12.6), and the 55% patients were male (p=0.49). The breakdown by diagnosis was similar between two groups (p=0.87) with a total of 24 patients (43%) with appendiceal carcinoma, 25 patients (45%) with colorectal cancer, and 7 patients (12%) with cancer of other origin (p=0.85). Patients treated with oxaliplatin had a longer length of stay in hospital (p=0.015). There was no significant difference in total PCI score, CC score, comorbid conditions, or histologic grade (p>0.05). A univariate analysis demonstrated that choice of agent (p=0.021) and CC score (p=0.016) are significantly associated with the survival. Median overall survival was 69 months in MMC group vs. 24 months in oxaliplatin group (p=0.003). After stratification for comorbidities, PCI, grade and CC, the hazard ratio in the group perfused with MMC compared to oxaliplatin was 0.17 (0.06-0.45), p<0.001. Median disease-free survival was 37.1 months in MMC group vs. 24 months in oxaliplatin group, p=0.029. Forty-eight percent of the patients received adjuvant chemotherapy, of those, about 64% completed therapy as planned without any significant difference between two groups (p>0.05).

Image:
Conclusion: These data suggest that HIPEC perfusion with mitomycin C is associated with favorable survival outcomes compared to perfusion with oxaliplatin.

Disclosure of Interest: None declared
LESS INVASIVE GASTRECTOMY WITH SENTINEL NODE DISSECTION FOR EARLY GASTRIC CANCER
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Introduction: Utility of Combination of Laparoscopic and Endoscopic Approaches to Neoplasia with Non-Exposure Technique (CLEAN-NET) was reported for GIST. The purpose of this study is to confirm the safety and utility of CLEAN-NET with sentinel node (SN) dissection for early gastric cancer.

Materials & Methods: A total of 27 patients with cT1N0 gastric cancer with less than 4 cm in size were enrolled in this study. One day before surgery, 99mTechnetium-tin colloid was endoscopically injected at 4 sites around the tumor. During surgery, ICG was endoscopically injected like RI injection. SNs dissection was performed before CLEAN-NET. All SNs were assessed by intraoperative rapid diagnosis using HE staining and RT-PCR. CLEAN-NET was performed after confirmation for negative result of SN metastasis. If metastasis or micrometastasis is present in the SNs, operation method was converted to standard gastrectomy with lymph node dissection.

Results: SNs were identified in all patients and the average number of SNs was 5.1. CLEAN-NET with SN dissection was completed in 24 patients. One patient was performed LADG, because nodal metastasis was found in SN. Two patients were performed segmental gastrectomy, because rest stomach after CLEAN-NET was deformed. In the other patients with CLEAN-NET, lymph node metastasis was not found by both HE staining and RT-PCR. All patients did not have a complication after surgery.

Conclusion: Since CLEAN-NET with SN dissection could be safely performed as a less invasive surgery, such procedure will be very useful for early gastric cancer.

Disclosure of Interest: None declared
Introduction: Timely acute care surgery is essential for good perioperative outcome. The objectives of this study were to (1) determine the time from onset of symptoms to induction of anesthesia in the major hospital in Rwanda, (2) determine the time from admission at emergency department to induction of anesthesia, and (3) determine factors associated with higher perioperative mortality rate (POMR) following acute care surgery.

Materials & Methods: We performed a retrospective review of acute care surgery cases performed at the Centre Hospitalier Universitaire de Kigali (CHUK) in Rwanda between June 1st and November 30th, 2016. We will report in this abstract, the sex, age, categories of indications for surgery, time from onset of symptoms to induction of anesthesia, hospital length of stay, reoperation rate, time from admission to emergency department to induction of anesthesia, and the POMR. The factors associated with higher perioperative mortality rate (POMR) following acute care surgery will be reported in the full article after performing an advanced statistical analysis.

Results: During the study period, 177 acute care surgeries were performed. We will report the results available by each variable. Most of the patients were male 118 (79.7%) and older than 25 years 91 (61.5%), most of the procedures were performed by a surgery resident 108 (83.7%), most indications for surgery were non trauma 133 (75.1%), the average of time from onset of Symptoms to admission at emergency was 5 days, the average of time from admission at emergency department to induction of anesthesia was 11.9 hours, the reoperation rate was 13 (10%), the overall POMR was 34 (19.2%), the POMR for trauma was 6 (13.6%), and the POMR for non trauma cases was 28 (21%).

Conclusion: The access to timely acute care surgery is a big challenge especially in low-income countries. The average time of 5 days to reach the referral hospital is too long; effective interventions are needed to improve the referral system for surgical emergencies from community level, health center, district hospital, and referral hospital. In addition, processes at referral hospital level should be improved in order to decrease the time needed from admission at emergency to induction of anesthesia.

Disclosure of Interest: None declared
EVIDENCE-BASED PRIORITIES FOR COMMONLY PERFORMED OPERATIONS IN DISTRICT HOSPITALS IN LOW- AND MIDDLE-INCOME COUNTRIES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: The historic 2015 World Health Organization resolution on emergency and essential surgical care was a turning point in ensuring surgical care as a human right and a global priority. Multiple expert-driven, consensus-based groups have proposed priority surgical interventions for global scale-up. In addition to consensus, additional evidence is needed from case data from low- and middle-income countries (LMICs) to further inform policymakers. We aimed to compile an evidence-based list of the most commonly performed surgical procedures in district hospitals as an essential component of a global surgical expansion strategy.

Materials & Methods: We conducted a systematic review of articles using PubMed, EMBASE, and Google Scholar to identify relevant publications documenting surgical case volumes in LMIC district hospitals from December 2012 to May 2014. Only peer-reviewed articles with raw data, study-specific information, in the English language were considered. Primary outcome measures were type and frequency of procedures; the secondary outcome measure was population-based surgical case rates. Risk of bias and heterogeneity were assessed. A random effects meta-analysis was performed. The type, frequency, and complexity of interventions were categorized into major or minor procedures using a scoring system and ranked according to annual surgical case rates.

Results: Thirty-two publications from 18 countries in four geographic regions of the world yielded 333,478 categorical interventions within a 30-year period from 11 LMICs. 27 major and 12 minor procedures were analysed. Major surgical case rates were 0.02-366 per 100,000 population/year. The most frequently performed surgical procedures (per 100,000 annually) were cesarean section (median 35.9, range 3.1-385.4), uterine evacuations (32,0.8-204.5), tubal ligations (5.5,0.3-38.6), fracture care (5.49,0.02-116.3), hernia repairs (15.6,0.5-103.6), appendectomies (2.4, 0.04-44.7), thyroidectomies (0.02-14), mastectomies (0.2-2), hydrocelectomies (1-50), prostatectomies(0.07-9), and orchiectomies (0.2-0.8). Inconsistent nomenclature and classification were used in documenting surgical procedures. Significant variability in the cadre performing the procedures were found.

Conclusion: Establishing a strictly defined global surgical nomenclature that encompasses general, urologic, oncologic, gynecologic, and pediatric surgery can facilitate global identification, reporting, benchmarking, and systematic scaling up of surgical services at the district level.

Disclosure of Interest: None declared
GLOBAL INITIATIVE FOR CHILDREN’S SURGERY (GICS): MULTIDISCIPLINARY PRIORITY-SETTING THROUGH ENGAGEMENT WITH SURGICAL PROVIDERS IN RESOURCE-POOR AREAS

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Introduction: Treatable surgical conditions are increasingly important causes of death and disability amongst children in low- and middle-income countries (LMICs). Existing global surgical initiatives have not explicitly focused on the needs of children. Surgical and anesthesia providers representing various children’s surgical specialties from LMICs generated a common set of priorities to assure effective access to surgical care for all children. Optimal resources for children’s surgery were proposed through this effort.

Materials & Methods: GICS London meeting attendees developed priorities in training, infrastructure, service delivery, and research, developing the basis for an optimal resources document. The draft document was presented at the GICS meeting in Washington DC in October 2016. Over 80 surgical providers and partners, half from LMICs, engaged in working groups over two days to refine the optimal resources document.

Results: Four levels of care for children’s surgery were identified: 1) community facility and primary health center; 2) first-level hospital; 3) second- and third-level hospital; and 4) national children’s hospital. The optimal resources document covers basic, intermediate and advanced/complex care provision including the minimum equipment and personnel required for adequate care at each of the identified levels. Priorities for improvement include training, research, quality improvement, hospital inspection and accreditation. Additional areas of focus include integration into existing health systems and plans, and coordination of stakeholders.

Conclusion: Optimal resources were developed with the input of multidisciplinary LMIC providers and partners to improve access to children’s surgical care through both policy and ground-level approaches. The document will be refined and implemented with the input of a wide range of stakeholders to improve access to children’s surgery in LMICs.

Disclosure of Interest: None declared
UGANDA PAEDIATRIC SURGICAL STAKEHOLDERS MEETING 28TH SEPTEMBER 2015: WAY FORWARD FOR GLOBAL PARTNERSHIPS

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Introduction: In Uganda, we have a large population of children and the local surgeons have had to find creative ways to meet the demand for surgical care in the paediatric population. As a whole, these activities are not streamlined and different groups' activities are independent of other groups or care providers, periodically leading to suboptimal patient care.

Materials & Methods: Purpose: to bring together all paediatric care providers in Uganda, find out their activities and challenges and streamline all group activities

Methods: we invited all (local and international) surgical care providers to a one-day meeting in Kampala Uganda. Different institutions, teams and specialties gave brief reports their background, activities, challenges and unmet needs, visions and collaboration ideas. Focus group discussions on common themes were held later in the day in regards to focus areas.

Results: Results: key focus areas were derived including collaborations, training, infrastructure, service delivery, diseases and formation of an association/foundation. Different persons volunteered to spear head these focus areas and to give reports to the group on how far they are progressing with planning and implementation. Some targets have been achieved and this has led to greater strides in managing the children with paediatric surgical problems.

Conclusion: A better understanding of service provisions and challenges was achieved. We made some resolutions in the key areas and hope that this has been a stepping-stone towards improving paediatric surgical care in Uganda. We will follow-up with prioritization of needs to guide our future activities.

Disclosure of Interest: None declared
A NATIONWIDE ENUMERATION OF OPERATIONS PERFORMED FOR PEDIATRIC PATIENTS IN GHANA

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Introduction: The Lancet Commission on Global Surgery recommends an annual rate of 5000 operations/100,000 people as a benchmark for developing countries but did not define benchmarks for different age groups. We evaluated the operation rate for pediatric patients (<15 years) in Ghana and compared it with that for patients ≥15 years.

Materials & Methods: Data on operations performed for pediatric patients over a 1-year period in 2014-5 were obtained from representative samples of 48/124 small first-level hospitals and 12/16 larger referral hospitals; and scaled up for nationwide estimates. Operations were categorized by priority according to the World Bank’s Disease Control Priorities Project.

Results: 29,884 operations were performed on patients <15 years. The annual rate of operations was 287/100,000 (95%CI:207-367), far lower than that for patients aged ≥15 years (1240/100,000; 95%CI:956-1523). 66% of pediatric operations were in the highest priority category. 54% of the operations were performed at small hospitals. Most (54%) small hospitals did not have fully-trained surgeons, but nonetheless performed 31% of small-hospital pediatric operations. General surgical procedures (e.g. appendectomy) were the most commonly performed operations (10,574;35%).

<table>
<thead>
<tr>
<th></th>
<th>Small hospitals</th>
<th>Large hospitals</th>
<th>All hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Highest priority procedures</td>
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</tr>
<tr>
<td>General surgery (basic, intermediate; e.g appendectomy)</td>
<td>12,397</td>
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<tr>
<td>Trauma (basic, intermediate; e.g fracture care)</td>
<td>6,321</td>
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<td>2,487</td>
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<tr>
<td>Dental procedures</td>
<td>2,917</td>
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<td>3,385</td>
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<tr>
<td>Congenital conditions (basic, intermediate; e.g orofacial cleft repair)</td>
<td>2,607</td>
<td>1</td>
<td>480</td>
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<tr>
<td>Ob-gyn (basic, intermediate; e.g cesarean)</td>
<td>101</td>
<td>0</td>
<td>725</td>
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<tr>
<td>Cataract</td>
<td>359</td>
<td>2</td>
<td>62</td>
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<tr>
<td>Other surgical procedures</td>
<td>93</td>
<td>0</td>
<td>106</td>
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<tr>
<td>Head/Neck</td>
<td>1,684</td>
<td>1</td>
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<tr>
<td>General Surgery (e.g. laparotomy)</td>
<td>809</td>
<td>5</td>
<td>957</td>
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<tr>
<td>Pediatric Surgery</td>
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<td>973</td>
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<tr>
<td>Advanced trauma and orthopedics</td>
<td>261</td>
<td>1</td>
<td>827</td>
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<tr>
<td>Miscellaneous minor procedures</td>
<td>674</td>
<td>4</td>
<td>263</td>
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<tr>
<td>Service</td>
<td>Cases</td>
<td>Deaths</td>
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<tr>
<td>---------------------</td>
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<td>--------</td>
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<tr>
<td>Urology</td>
<td>83</td>
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<td>210</td>
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<tr>
<td>Other ophthalmology</td>
<td>65</td>
<td>0</td>
<td>116</td>
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<tr>
<td>Ob-gyn</td>
<td>88</td>
<td>0</td>
<td>65</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16,213</strong></td>
<td><strong>4</strong></td>
<td><strong>13,672</strong></td>
</tr>
</tbody>
</table>

**Conclusion:** The operation rate for pediatric patients was far lower than the adult rate. The observed rate also fell well short of the cited benchmark, likely indicating large unmet need. Most surgeries for pediatric patients were in the highest priority category, mostly delivered at small hospitals, many without fully-trained surgeons. Future global surgery benchmarking should consider specific benchmarks for pediatric patients.

**Disclosure of Interest:** None declared
SAFETY, PRODUCTIVITY AND PREDICTED CONTRIBUTION OF A SURGICAL TASK-SHARING PROGRAMME IN SIERRA LEONE. OPERATIONAL RESEARCH FROM THE FIRST FIVE YEARS OF AN INNOVATIVE NEW MODEL OF TRAINING.

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Introduction: Surgical task-sharing may be central to expanding the provision of surgical care in low-resource settings. A surgical task-sharing programme where 60 junior doctors and associate clinicians are trained to safely master context-adapted and resource-poor surgery were introduced in Sierra Leone in 2011. The implementation strategy was to improve access to emergency surgical care at district governmental hospitals. The aims of this abstract are to assess productivity and safety halfway into the 10-year programme, and estimate its future role in contributing to surgical volume.

Materials & Methods: This prospective observational study from a consortium of 16 hospitals assess five years’ crude in-hospital mortality and productivity of operations performed during and after completion of a three-year surgical training programme.

Results: 48 trainees and nine graduates participated in a total of 27 216 supervised operations between January 2011 and July 2016. During the three-year training, trainees attended a median of 822 operations. Graduates performed a median of 173 operations annually. Caesarean section, hernia repair and laparotomy were the most common procedures during and after training. Crude in-hospital mortality of caesarean sections and laparotomies performed by trainees was 0·7 per cent (13/1915), 4·3 per cent (7/164) and 0·4 per cent (5/1169), 8·0 per cent (11/137) by graduates. Adjusted for patient sex, surgical procedure, urgency and hospital, mortality was significantly lower for operations performed by trainees (OR 0·47, 95 per cent CI 0·32, 0·71, P<0·001) and graduates (OR 0·16, 95 per cent CI 0·07, 0·41, P<0·001) versus those conducted by trainers and supervisors. If the productivity remains at 173 operations per year, 60 graduates will perform 10 404 (6528 – 13 566) operations annually in governmental district hospitals in Sierra Leone in 2021, an increase of 110 % from 2012.

Conclusion: Graduates of this training programme can rapidly and safely achieve substantial increases in surgical volume in Sierra Leone.


Disclosure of Interest: None declared
A CROSS SECTIONAL ANALYSIS OF THE CULTURE OF PATIENT SAFETY AMONGST HEALTH WORKERS IN THE SURGICAL UNITS OF THREE HOSPITALS IN THE SOUTH-WEST REGION OF CAMEROON.

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Introduction: Patient safety has been recognized by World Health Organization as a fundamental principle of all health systems. Several reports have documented the scale of harm done to patients as a result of medical errors. The consequences of errors in the surgical departments are known to be more dramatic. Extensive research has been done to this end in the developed world, whereas very little is known about the situation in the developing world. In Cameroon, to the best of our knowledge, no such assessment has been conducted. Prior to assessing the epidemiology and consequences of unsafe care, it is paramount to first establish the existing trends of patient safety in our setting. This study aims to assess how much of a concern patient safety is when healthcare is administered to surgical patients.

Materials & Methods: This descriptive cross-sectional study was conducted in March 2016 in three hospitals in the South West Region of Cameroon: the Buea Regional Hospital, Limbe Regional Hospital and Kumba District Hospital. Using purposive sampling, 272 Staff members involved in one way or another in the care of the patient requiring surgery or admitted in the surgical wards were selected and issued a self-administered questionnaire. This questionnaire inspired by the Agency for Healthcare Research and Quality included 42 questions designed to assess 12 dimensions of the surgical patient safety culture using a 5-point Likert scale for most of the questions.

Results: the response rate was 76% and 96% of the participants worked in direct contact with the surgical patient. Registered nurses and technicians represented the majority of respondents (59%). Areas of strength identified were Teamwork within Units (84%) and Organizational Learning-Continuous Improvement (79%). Areas needing improvement were Frequency of events Reported (50%), Communication Openness (50%), Staffing (45%) and non-punitive response to error (44%). These areas needing improvement were confirmed when these composite results were compared with the Agency for Healthcare Research and Quality database composite results (66%, 62%, 55% and 44% respectively).

Conclusion: The existing culture of patient safety falls short of the expected standard. Encouraging error reporting by adopting a non-punitive attitude to error would be a cornerstone in the development of a patient safety culture that minimizes the occurrence of adverse events.

Disclosure of Interest: None declared
WHY SURGEONS CONTINUED TO OPERATE AT RISK OF EBOLA: A QUALITATIVE HEALTH SYSTEM LENS ON THE CONTINUATION OF CAESAREAN SECTIONS AT PUBLIC HOSPITALS IN SIERRA LEONE DURING THE 2014-16 EBOLA CRISIS

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Introduction: Resilient health systems withstand the negative effects from disasters (1). The 2014-16 Ebola Virus Disease (EVD) suppressed West African surgical systems. The indirect effects killed more people than the virus itself (2). Despite the challenges, an increase in caesarean section volume during EVD at Sierra Leonean public hospitals was recorded (3). However, the underlying mechanism to this sign of resilience have not been investigated. We aimed to explore factors that led to the continuation of caesarean sections at Sierra Leone’s public hospitals during EVD, and to discuss their implications for health systems resilience to disasters.

Materials & Methods: Semi-structured interviews were held with 15 surgical care providers from 5 public hospitals, who worked at least 6 months during EVD. Average healthcare experience was 21 years and interviews averaged 98 minutes. Transcripts were analysed by framework analysis, modified to yield results within categories comprised of the six building blocks of health systems.

Results: Four key factors were identified as pivotal to the continuation of surgery during EVD. They were: survival of individual surgeons that could continue wielding the scalpel, inherently motivated staff that both stayed and performed safe and strict surgical care, active prioritisation of obstetric emergencies by clinical decision-makers at hospital-level, and improved referral systems that concentrated surgical patients in the open public hospitals that were still operating. Four overarching themes relating to the resilience of surgical systems were personal coping strategies, effective policy implementation, purposive resource transfer, and responsive feedback loops. These four themes are contextualised by a conceptual model (image) that correlates surgical systems’ response to disasters to the health systems’ six building blocks.

Conclusion: Surgery depended on health system resilience and surgical system interactions at local, national, and international level. Before the international relief efforts, lone surgeons had to cope at facilities to provide life-saving surgery. Lessons learned from the continuation of caesarean sections can inform health system strengthening and more specifically surgical systems post-EVD through a set of policy implications. Our surgical resilience model is comparable to more general conceptual disaster resilience models.


Disclosure of Interest: None declared
ADMISSIONS AND SURGERY AS INDICATORS OF HOSPITAL FUNCTIONS IN SIERRA LEONE DURING THE WEST-AFRICAN EBOLA OUTBREAK

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2CapaCare, Masanga, Tonkolili, 3College of Medicine and Allied Health Sciences, University of Sierra Leone, Freetown, Sierra Leone, 4Health System and Policy Research Group, Karolinska Institutet, Stockholm, Sweden

Introduction: The West-African Ebola Viral Disease (EVD) outbreak, infected over 28,000 people with more than 11,000 deaths. In an attempt to assess the effects of the EVD on hospital functions in Sierra Leone, changes in provisions of surgery and non-Ebola admissions during the first year of the EVD outbreak were studied.

Materials & Methods: All hospitals in Sierra Leone known to perform inpatient surgery were assessed for non-Ebola admissions, volume of surgery, caesarean sections and inguinal hernia repairs between January 2014 and May 2015, which was a total of 72 weeks. Accumulated weekly data was gathered from readily available hospital records at bi-weekly visits during the peak of the outbreak from September 2014 to May 2015. The Mann-Whitney U test was used to determine whether there were differences in admissions or the volume of surgeries performed during the first year of the EVD outbreak, compared to before the outbreak.

Results: Of the 42 hospitals identified, 40 had data available for 96% (2759/2880) of the weeks. There was a 51% decrease in non-Ebola admissions and 41% fewer surgeries performed compared with the time period before the outbreak. Governmental hospitals experienced a smaller reduction in non-Ebola admissions (45% versus 60%) and surgeries (31% versus 53%) compared to private non-profit hospitals. Governmental hospitals realized an increased volume of cesarean deliveries by 45% during the EVD outbreak, thereby absorbing the 43% reduction observed in the private non-profit hospitals.

Conclusion: Both non-Ebola admissions and surgeries were severely reduced during the EVD outbreak. In addition to responding to the EVD outbreak, governmental hospitals were able to maintain certain core health systems functions. Volume of surgery is a promising indicator of hospital performance that should be further explored.

Disclosure of Interest: None declared
PROGNOSTIC ASSOCIATION OF THE CAMP GENE EXPRESSION WITH THE SURVIVAL DUE TO BETA1-BLOCKADE IN SEPSIS

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Introduction: Previous studies established survival advantage of beta1-blockade in sepsis. Our group had further eluded into its molecular mechanisms by demonstrating a potential of CAMP and TNFSF10 genes as predictive biomarkers of response to esmolol treatment in high-throughput microarray analysis in animals. The aim of this study is to validate and further explore mechanisms associated with candidate genes expression in esmolol therapy in an endotoxemic mouse model. We hypothesized that CAMP and TNFSF10 can predict previously observed survival benefits of continuous infusion of esmolol in sepsis.

Materials & Methods: After IACUC approval, an endotoxemic model of C57BL/6 mice injected with lipopolysaccharide (LPS 12.5mg/kg) was utilized to treat with continuous infusion of either esmolol or equal volume saline (control). Three-step validation for the CAMP and TNFSF10 genes was performed: 1) in silico validation of candidate genes in 30 human blood samples (GSE28750) between patients with early sepsis and healthy volunteers; 2) in vivo functional validation of expression by qRT-PCR using animal blood and tissues (heart, liver, lungs, kidneys and spleen) at 48 hours post-LPS injection (esmolol vs. saline); 3) in vitro validation in SK-HEP1 liver cell lines at 48 hours post-LPS injection compared between treated and control samples. Statistical analysis were performed on GraphPad using p<0.05 as significant value.

Results: Analysis of human samples from patients with sepsis identified up-regulation of CAMP and TNFSF10 genes (p<0.05). Gene validation in septic mouse model showed a 3-fold increase in CAMP expression in blood followed by 4-, 4- and 8-fold decrease in CAMP expression in heart, kidneys and liver, respectively, at 48 hours between esmolol–treated group and controls, p<0.05. No difference in CAMP was observed in spleen, and lungs. CAMP expression had 70-fold decrease at 48 hours post-LPS injection in esmolol treated group in SK-HEP1 cells.

Conclusion: Our results demonstrate that esmolol down-regulates an exaggerated activation of CAMP gene, a known antimicrobial peptide and innate immunity mediator, in target organs which can lead to an increased survival in sepsis. Hence, we postulate that CAMP might be a prognostic biomarker of inflammatory response during beta1-blockade in sepsis. Further prospective validation in human clinical trials is warranted.

Disclosure of Interest: None declared
FIBRINOGEN REPLACEMENT IN TRAUMATIC HAEMORRHAGE

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Introduction: Severe traumatic haemorrhage and Trauma Induced Coagulopathy (TIC) is associated with significant morbidity and mortality. Hypofibrinogenaemia plays a key role in TIC and is associated with poor outcomes in. It is hypothesised that early fibrinogen replacement may reduce haemorrhage and improve outcomes. Current guidelines recommend using Fibrinogen Concentrate (FC) or Cryoprecipitate for fibrinogen replacement. There is limited evidence to support either, with large variations in clinical practice. Fibrinogen replacement using a ROTEM® guided MHP strategy in severe trauma is utilised at GCUH. These practices were investigated in order to assist in the planning of a pilot randomised controlled trial comparing FC to Cryoprecipitate in traumatic haemorrhage.

Materials & Methods: Trauma patients with severe bleeding requiring fibrinogen supplementation utilising FC and Cryoprecipitate between January 2014 and December 2016 were prospectively identified. Fibrinogen supplementation was guided by FIBTEM analysis. Data collection included patient demographics, blood product use and ISS. The primary outcome measure was time to fibrinogen administration from ROTEM analysis.

Results: 35 patients received FC (+/- cryoprecipitate) with a median ISS of 35. 28 patients received ≥ 4 units of red blood cells (PRBCs) and 12 required massive transfusion (≥ 10U PRBC). Patients receiving FC were transfused a median of 8U of PRBC, 4g of FC and 10U of cryoprecipitate. Median time from first ROTEM® assessment and FC administration was 22 minutes. 76 patients received cryoprecipitate (+/- FC) with a median ISS of 27. Patients receiving cryoprecipitate were transfused a median of 6U of PRBC and 15U of cryoprecipitate. Median time from first ROTEM® assessment and Cryoprecipitate administration was 67 minutes.

Conclusion: There is currently insufficient evidence to support one means of fibrinogen replacement over another; resulting in non-uniform practices within facilities and diverse transfusion guidelines. The data presented demonstrates quicker fibrinogen supplementation utilising FC than Cryoprecipitate. This data has been used to inform the design of Fibrinogen Early In Severe Trauma StudY (FEISTY) – an exploratory, multi-centre randomized control trial evaluating feasibility and efficacy of FC compared to Cryoprecipitate for fibrinogen supplementation in severe traumatic hemorrhage.

Disclosure of Interest: None declared
OUTCOMES OF TRANSFUSION OF PLASMA AND RED BLOOD CELLS IN ≥1:2 VS <1:2 RATIOS AT UNITED STATES TRAUMA CENTERS- BALANCED TRANSFUSION BEYOND THE CLINICAL TRIALS

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Introduction: Early transfusion of plasma and packed red blood cells (pRBCs) in balanced ratios is recommended in patients requiring massive transfusion (MT) based on results of prospective clinical trials; however, generalizability of the early survival benefit to balanced transfusion (BT) has not been confirmed. The purpose of this study was to evaluate use and outcomes of BT in a large multicenter sample of hemorrhaging trauma patients in the United States, hypothesizing that BT would be associated with improved survival.

Materials & Methods: Patients predicted to require MT based on a modified ABC score ≥2 and receipt of platelets, plasma, and pRBCs were included from the 2013-2014 Trauma Quality Improvement Program (TQIP). TQIP contains data on patients treated at >200 level I and II trauma centers in the United States. BT was defined as transfusion of plasma:pRBCs in ≥1:2 ratios and unbalanced transfusion (UT) as <1:2 ratios at 4 hours after arrival. Demographics, injury severity, and transfusion volumes of BT and UT patients were compared. Stepwise Cox proportional hazard regression assessed the independent impact of early BT on 24-hour and 30-day mortality after adjustment for confounders including platelet administration. Adjusted survival curves were also created.

Results: Among 3995 patients, BT occurred in 1180 (29.5%) and UT in 2815 (70.5%). There was no difference in age, sex, race, mechanism, injury severity, presenting vital signs, or hemorrhage control procedures. BT patients received fewer mean units of pRBCs (9.7 vs 10.7, p=.031), plasma (2.8 vs 8.5, p<.001), and platelets (1.4 vs 2.1, p<.001) in 24 hours when compared to UT patients. On multivariable analysis BT was associated with lower 24-hour mortality (HR=0.76, 95% CI: 0.65-0.89, p<.001) and similar 30-day mortality (HR=0.94, 95% CI: 0.82-1.07, p=.32) compared to UT. Platelet administration was not associated with mortality. Adjusted 24-hour survival analysis demonstrated the survival benefit to occur early in resuscitation with parallel curves after 3 hours (Figure 1).

Conclusion: Early transfusion of plasma and pRBCs in ≥1:2 ratios for hemorrhaging trauma patients was associated with improved short term survival and decreased 24-hour transfusion requirements at a large sample of trauma centers in the United States. Given these findings, in conjunction with results from prospective trials, utilization of BT should be improved. Application of these findings to multinational cohorts of injured patients should also be investigated.

Disclosure of Interest: None declared
CLINICAL IMPACT OF ACCURATE GLUCOSE MONITORING IN CRITICALLY ILL ADULT BURN PATIENTS

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Introduction: Hyperglycemia has been associated with increased infectious complications, while hypoglycemia is associated with increased mortality post injury. Traditional bedside glucose monitoring systems (BGMS) are subject to inaccuracies due to anemia and intravenous drugs. However, newer glucose monitoring devices, which correct for these issues, are being introduced into burn care. The purpose of this study was to compare glycemic control and variability between a non-correcting BGMS (ncBGMS) and an autocorrecting BGMS (autoBGMS) point of care glucose device in critically ill burn patients.

Materials & Methods: This prospective observational study included adult patients admitted to a burn center with burn injury >20\%. Glucose data from patients admitted January 2014-October 2015 (ncBGMS) vs. November 2015-April 2016 (autoBGMS) were obtained. BGMS measurements were compared to standard laboratory glucose analysis utilizing blood obtained within 15 minutes of point-of-care testing to determine bias. A negative bias indicates that the point of care result is lower than the laboratory result. Glycemic variability is expressed as mean amplitude of glycemic excursions (MAGE) score, frequency of hypoglycemic events, percent time under glycemic control, and time to achieve glycemic control. The 2-sample t-test was used to compare continuous variables between groups, and the Fishers exact test was used for discrete variables.

Results: A total of 92 patients were included in the study, 57 in the ncBGMS and 35 in the autoBGMS group. Mean age, gender, TBSA burned (autoBGMS 38.2 vs. ncBGMS 41.3\%, p=0.06), inhalation injury status, and disease severity were similar between the two BGMS groups. The autoBGMS group had significantly less bias compared to ncBGMS (-1.6 vs. 8.3, p<0.001), decreased time required to obtain glycemic control (4.8 vs. 11.2 hours, p<0.001), increased percent of patients meeting glycemic control goals (85.3 vs. 51.7\%, p<0.001), decreased incidence of hypoglycemic events (10.5 vs. 38.9\%, p<0.001), lower mean insulin rates (2.3 vs. 4.7 units/hr), and decreased glycemic variability (MAGE of 29.7 vs. 61.3, p<0.001).

Conclusion: Newly introduced autocorrecting BGMS monitors reduce bias and improve glycemic management of critically ill burn patients in terms of initial glycemic control, maintenance of glycemic control, and avoidance of hypoglycemia.

Disclosure of Interest: None declared
DOES INTUBATION FOR GLASGOW COMA SCORE ≤8 IN BLUNT TRAUMA PATIENTS IMPROVE OUTCOMES?
A PROPENSITY-MATCHED EVALUATION
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Introduction: Advanced Trauma Life Support guidelines suggest endotracheal intubation for injured patients with Glasgow Coma Scale (GCS) ≤8, but the data supporting this recommendation are weak. We hypothesized that patients intubated in the trauma bay for GCS≤8 wound have no decrease in mortality when compared to propensity-matched patients who did not undergo intubation.

Materials & Methods: We performed a propensity-matched retrospective cohort study of patients ≥ 18 year of age with a blunt mechanism of injury presenting to level I and II Pennsylvania trauma centers from 2007-2015. Patients who arrived intubated, were transferred, or had a GCS>8 were excluded. Using kernel matching, propensity scores for intubation in the trauma bay were generated using patient age, sex, race, GCS, hypotension (SBP<90mmHg), and AIS scores for head, chest, and abdomen. Average treatment effects in the treated were estimated for the outcomes of death, pneumonia, and ICU length of stay.

Results: In total, 4994 patients were included (median age 47 years IQR(29-64), 74% Caucasian, 71% male, 13.5% hypotensive, median GCS 5 (IQR 3-7)), of whom 4,264 (85%) underwent intubation. The mean bias in the covariates between matched and unmatched samples decreased from 18% to 3.9% (p<0.001). After propensity matching, rates of mortality (31.4% vs. 30.1%, p = 0.6) and pneumonia (13.5% vs. 13.6%, p = 0.93) between the two groups were similar, while ICU length of stay remained longer in the intubated group (6.1 vs. 4.6 days, p <0.001).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intubated</th>
<th>Not Intubated</th>
<th>Bias Reduction in Bias</th>
<th>p</th>
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<tr>
<td>Female</td>
<td>Before Matching</td>
<td>28.0%</td>
<td>33.9%</td>
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<td>After Matching</td>
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<td>Age in Years</td>
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<td></td>
<td>After Matching</td>
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<tr>
<td>GCS Motor</td>
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<td>After Matching</td>
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<td></td>
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<td>3.0</td>
<td>5.0%</td>
</tr>
<tr>
<td>AIS Chest</td>
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<tr>
<td>AIS Abdomen</td>
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<td>-0.9%</td>
</tr>
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</table>
Conclusion: After accounting for age, physiology, and injury covariates, intubation of patients with GCS≤8 does not appear to improve outcomes and is associated with a significantly increased ICU length of stay. The dictum to intubate injured patients for a GCS≤8 should be critically re-evaluated.

Disclosure of Interest: None declared
**Introduction:** Traumatic Brain Injury (TBI) is a public health problem. It is a pathology that causes significant mortality and disability. Different models have been developed in order to predict the neurological outcomes. Marshall computed tomographic (CT) classification is widely used as a predictor of outcome. However, this grading system lacks useful variables to predict the outcome of the patient, which are subarachnoid/intraventricular hemorrhage, extradural hematoma, and extent of basal cistern compression. We aimed to develop and validate a practical prognostic model that include all the variables above and predict death at six months after TBI.

**Materials & Methods:** Prospectively collected individual patient data were analyzed. The CT model included midline shift over 5 mm, normal, compressed or absent basal cisterns, subarachnoid bleeding, basal bleeding, intraventricular bleeding, contusion and epidural, subdural or intracerebral hematoma. We considered predictors available at admission in logistic regression models to predict mortality at 6 months after TBI. The performance and accuracy of several model was assessment using the Spearman's rank correlation coefficient and the area under the receiver operating characteristic curve (AUC).

**Results:** A total of 145 patients were recruited for study, median age 33 (15-85) years, and 86.89% were male. The overall mortality was 24.82%. The median GCS of patients was 6 (3-12). The Marshall CT classification discrimination was AUC= 0.646, Helsinki CT Score discrimination was AUC= 0.724, Rotterdam grading discrimination was AUC= 0.735, all these with a low correlation with the outcome (Spearman's rho <0.40). Our model showed the best performance and correlation with 6-month mortality: AUC= 0.7755, Spearman's rho 0.4201, p= 0.000.

**Conclusion:** Our prognostic mortality CT model showed a great performance and accuracy and can be used to obtain valid predictions of relevant outcomes in patients with TBI.

**Disclosure of Interest:** None declared
**Retropharyngeal Parathyroid Glands: Important Differences**

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**Introduction:** In primary hyperparathyroidism (PHPT), ectopic parathyroid glands represent abnormal migration during embryologic development and have a reported incidence of 2-22%. Ectopic parathyroids can be much more difficult to locate at operation, potentially leading to unsuccessful surgery. The purpose of this study is to determine the rate and unique clinical characteristics of ectopic parathyroid glands residing specifically in the retropharyngeal (RP) space.

**Materials & Methods:** With institutional approval, a prospective database was queried for patients from 1982-2014 who had initial or reoperative surgery for sporadic PHPT with parathyroid ectopia. Gland location was re-verified according to the anatomic description in the operative report. The data of patients with an RP gland were analyzed and correlated with laboratory, imaging, clinico-pathologic, and follow-up findings. The RP group was then compared to a previously described cohort of patients who had a single adenoma residing in a normal anatomic position (N).

**Results:** RP glands occurred in 43/4392 (1%) patients and were more common at reoperative 4.3% (10/231) than initial 0.8% (33/4161) surgery (p<0.01). Failed initial surgery was more likely in RP (6%) than N (1.1%) patients (p=0.04). 10/43 (23%) RP patients had undergone prior failed parathyroidectomy. Preoperative calcium levels were similar for RP and N patients (p=0.64), as were mean gland weights (p=0.1). However, mean preoperative PTH levels were higher in the RP group (360 vs 155 pg/mL, p<0.01). Moreover, preoperative imaging indicated a retropharyngeal or posterior midline position in only 11/41 (27%) and was negative in a high proportion (23%). At surgery, 47% of patients required bilateral extensive dissection before the hyperfunctioning gland could be located. All but one RP patient had single gland disease; one patient had 2 enlarged parathyroids in the RP space.

**Conclusion:** In PHPT, hyperfunctioning retropharyngeal glands are not uncommon (1%) but are often missed at initial surgery (23%). At reoperation, retropharyngeal ectopia is 5X more common. RP glands are associated with higher preoperative PTH levels and negative or misleading (50%) imaging results, although the imaging suggestion of a midline abnormality can guide exploration. The RP location should be evaluated fully prior to ending an otherwise unfruitful parathyroidectomy.

**Disclosure of Interest:** None declared
CASES WITH SEVERE HYPERPARATHYROIDISM DESPITE THEIR SHORT PERIOD OF RENAL REPLACEMENT THERAPY

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Introduction: Secondary hyperparathyroidism (SHPT) is one of the serious complications that could increase mortality and other complications in patients with chronic kidney disease (CKD). And the majority of the cases with severe SHPT typically have a long period of renal replacement therapy (RT), such as hemodialysis. However, we have occasionally experienced some cases with severe SHPT which require parathyroidectomy (PTX) due to severity despite their short period of RT. The characteristics of these cases haven’t ever been discussed. The aim of this study is elucidating the pathophysiology of severe SHPT with short period of RT by retrospective investigation of its clinical data.

Materials & Methods: One thousand and thirteen patients with severe SHPT received PTX between January 2007 and April 2016 in Nagoya Daini Red Cross Hospital. PTX was indicated for the cases in which persistent high PTH level (intact PTH ≥500pg/mL), hyperphosphatemia (serum phosphate >6.0mg/dL) or hypercalcemia (serum calcium >10.0mg/dL) were uncontrollable by medical treatment. Out of them, 570 patients had ten years or longer period of RT (Long RT group), whereas 27 patients had one year or shorter period of RT (Short RT group). We retrospectively investigated and compared patient's characteristics, preoperative data, subjective symptoms and bone lesions between the two groups.

Results: There was no significant differences in age and gender between the two groups. Compared with Long RT group, Short RT group had higher proportion of congenital or hereditary diseases, which included polycystic kidney disease, Alport syndrome, congenital metabolic disorder, nephronophthisis, hypo/dysplastic kidneys and other chromosomal abnormalities result in renal failure, as primary diseases of CKD (18.5% [5/27] vs. 6.3% [36/570], \( P = 0.031 \)). And Short RT group also had longer predialysis period (17 [1-52] years vs. 7 [0-44] years, \( P < 0.001 \)). In addition, Short RT group tended to have lower serum calcium (Ca) level (9.6 [7.8-12.5] mg/dL vs. 10.2 [7.3-16.4] mg/dL, \( P = 0.004 \)) and lower phosphate (P) level (4.9 [1.9-7.3] mg/dL vs. 5.6 [0.9-10.1] mg/dL, \( P = 0.002 \)), heavier parathyroid glands (2444 [620-6704] mg vs. 1532 [199-1504] mg, \( P = 0.002 \)) compared with Long RT group.

Conclusion: Severe SHPT with short period of RT seemed to result from long period of CKD before RT induction. And lower Ca and P levels in Short RT group might suggest their serious deficiency of Vitamin D.

Disclosure of Interest: None declared
UNDIAGNOSED PRIMARY HYPERPARATHYROIDISM AND RECURRENT MISCARRIAGE: A CLINICALLY SIGNIFICANT RISK?
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Introduction: Primary hyperparathyroidism (pHPT) in pregnancy is reported to be associated with significant maternal and foetal complications and a 3-fold risk of miscarriage. The prevalence of pHPT in women of reproductive age (20-40yrs) is 4/10,000. The true incidence of pHPT in pregnancy, complete and miscarried, is unknown and there is no data on the prevalence of undiagnosed pHPT in recurrent miscarriage (RM). This is the first prospective study aiming to establish whether the prevalence of undiagnosed pHPT in RM patients is clinically significant.

Materials & Methods: National ethics committee approval was granted. Women aged between 20-40 years who had experienced 3 or more consecutive miscarriages were recruited from our hospital’s RM clinic over a 2-year period. Serum corrected calcium, phosphate, PTH and Vitamin D were evaluated. Patients with a raised serum calcium and/or PTH were recalled for confirmatory tests. Vitamin D deficiency was defined as a 25-hydoxyvitamin-D of <25nmol/l and insufficiency as 25-50nmol/l. Power calculations suggested that a minimum of 272 patients were required to demonstrate a clinically significant (1% or more) incidence of pHPT in RM patients at a level of 5% significance and a power of 90%.

Results: 300 women were recruited. 289 patients were included in the analysis (11 patients had incomplete data). 50/289 patients (17%) with abnormal tests were recalled. Just 1 patient was diagnosed with pHPT (0.3%) and successfully treated. The prevalence of Vitamin D deficiency and insufficiency was 8.7% and 67.8% respectively.

Conclusion: The prevalence of undiagnosed pHPT (0.3%) in RM patients appears to be many times higher than expected in this age group. A larger sample would statistically strengthen the findings of this study. Although we cannot advocate routine calcium estimation in all pregnant women, its use should be considered in RM given the infrequency of RM and the low cost of the screening test.

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MEASURING DECISION-MAKING DURING THYROIDECTOMY: VALIDITY EVIDENCE FOR A WEB-BASED ASSESSMENT TOOL
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Introduction: Errors in judgment during thyroidectomy can lead to injury to the recurrent laryngeal nerve and other complications. Despite correlations between outcomes, expertise and advanced cognitive skills, current methods to evaluate these skills remain subjective, rater- and situation-dependent, and non-systematic. The purpose of this study was to develop objective metrics using a web-based platform, and to obtain validity evidence for their assessment of decision-making during thyroidectomy.

Materials & Methods: An interactive online learning platform was developed (www.thinklikeasurgeon.com). Trainees and surgeons from six institutions completed a 33-item assessment, developed based on a cognitive task analysis and expert Delphi consensus. Sixteen items required subjects to draw their answer on the surgical field and accuracy scores were calculated based on an algorithm derived from experts’ responses (“visual concordance test”, VCT). Seven items were short-answer (SA), requiring users to type their answers and scores were automatically calculated based on their similarity to a pre-populated repertoire of correct responses. Test-retest reliability, internal consistency, and correlation of scores with self-reported experience and training level (novice, intermediate, expert) were calculated.

Results: Twenty-five subjects (10 endocrine surgeons and otolaryngologists, 15 trainees) participated. There was high test-retest reliability (intraclass correlation coefficient=0.96; n=10) and internal consistency (Cronbach’s alpha=0.93). The assessment demonstrated significant differences between novices, intermediates and experts in total score (p<0.01), VCT score (p<0.01), and SA score (p=0.04). There was high correlation between total case number and total score (rho=0.86, p<0.01), between total case number and VCT score (rho=0.87, p<0.01), and between total case number and SA score (rho=0.82, p<0.02).

Conclusion: This study describes the development of novel metrics and provides validity evidence for a novel interactive Web-based platform to objectively assess decision-making during thyroidectomy. Given the potential morbidity associated with intra-operative injuries, the implementation of this educational program and assessment tool into surgical curricula can provide objective and structured feedback and ultimately improve operative performance and patient safety.

Disclosure of Interest: None declared
A PROSPECTIVE COMPARITIVE STUDY ON IMPROVEMENT OF HYPERTHYROID CARDIOVASCULAR DYSFUNCTION IN PATIENTS UNDERGOING TOTAL THYROIDECTOMY VS MEDICAL MANAGEMENT

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Introduction: Cardiovascular dysfunction (CVD) is a well recognized complication in patients with hyperthyroidism and is the major cause of mortality. Very few studies have compared the outcome of CVD following different treatment modalities. In this study we intended to compare treatment modalities (anti-thyroid drugs vs surgery) for reversal of CVD.

Materials & Methods: Patients with newly detected hyperthyroidism were grouped into, Group 1 [n=123, age< 60 years, undergoing total thyroidectomy(TT)], Group 2 [n=42, age< 60 years, treated with anti-thyroid medications] were evaluated with 2D Echocardiography, serum N terminal Pro Brain Natriuretic Peptide(NT pro-BNP) at the time of diagnosis(Point A), after achieving euthyroidism(Point B) with anti-thyroid drugs and 6 months after TT/continuation of anti-thyroid medications (Point C). 40 patients(Group 3), age< 60 years, undergoing TT for nontoxic benign thyroid nodules served as controls.

Results: All groups were age and sex matched. At point A, CVD was evident in 80/123(65%) in Group 1 and 28/42(66.7%) in Group 2. At Point B improvement in CVD occurred in 84/123(68.3%) in Group 1 and 29/42(69.04%) in Group 2. At Point C dramatic improvement in CVD occurred in 118/123(95.9%) in Group 1 whereas only 33/42(78.5%) improved in Group 2. All the parameters for CVD were comparable between Group 1 & 2 at point A and point B (p>0.05). At Point C there was a significant decrease in all the diastolic dysfunction parameters in Group 1 whereas the same was not observed in Group 2 patients (Table 1). Systolic dysfunction between Group 1 & 2 had no statistical significance at point C (Table 1).

<table>
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<th>Variables</th>
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<th>Group 2</th>
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LV - Left ventricle
IVS - Interventricular septum

Conclusion: Total thyroidectomy seems to be the definitive treatment of choice for hyperthyroid cardiac dysfunction. Diastolic dysfunction is completely reversible at 6 months after TT. NT pro BNP levels correlated well with the severity of CVD and hence can be used as a prognostic indicator in hyperthyroid cardiac dysfunction.


Disclosure of Interest: None declared
LITHIUM-ASSOCIATED HYPERPARATHYROIDISM (LHPT): PATHOPHYSIOLOGY, PREVALENCE, MANAGEMENT
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Introduction: Lithium-associated hyperparathyroidism (LHPT) is an ill-defined endocrinopathy. Three retrospective studies conducted in Sweden from recent years are hereby presented to further illustrate the pathophysiology, prevalence and surgical management of this condition.

Materials & Methods: In Studies I and II, medical journals were scrutinized for relevant laboratory and operation details. Study I revealed that 71 LHPT patients at six centres had undergone surgery for hyperparathyroidism (HPT) with a median of 6.3 yrs follow-up. LHPT was subsequently defined biochemically, allowing the prevalence to be calculated. Study III, as yet unpublished, analysed only bipolar patients regarding hypercalcemia, with and without lithium, in comparison to the general population.

Results: Operated patients in Study I had multiglandular hyperplasia as the primary histopathological diagnosis (52%). Persistent or recurrent HPT was 42%, regardless diagnosis. Surgical radicality improved outcomes. In a separate population of 423 lithium-treated patients in Study II, five patients (1%) had been operated but 77 patients (18%) had LHPT, predominantly female (71%); they were both older (65yrs, SD=12) and treated longer (23 yrs, range 3-40) compared with the non-LHPT group. Study III confirms that mild hypercalcemia is strongly associated with bipolar patients with concurrent lithium treatment (see Table).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Bipolar with lithium</th>
<th>Bipolar without lithium</th>
<th>Control group (general population)</th>
<th>Statistical value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of participants</td>
<td>313</td>
<td>148</td>
<td>103</td>
<td>Total=563</td>
</tr>
<tr>
<td>Female (%)</td>
<td>188 (60%)</td>
<td>94 (64%)</td>
<td>62 (60%)</td>
<td>Total=344 (61%)</td>
</tr>
<tr>
<td>Age, mean yrs (SD)</td>
<td>56 (16)</td>
<td>39 (13)</td>
<td>38 (14)</td>
<td>Entire group=48 (17)</td>
</tr>
<tr>
<td>Creatinine µmol/l, median (range)</td>
<td>77 (44-139)</td>
<td>66 (39-140)</td>
<td>68 (45-100)</td>
<td>Entire group=72 (39-140)</td>
</tr>
<tr>
<td>PTH ng/l, median (range)</td>
<td>65 (22-305)</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Calcium mmol/l, median (range)</td>
<td>2.44 (2.17-2.86)</td>
<td>2.29 (2.05-2.53)</td>
<td>2.27 (2.11-2.56)</td>
<td>Entire group=2.37 (2.05-2.86)</td>
</tr>
<tr>
<td>Hypercalcemia (at least 2 episodes ≥2.50 mmol/L)</td>
<td>82 (26%)</td>
<td>2 (1.35%)</td>
<td>3 (3%)</td>
<td>Pearson χ²=62.4, Pr=0.000</td>
</tr>
</tbody>
</table>

Conclusion: Hyperplasia is more common in LHPT compared to primary HPT, possibly because of the continual influence of lithium on all parathyroids. The high prevalence of LHPT justifies the regular monitoring of calcium homeostasis, particularly in high risk groups; identified risk factors include gender, treatment longevity and age. Conventional surgical management often provides unsatisfactory results. If surgery is necessary, subtotal parathyroidectomy should be considered. Prospective randomized studies are needed.

References:

Disclosure of Interest: None declared
LAPAROSCOPIC GASTRECTOMY VERSUS OPEN GASTRECTOMY FOR THE TREATMENT OF GASTRIC CANCER: A SINGAPORE INSTITUTION’S EXPERIENCE OVER 7 YEARS
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Introduction: Gastric cancer is a leading cause of cancer related mortality in Singapore and open surgical resection with en-bloc lymphadenectomy is currently the standard of care. While the benefits of laparoscopic surgery for other cancers such as colorectal cancer have been widely accepted, it has seen slower acceptance for gastric cancer due to the steep learning curve, concerns regarding long-term oncological outcome¹ and adequacy of harvested lymph nodes.

Our study aims to compare our institution’s short term outcomes of laparoscopic gastrectomies (LG) for cancer to open gastrectomy (OG).

Materials & Methods: A retrospective review of patients who underwent gastrectomies for stomach cancer from July 2008 to December 2015 was done. All patients underwent either partial or total gastrectomy with the intention of D2 lymphadenectomy as per the Japanese gastric cancer guidelines² by one of four upper gastrointestinal consultant surgeons. The decision to undertake an open or laparoscopic approach was made after discussion between the surgeon and the patient. Patients who had metastatic gastric cancer or underwent gastrectomy for palliation were excluded.

All patients were followed up for at least five years post-operatively. Patient demographics, tumour characteristics, operative details, and post-operative outcomes were analysed using SPSS version 21.

Results: 164 patients underwent gastrectomies between 2008 and 2015. 58 were OG and 106 were LG. There were 9 conversions from laparoscopic to open surgery. More stage III cancers underwent OG (n=43) while stage I and II cancers underwent LG (n=75). The laparoscopic group had longer operative time (268 min vs 223 min, p<0.001) with a non-significant trend towards less blood loss (287ml vs 330ml) and shorter length of stay (10 days vs 13 days).

There was no significant difference between number of lymph nodes harvested (35 vs 32), re-operation rate, 30-day morbidity and mortality. There was a significantly higher recurrence rate (43% vs 15%, P<0.001) with OG, however this did not affect overall survival between OG and LG (25 months vs 30 months, P=0.173).

<table>
<thead>
<tr>
<th>All (N=164)</th>
<th>Open</th>
<th>Laparoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%)</td>
<td>n=58</td>
</tr>
<tr>
<td>Stage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>2(1.2)</td>
<td>2(3.6)</td>
</tr>
<tr>
<td>I (IA, IB)</td>
<td>54(33.3)</td>
<td>5(8.9)</td>
</tr>
<tr>
<td>II (IIA, IIB)</td>
<td>32(19.8)</td>
<td>6(10.7)</td>
</tr>
<tr>
<td>III (IIIA, IIB)</td>
<td>74(45.7)</td>
<td>43(76.8)</td>
</tr>
<tr>
<td>Op time, Mins</td>
<td>mean±SD</td>
<td>253±78.2</td>
</tr>
<tr>
<td>Blood Loss</td>
<td>mean±SD</td>
<td>303±303.8</td>
</tr>
<tr>
<td>No of LN</td>
<td>mean±SD</td>
<td>34±18.2</td>
</tr>
<tr>
<td>LOS, Days</td>
<td>mean±SD</td>
<td>11.1±10.7</td>
</tr>
<tr>
<td>Re-operation</td>
<td>No</td>
<td>157(95.7)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>7(4.3)</td>
</tr>
<tr>
<td>30-day morbidity</td>
<td>No</td>
<td>134(82.2)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>29(17.8)</td>
</tr>
<tr>
<td>30-day mortality</td>
<td>No</td>
<td>163(99.4)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1(0.6)</td>
</tr>
<tr>
<td>Recurrence</td>
<td>No</td>
<td>122(74.8)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>41(25.2)</td>
</tr>
<tr>
<td>Time To Recurrence, Mths</td>
<td>mean±SD</td>
<td>12.6±8.8</td>
</tr>
<tr>
<td>Death</td>
<td>No</td>
<td>108(66.3)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>55(33.7)</td>
</tr>
<tr>
<td>Survival, Mths</td>
<td>mean±SD</td>
<td>28.8±21.8</td>
</tr>
</tbody>
</table>
Conclusion: The number of lymph nodes harvested and 30-day morbidity of LG is equivalent to the current gold standard of OG. The higher recurrence rate of open surgery is likely due to more OG being performed for higher stage tumours. Our study shows that LG for gastric cancer is safe and feasible in experienced hands.


Disclosure of Interest: None declared
IMMUNE ENHANCING NUTRITION IS BENEFICIAL FOR EARLY POSTOPERATIVE CHEMOTHERAPY IN ADVANCE GASTRIC CANCER: PROSPECTIVE RANDOMIZED CLINICAL CONTROL TRIAL

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Introduction: Almost all of Thai gastric cancer patients who admitted in our center have poor nutritional status, satiety, passage defect by tumor, and cachexia. Advance stage gastric cancer, patients are at risk of surgical complications. Post gastrectomy syndrome and low level immune modulated amino acids such as glutamine may cause poor systemic therapy outcome. Supplemental enteral immune-enriched formulas may improve outcome of surgery and systemic chemotherapy achievement.

Materials & Methods: Double blind prospective randomized control trial of informed consent was conducted in 60 Thai gastric cancer patients who underwent elective surgery. Moderate to severely malnourished patients were recruited, randomly double blind divided into 2 groups for immunonutrition enteral formula feeding types A and conventional general formula enteral diet type B. They were fed postoperatively for ten days before started early chemotherapy. The followed up laboratory, postoperative complications, mortality, length of hospital stay, and achievement regarding to the administration of intravenous chemotherapy were recorded. The STATA 10.0 were used for statistical analysis.

Results: All 60 patients were included in this study. There was no statistically difference for demographic data between groups before intervention. The additional parenteral intravenous fluid volume, protein, and mean calorie supplements were not different among the groups. The lengths of hospital stay in the Immunonutrition A(n=38) were 21.39 +/- 7 days, and in conventional general formula diet B(n=22) is 22.39+/-8.54 days, p value = 0.73. The serum albumin means increased postoperatively in both interventional and control group to 3.6 and 3.3 respectively without statistically difference. Postoperative major and minor complications occurred in conventional general formula group more than immunonutrition group by p-value is 0.001. There were 47 patients who got postoperative chemotherapy within 10 days without further complications in 30 days. Nine patients in group B had delayed chemotherapy for 3-4 weeks due to local and systemic infection.

Conclusion: There were both statistically and clinically significant results those shows the benefit of the immunonutrition role in gastric cancer treatment. The immune enhancing nutrition may reduce patient protein fasting, stabilize or improve their gut immunity recovery caused less infection, and get achievement for earlier postoperative chemotherapy that may affect long term survival.

Disclosure of Interest: None declared
Introduction: Though the proximal gastrectomy (PG) has theoretically benefits such as function preserving gastrectomy compared with total gastrectomy, the reconstruction methods for PG have been discussed to prevent the reflux esophagitis. The double tract reconstruction has been introduced by the spread of laparoscopic surgery, but the original method had problems especially little gastric inflow. We devised a modified double tract reconstruction (mDT) to improve gastric inflow of food and prevent the reflux esophagitis.

Materials & Methods: In mDT, jejunogastrostomy is placed at 10cm distal from esophagojejunostomy and sutured by side to side anastomosis at antero-lesser curvature of remnant stomach by linear stapler. Remnant stomach is placed at dorsal side of jejunum and positioned like fornix. We evaluated the surgical outcome of mDT compared with esophago-gastrostomy (EG) and jejunum pouch interposition (JPI).

Results: PG operation was performed 99 cases, which was composed with 52 in mDT, 34 in JPI, and 13 cases in EG, respectively. The contrast study of remnant stomach in mDT revealed that enough gastric inflow (>50%) was in 47 cases and pseud-fornix formation is in 48 cases. The observation to the duodenum by gastro-endoscopy was performed in all cases of mDT. Reflux esophagitis was present in 55.6% of patients in EG, 9.7% in JPI, and 8.1% in mDT group. The mDT group had significantly little medication (7.7%) such as the PPI in comparison with other methods (EG; 77%, JPI; 26%).

Though the body weight loss was almost same about 11.5% among three groups, the QOL of mDT was better than that of other methods in terms of the symptoms of reflux and distension, and dietary intake.

Conclusion: The mDT may be the best reconstruction among the three reconstruction methods of PG.

Disclosure of Interest: None declared
Introduction: Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) are increasingly being performed for the management of peritoneal diseases. This combined modality is often criticized for its associated mortality of up to 13.5%, and high morbidity. We evaluate the mortality and morbidity of patients undergoing this procedure in our institution.

Materials & Methods: A retrospective review of the institution’s prospectively-maintained database was performed. Patients who underwent CRS/HIPEC between August 2011 to April 2016 were included. 30-day mortality, and morbidity according to the Clavien-Dindo classification were recorded and analyzed.

Results: During the study period, 143 patients underwent CRS/HIPEC for colorectal (28%), ovarian and primary peritoneal (37.8%), appendiceal (23.8%), and other primaries (10.5%). The median age of patients was 53 years (14-75). The median length of surgery was 455 mins (200-88), the median peritoneal cancer index (PCI) score was 11 (0-39), and 99.3% of patients achieved optimal cytoreduction, with a completeness of cytoreduction (CC) score of ≤1. Postoperatively, 60% (87/143) of patients required the surgical intensive care unit, and stayed in the SICU for a median of 2 days (1-40). Overall, 60% of patients suffered from post-operative complications, of which 43% (62/143) was low-grade and 17% (24/143) was high-grade. The majority of the high-grade complications were due to intra-abdominal collections requiring percutaneous drainage. The median length of hospitalization was 13 days (6-94), and there were zero mortalities.

Conclusion: CRS/HIPEC can be associated with zero mortality. Mortality and morbidity rates should not be the pretext for reluctance to consider this procedure in patients with peritoneal-only disease.

Disclosure of Interest: None declared
FRAILTY PREDICTS COMPLICATIONS AND DEATH AFTER CHOLECYSTECTOMY FOR ACUTE CHOLECYSTITIS

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Introduction: Controversy exists regarding the appropriate management of high-risk patients with acute cholecystitis. We sought to examine whether frailty predicts complications and/or death after cholecystectomy for acute cholecystitis.

Materials & Methods: The NSQIP database was queried from 2005-2010 for patients with acute or acute on chronic cholecystitis who underwent laparoscopic or open cholecystectomy, with or without intraoperative cholangiography. A modified frailty index was used, which consisted of 11 variables: functional status; diabetes mellitus (DM); chronic obstructive pulmonary disease (COPD) or pneumonia; congestive heart failure (CHF); previous myocardial infarction (MI); previous percutaneous coronary intervention (PCI), cardiac surgery, or angina; hypertension (HTN) requiring the use of medications; peripheral vascular disease or rest pain; impaired sensorium; history of transient ischemic attacks (TIA) or cerebrovascular accident without residual deficit; history of cerebrovascular accident with residual deficit. Chi-square and logistic regression analyses were performed.

Results: Of 6,515 patients meeting study criteria, 2998 (46%) had a frailty score of 0; 1,732 (26.6%) had a frailty score of 1; 1,062 (16.3%) had a frailty score of 2 and 723 (11.1%) had a frailty score of ≥3. A frailty score of ≥3 was associated with a statistically significant higher incidence of surgical site infection (6.6%), acute renal failure (2.1%), myocardial infarction (1.7%), sepsis/septic shock (8%) and mortality (7.5%).

Table 1: Chi-square Analysis of frailty as a predictor of morbidity and mortality

<table>
<thead>
<tr>
<th>Frailty Score</th>
<th>Surgical Site Infections (%)</th>
<th>Acute Renal Failure (%)</th>
<th>Myocardial Infarction (%)</th>
<th>Sepsis/Septic Shock (%)</th>
<th>Mortality (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>67 (2.2)</td>
<td>2 (0.1)</td>
<td>2 (0.1)</td>
<td>39 (1.3)</td>
<td>5 (0.2)</td>
</tr>
<tr>
<td>1</td>
<td>71 (4.1)</td>
<td>3 (0.2)</td>
<td>3 (0.2)</td>
<td>46 (2.7)</td>
<td>15 (0.9)</td>
</tr>
<tr>
<td>2</td>
<td>51 (4.8)</td>
<td>14 (1.3)</td>
<td>10 (0.9)</td>
<td>55 (5.2)</td>
<td>18 (1.7)</td>
</tr>
<tr>
<td>≥3</td>
<td>48 (6.6)</td>
<td>15 (2.1)</td>
<td>12 (1.7)</td>
<td>58 (6)</td>
<td>54 (7.5)</td>
</tr>
</tbody>
</table>

Conclusion: An increasing frailty score is associated with a higher incidence of morbidity and mortality. Additional studies are needed to determine which high-risk patients may be suitable for cholecystectomy for acute cholecystitis.

Disclosure of Interest: None declared
DOES EXPERIENCE DECREASE ANASTOMOSIS LEAKAGE RATE IN ONCOLOGIC GASTROINTESTINAL SYSTEM SURGERIES

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Introduction: Anastomosis leakage is still a leading cause of morbidity after digestive tract oncologic surgeries. We aimed to determine fistula rates for 4 general surgeons in the last five years.

Materials & Methods: Four general surgeons were chosen from Haseki Research and Training Hospital. Surgeons were at their 3rd year of experience at the beginning of study at 2011. Outcomes of esophagus, stomach, small intestine and colorectal surgeries performed by these surgeons were documented by year until 2015 when they reached their 8th year of experience.

Results: Total number of oncologic gastrointestinal system surgeries performed by these 4 surgeons between 2011 and 2015 was 506. Anastomosis leakage rates were 12.5% in 2011, 13% in 2012, 10.9% in 2013, 13.1% in 2014 and 12.1% in 2015. Fistula rates varied between 10.9% being lowest (in 2011) and 13.1% being highest (in 2014). There was no statistically significant difference among years.

Conclusion: Fistula rates are not affected by the experience of surgeons.

Disclosure of Interest: None declared
Introduction: Patients with a clinical diagnosis of acute appendicitis often undergo laparoscopy. In the laparoscopic era opinion is divided about the removal of a macroscopically normal appendix. We aimed to investigate the presence of subclinical inflammation in histologically normal vermiform appendices excised from patients with right iliac fossa pain.

Materials & Methods: We studied four groups of patients: Group I (n=120) – uncomplicated acute appendicitis, Group II (n=118) – complicated appendicitis (perforation/gangrene), Group III (n=104) – histologically normal appendices excised for right iliac fossa pain and Group IV (n=106) – incidental appendicectomy at right colectomy (excluding inflammatory bowel disease). Immunohistochemistry was performed for IL-2R, IL-6, TNF-α and serotonin. The immunostaining was assessed quantitatively for IL-2R/TNF-α and semi-quantitatively for IL-6/serotonin in full-section specimens.

Results: Median, Q1-Q3 mucosal IL-2R expression in Groups I (46.6, 34.6-69.4), II (37.8, 25.4-60.4) and III (27.0, 20.2-42.4) was increased compared with Group IV (15.2, 7.9-25.0, p<0.01). Submucosal IL-2R expression in Group III (18.4, 10.1-34.7) was also increased compared with Group IV (2.8, 1.2-5.8, p<0.01). Epithelial IL-6 expression in Groups II (44.0, 8.0-97.0) and III (71.0, 18.5-130.0) was increased compared with Group I (9.0, 1.0-54.2, p<0.01) and Group IV (9.5, 1.0-63.0, p<0.01), as was IL-6 expression in non-epithelial cells in Group II (22.5, 10.6-46.0) and Group III (21.0, 10.0-42.2) compared with Group I (7.6, 3.0-17.3, p<0.01) and Group IV (8.3, 4.4-24.0, p<0.01). TNF-α expression was increased in Groups I (5.9, 3.2-9.9), II (6.8, 3.6-12.1) and III (9.8, 6.2-15.2) compared with Group IV (3.0, 1.4-4.7, p<0.01). Serotonin contents of enterochromaffin cells in Groups I (3.0, 0-30) and II (0, 0-8.5) were decreased compared with Group III (49.7, 16.7-107.5, p<0.01) and Group IV (43.5, 9.5-115.8, p<0.01). 27% of Group III patients had a faecolith compared with 11% of Group I and 28% of Group II. The expression of inflammatory markers between patients with and without a faecolith did not differ significantly.

Conclusion: Histologically normal appendices excised from symptomatic patients exhibit abnormal levels of cytokines suggesting the presence of an inflammatory process that cannot be detected on conventional microscopy. Therefore, there may be a case to remove macroscopically normal appendices in patients undergoing laparoscopy for right iliac fossa pain.

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COMPLICATED APPENDICITIS IS NOT ASSOCIATED WITH INCREASED RISK OF TUBAL INFERTILITY OR ECTOPIC PREGNANCY: NATIONWIDE COHORT STUDY

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Introduction: Research of effects of appendicitis and appendectomy on future female infertility is controversial. The aim of this study was to determine whether appendicitis among women in fertile age (15-40 years) is associated with subsequent tubal infertility or ectopic pregnancy.

Materials & Methods: A nationwide cohort study utilizing national hospital discharge register and registers of reimbursements for medication and private health care was carried out. Patients’ need for later in-vitro fertilization and later diagnosed ectopic pregnancies were compared between four patient groups: 1) patients who had undergone appendectomy for uncomplicated or 2) complicated appendicitis, and patients that had 3) undergone negative appendectomy for non-specific abdominal pain, and 4) patients with diagnosed non-specific abdominal pain without appendectomy.

Results: There were 10851 patients with uncomplicated appendicitis and 1012 patients with complicated appendicitis. The rate of new tubal infertility after appendicitis during the follow-up was low: 2.35% after complicated appendicitis and 1.88% after simple appendicitis, difference 0.39% (95% CI -0.78 – 1.54). Differences between the groups were not significant, p=0.4877. Patients with NSAP had higher risk for subsequent ectopic pregnancy than patients with appendicitis, p=0.013. Patients with simple appendicitis had significantly lower risk for ectopic pregnancy.

Table 1. Cox regression analysis of new onset infertility.

<table>
<thead>
<tr>
<th>G1 (Simple appendicitis)</th>
<th>10723</th>
<th>0.97</th>
<th>0.81 – 1.17</th>
<th>0.775</th>
</tr>
</thead>
<tbody>
<tr>
<td>G2 (Complicated appendicitis)</td>
<td>1194</td>
<td>1.27</td>
<td>0.86 – 1.87</td>
<td>0.237</td>
</tr>
<tr>
<td>G3 (NSAP with appendectomy)</td>
<td>2661</td>
<td>0.98</td>
<td>0.73 – 1.32</td>
<td>0.904</td>
</tr>
<tr>
<td>G4 NSAP</td>
<td>11307</td>
<td>reference</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

NSAP – non-specific abdominal pain

Conclusion: Appendicitis or appendectomy in fertile aged women does not have significant effect on subsequent fertility.


Disclosure of Interest: None declared
INFRARED THERMOGRAPHY MONITORING IN CLOSED HIPEC TO MAINTAIN HOMOGENOUS INTRAPERITONEAL TEMPERATURE DISTRIBUTION

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Introduction: Homogenous intraperitoneal hyperthermia is an essential part of hyperthermic intraperitoneal chemotherapy (HIPEC). The selective destruction of malignant cells by hyperthermia in the range of 41 to 43°C has been already demonstrated within adequate experimental and clinical studies. The aim of our study was to assess the impact of infrared thermography on intraperitoneal thermal homogeneity during closed-abdomen HIPEC.

Materials & Methods: We conducted a Bland-Altman method-comparison study based on the quantification of the agreement between two quantitative measurements (temperature) by studying the mean difference and constructing limits of agreement.

Thirty-eight consecutive patients undergoing 40 cytoreductive surgery and HIPEC procedures were performed until August of 2016. We assessed the agreement of the mean temperature between supramesocolic (SMC), inframesocolic (IMC), and pelvic (PEL) regions in those patients who received HIPEC either with infrared thermography (IRC: n=17) or without infrared thermography (NOIRC: n=13).

Results: A total of 1827 temperature measuring points of the SMC, IMC and PEL regions from 30 patients who underwent cytoreductive HIPEC surgery HIPEC with and without infrared thermography were assessed. Mean intraperitoneal temperature estimated with IRC and NOIRC were 41.1 ±0.7 and 40.8 ±1.1 (P < 0.001), respectively.

The limits of agreement for the mean intraperitoneal temperature in IRC were:
- SMC – IMC: Mean difference: -0.19 (95% limits of agreement (LoA): -1.60 to 1.21) P = n.s.
- SMC – PEL: Mean difference: -0.10 (95% LoA: -1.98 to 1.78) P = n.s.
- IMC – PEL: Mean difference: 0.09 (95% LoA: -1.57 to 1.75) P = n.s.

The limits of agreement for the mean intraperitoneal temperature in NOIRC patients were:
- SMC – IMC: Mean difference: -0.91 (95% LoA: -2.71 to -0.76) P < 0.001.
- SMC – PEL: Mean difference: -0.32 (95% LoA: -2.30 to 1.66) P = 0.003.
- IMC – PEL: Mean difference: 0.59 (95% LoA: -1.70 to 2.87) P = 0.09.

Image:
Conclusion: The Bland-Altman plot indicates good agreement between mean temperatures of SMC-IMC-PEL regions in IRC patients.

Infrared thermography temperature control of the abdominal surface during closed HIPEC is a novel and feasible method to improve temperature control. Its use provides a better control of for constant therapeutic intraperitoneal temperature distribution of the heated chemotherapy, and gives the surgeon the ability to react immediately, in a and targeted manner to avoid severe acute or late systemic side effects.

Disclosure of Interest: None declared
INITIAL STRUCTURAL INJURY OF HEPATIC SINUSOID OCCURRED WITH HIGH PRESSURE PORTAL PERFUSION STRESS MIGHT RESULT IN INTRACTABLE PORTAL HYPERTENSION IN SMALL-FOR-SIZE SYNDROME

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Introduction: The mechanism details of onset of progressive portal hypertension at small-for-size syndrome is still unclear. We studied whether the possibility of hepatic sinusoidal structural injury with high pressure portal flow influenced superoxide production at reoxygenation in the liver.

Materials & Methods: Male Lewis rats were used. Livers were harvested and perfused with 30ml of 4°C lactated Ringer’s solution to remove residual blood. After initial perfusion, they were perfused with 60ml of 37°C lactated Ringer’s solution and divided into 4 groups according to the difference of perfusion pressure level. Group A: livers with initial perfusion only (n=7) Group B: liver perfused at normal level of portal pressure (n=21) Group C: liver perfused at twice level of normal portal pressure (n=21) Group D: liver perfused at triple level of normal portal pressure. (n=21)

Morphological evaluation: Zonal damage was morphologically evaluated with light and electronic microscopy in every group.(n=7, respectively)

Superoxide production evaluation: Livers in group B, C, and D (n=7, respectively) were perfused DCFH added oxygenated 37°C Krebs Hensleit Buffer solution for 20 minutes at each pressure level and zonal difference of superoxide production was evaluated by the measurement of fluorescent brightness of DCFH.

Hepatocyte function evaluation: Livers in group B, C, and D (n=7, respectively) were perfused with FITC-labeled albumin added oxygenated 37°C Krebs Hensleit Buffer solution for 20 minutes at each pressure level respectively and hepatocyte function was evaluated by the albumin uptake using the measurement of fluorescent brightness of FITC.

Results: The microscopic and electron microscopic findings demonstrated that the detachment of sinusoidal endothelial cells especially in zone 1 was obvious in Group C & D compared to in Group A & B. As to the superoxide production evaluation, zone 2’s fluorescent brightness of DCFH was the highest in every group among 3 zones. In group analysis, group C and D had more brightness than group B. As to the hepatocyte function, albumin uptake was similar among three zones and was not significantly different among group B, C and D.

Conclusion: The hepatic sinusoidal endothelial cells are injured immediately when they were exposed with high pressure portal flow stress and this morphological injury might enhance superoxide production at reoxygenation in hepatic sinusoid. This structural and chemical injury could be a cause of intractable portal hypertension in small-for-size syndrome.

Disclosure of Interest: None declared
INTRAOPERATIVE ENDOSCOPIC CONTROL FOR ANASTOMOSIS AND STAPLE LINE ASSESSMENT IN LAPAROSCOPIC UPPER AND LOWER GI SURGERY: VALUE, BENEFITS, PITFALLS
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Introduction: The aim of our study was to evaluate the use of intraoperative endoscopy anastomosis and staple line control in laparoscopic upper and lower GI surgery. (RYGB, Omega-loop-bypass, Gastric Sleeve, left sided hemicolecetomy and anterior rectal resection, as well as in Hartmann’s procedures.

Materials & Methods: All consecutive gastric sleeve resection, gastric bypass operation (RYRB) as well as Omega-loop-bypass operations and laparoscopically assisted left-sided hemicolecetomy and anterior rectal resections performed at our department between January 2013 and end of December 2016 were included in this study. After the above mentioned procedures, an intraoperative endoscopy was performed to detect anastomosis and staple lines at risk.

Results: A total of 348 patients were enrolled in this study. In 138 patients (39.7 %), the anastomosis was checked via colonoscopy; in 210 (60.3 %) patients with upper GI endoscopy.

From January 2013 till August 2014 128 patients (36.8 %) were enrolled in the study. From those 58 (45.3%) underwent a laparoscopically assisted hemicolecetomy or anterior rectum resection, 48 (37.5%) a gastric sleeve resection (no redo) and 22 (17.1%) RYGB. From September 2014 till December 2016 220 patients (63.2 %) were enrolled in the study. 78 patients (35.5 %) underwent a gastric sleeve resection (redos were included), 62 patients (28.2 %) a RYGB or Omega-loop bypass. 55 patients (25 %) underwent a laparoscopically assisted left hemicolecetomy and 15 patients (6.8 %) a conventional left hemicolecetomy. 10 patients (4,5 %) needed a Hartmann’s procedure.

In the study group, 9 (2.6 %) intraoperative complications could be detected through endoscopic control. Through that 5 anastomotic leakages (one after RYGB, one after sleeve, and three in the colorectal group) were intraoperatively detected and oversewn. During September 2014 till December 2016 at least four anastomotic bleedings could be detected and controlled intraoperatively via endoscopic clip applications.

Conclusion: Intraoperative evaluation of anastomosis prevents early anastomotic insufficiency and bleedings. It helps the control of those complications and an immediate repair during surgery. Nevertheless, a certain rate of anastomotic dehiscence occurs in every kind of gastric and colon resection. As conclusion complications can be reduced by intraoperative endoscopy.

References: Patients Database of BKH St.Johann in Tirol

Disclosure of Interest: None declared
Introduction: Laparoscopic One Anastomosis Gastric Bypass (OAGB) and laparoscopic Roux-en-Y gastric bypass (LRYGB) are common treatments for morbid obese patients who suffer from type 2 diabetes mellitus (T2DM), as well. It has been hypothesized that diabetes may be resolved or improved after bariatric procedures, although the exact effect has not been well established. The present study aimed to compare remission of T2DM after LRYGB versus OAGB in this study.

Materials & Methods: All diabetic obese patients, aged between 16 and 60 year old, referring to Hazrat Rasul Akram obesity clinic (Tehran, Iran) from April 2010 to March 2013 who underwent two methods of bariatric surgery RYGB or LMGB were included. Preoperative parameters measured, including glycosylated hemoglobin (HbA1c), fasting plasma glucose (FPG), Body Mass Index (BMI), diabetes medication were extracted from database and recorded. Preoperative and postoperative data were compared 3 months after procedure.

Results: Out of 95 eligible patients, 50 patients underwent OAGB group and 45 LRYGB. The two groups were similar regarding distribution of gender, mean age, weight, BMI, and FPG; however, mean HbA1c was relatively higher in LRYGB group (P=0.05), which was non-significant after adjustment. Rate of remission was significantly higher in OAGB group than after three months follow-up (64.0 versus 31.1%, respectively) (P=0.002).

Conclusion: In our short-term follow-up, OAGB had a higher rate of remission of T2DM compared to LRYGB, which could be due to different baseline value of HbA1c (before surgery) between two groups. Future research is thus suggested with longer follow-up and randomized study design.

Disclosure of Interest: None declared
 WHICH IS THE IDEAL TECHNIQUE OF TRANS-AXILLARY ENDOSCOPIC THYROIDECTOMY? A COMPARATIVE STUDY BETWEEN GAS-LESS AND GAS TECHNIQUES

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Introduction: Endoscopic thyroidectomy (ET) is a relatively new entrant in the field of minimal access surgery. Various technical approaches such as chest wall, trans-orificial, post-auricular, assisted, axillo-mammary routes have been reported, but trans-axillary route remains the commonest route. Both gasless and gas (CO2 insufflation) techniques have been employed in trans-axillary route. In this context, we analysed our experience in morbidity, technical, cosmetic and feasibility aspects of both these techniques by comparing each other.

Materials & Methods: This is a retrospective study spanning 3 years from January 2013 to December 2015 conducted in Endocrine and Metabolic Surgery department of a tertiary care Hospital. Only benign non-toxic nodular goiters were included in this study. Individuals undergoing gasless tran-axillary ET were placed in Group A and with gas in Group B. Informed consent was taken from all individuals and statistical analysis was done with SPSS 14.0 version.

Results: Out of 110 eligible individuals, Groups A and B included 59 and 51 respectively. Sex ratio (F:M) was 47:12 and 46:5 in groups A and B respectively. Mean age of group A is 34±3.5 (25 – 65) and B is 31.5±6 (18-53). Mean operative time was 131.3±24.5 (80-205) and 120.8±19 (90-185) in groups A and B respectively. Subcutaneous ecchymosis occurred in 7, sternomastoid muscle stiffness in 6 cases of group A. Subcutaneous emphysema occurred in 3, mediastinal emphysema in 1, hypercarbia in 4 and supraventricular arrhythmia in 2 cases of group B. Prolonged wound drainage, operative time were longer in group A than B, reaching statistical significance (P value < 0.05).

Conclusion: 1) Gasless technique appears to be ergonomically more cumbersome, takes longer, cosmetically less gratifying but very safe.

2) Gas technique is relatively more risky from anaesthetic point of view, but technically and cosmetically more gratifying.

3) As both the techniques are feasible, cases should be judiciously chosen based on technical, cosmetic and morbidity concerns along with patient’s choice.

References:


Disclosure of Interest: None declared
Introduction: Some recent reviews shown that there is an increased quantity of infectious complications such as intraabdominal abscess (IA) in patients with perforated appendicitis undergoing laparoscopic surgery when is compared with open appendectomy. Evaluation of perioperative factors for predicting this complications following laparoscopic appendectomy (LA) may help to identify those patients who need a closer monitoring after surgery. In this study, we have investigated perioperative predicting factors for IA after LA.

Materials & Methods: Retrospective study based on a prospectively updated database: 100 consecutive patients who underwent LA in case of perforated appendicitis were investigated between September 1, 2010 and November 1, 2016. Demographics, clinical and intraoperative variables were analyzed. Blood samples and drain fluids was obtained at the time of patients admission, during operations and daily (during 7 days) after surgery for measuring serum and drain endotoxin (LPS) levels using the LAL-endotoxin scattering photometry. The systemic inflammatory response (PSIR) was classified on the basis of admission data according to the standard methods. Independent risk factors for postoperative IA were determined by logistic regression analysis.

Results: After surgery, 25% patients developed a postoperative IA, which was diagnosed on postoperative days 2-6. The mean age was 37.1 (21-89) years. The conversion rate was 4%. The average hospital stay was 6.3 (4-21) days. Multivariate analyses revealed that PSIR (odds ratio, 2.101; P = 0.0187), preoperative serum LPS levels (odds ratio, 2.374; P = 0.0317), postoperative drain fluid LPS levels (odds ratio, 2.671; P = 0.0372) and operative time longer than 90 min (odds ratio, 2.381; P = 0.0427) were associated with a IA. Univariate analysis revealed that the expressiveness of preoperative serum LPS levels was the most sensitive predictor of IA (odds ratio, 2.012; P = 0.0041). The value of drain fluid LPS increased with the severity of acute appendicitis and also with the presence of peritonitis. The sensitivity and specificity of preoperative serum LPS level measurement for IA diagnosis were 98% and 100% respectively.

Conclusion: We presented a new specific risk score to define patients at risk for IA. Preoperative serum LPS level can be used as a prognostic marker and predictor of IA and it can help to carry out timely surgical intervention. Patients with listed predicting factors needs a close postoperative monitoring in order to prevent complications.

Disclosure of Interest: None declared
A COMPARISON OF MESH FIXATION AND NON-FIXATION IN LAPAROSCOPIC TOTALLY EXTRAPERITONEAL INGUINAL HERNIA REPAIR
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Introduction: Inguinal hernia repair is one of the most commonly performed elective operations in surgical practice. Repair using mesh is preferred by many surgeons due to its low recurrence rate and advantage of being tension-free. Laparoscopic approach in hernia surgery has advantages of a less postoperative pain, a shorter length of hospital stay and a faster recovery as well as a better cosmesis compared with open surgical techniques. Recently, the necessity of mesh fixation in laparoscopic hernia repair has been questioned in terms of increased postoperative pain, increased cost, and its specific complications.

Materials & Methods: A total of 100 male patients diagnosed with non-recurrent inguinal hernia were randomized to mesh non-fixation or fixation group during laparoscopic TEP. The patients were evaluated for mean operative time, length of hospital stay, pain degree, postoperative narcotic use, and development of complications at preoperative and postoperative early period, at postoperative 1st, 6th, and 12th months.

Results: There were no statistically significant differences between two groups for age, body mass index (BMI), types and location of hernia. The mean operative time and length of hospital stay were similar in both groups. Pain degree was determined significantly higher in Group-I patients at time prior to discharge and 1st month (p=0.034, and 0.001, respectively). Requirements of narcotic analgesic were found higher in Group-I patients at 1st hour on floor and time prior to discharge, and latter one was statistically significant (p=0.025).

During the first 24-hour follow-up, 17 patients of Group-I had urinary retention while 5 patients in Group-II had urinary retention. The difference statistically significant (p=0.007). Preoperative and postoperative rates of testicular arterial blood flow measured through Doppler US showed a marked decrease in Group-I patients compared with the ones in Group-II, 14.2% (n:10) and 5.8% (n:4), respectively, but this difference was not statistically significant (p: 0.176).

In addition at long term follow-up (at 1st, 6th, and 12th months), no recurrence and no nerve injury were determined with examinations of 86 patients who could be reached.

Conclusion: In conclusion although we believe that it is required to carry out new studies with larger series of patients and with longer follow-up, we prefer and suggest non-fixation of mesh when performing laparoscopic TEP repair in non-recurrent inguinal hernias as a safe and favorable method.

Disclosure of Interest: None declared
Introduction: Octogenerians are vulnerable due to delayed presentation, associated co-morbidity and are more likely to suffer from post-operative complications. Clinical presentation, management and outcomes of acute appendicitis (AA) in octogenerians are not widely reported. Recently, the quick sepsis related organ failure assessment (qSOFA) score is proposed as a bedside tool to predict poor outcomes in septic patients outside the intensive care unit. We aim to validate the clinical application of qSOFA score as compared to the more traditional systemic inflammatory response syndrome (SIRS) criteria in determining outcomes in octogenerians with AA.

Materials & Methods: A retrospective study was performed on octogenarians treated with appendectomy from January 2006 to December 2015 at a tertiary hospital. We excluded all patients who underwent appendectomy as part of another primary surgery. Data collected include patient characteristics, clinical presentation, laboratory/radiological results, operative details, and post-operative outcomes. Statistical analysis was performed using SPSS version 21.

Results: 70 patients including 74% females underwent appendectomy. Right iliac fossa pain (n=58, 83%) and anorexia (n=40, 57%) were the most common symptoms. Majority (n=52, 74%) of patients had elevated white cell count. 47% of patients had an Alvarado score of 7 and above. At admission, 41% of patients met SIRS criteria and none of the patients had an elevated qSOFA score. Majority (n=57, 81%) underwent open appendectomy. 13 patients underwent laparoscopic appendectomy with 23% (n=3) conversion rate. The mean operating time was 68 minutes (range 20-190) and mean length of stay was 9 days (range 3-45). 30-day morbidity and mortality rates were 46% and 6% respectively. Age at operation (p=0.05), perforation (p=0.03), and SIRS score (p=0.007) were independent predictors for length of stay. A high SIRS score also predicted morbidity (p=0.05). The positive predictive value (PPV) and negative predictive value (NPV) of qSOFA for morbidity was 0% and 54% respectively. The PPV and NPV of SIRS for morbidity was 56% and 63% respectively. At cut off of ≥2, qSOFA and SIRS criteria provided an area under the curve of 0.48 (0.34-0.61) and 0.62 (0.49-0.75) respectively.

Conclusion: SIRS criteria predict length of stay and morbidity in octogenerians with AA. SIRS has a better predictive value for both mortality and morbidity as compared to qSOFA.

Disclosure of Interest: None declared
Introduction: Seroma formation is common after mesh repair of incisional hernias. It is rare after endoscopic repair of inguino-femoral hernia and normally self-limited.

Materials & Methods: We report a case of a giant seroma after TAPP repair of a femoral hernia that required surgical treatment.

Results: A 75 year-old woman, with a BMI of 18.4 underwent transabdominal preperitoneal (TAPP) repair of a left femoral hernia, few months after a Lichtenstein repair for a direct left inguinal hernia. Two weeks later, the patient developed swelling in the left iliac fossa. Abdominal ultrasound showed a deep inguinal 12x8cm fluid collection. A few days later, abdominal CT showed a 16x9cm fluid collection and separation of the mesh from the abdominal wall. A trial of percutaneous drainage was followed by early recurrence. Follow-up of the paucisymptomatic patient over the next 4 weeks with serial ultrasound scans showed a small increase in size of the seroma and further detachment of the mesh from the abdominal wall. For this reason, exploratory laparoscopy was performed with fenestration of the pre-peritoneal seroma into the peritoneal cavity and re-fixation of the partially detached mesh to the abdominal wall. Recovery was uneventful, symptoms resolved without recurrence of the seroma.

Conclusion: In most cases of seroma after TAPP-hernioplasty, conservative treatment is sufficient but in selected cases, especially when the mesh becomes detached, laparoscopic revision with fenestration of the seroma may be necessary.

Disclosure of Interest: None declared
RECURRENT INGUINAL HERNIA FOLLOWING AN INDEX OPEN HERNIA MESH REPAIR – OPEN OR LAPAROSCOPIC REPAIR?
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Introduction: Incidence of recurrent inguinal hernia (RIH) is a function of follow-up and can be up to 40%. Laparoscopic repair is advocated for recurrence following an index open repair. We report a decade of institutional experience in managing RIH following an index open repair and compare outcomes of repeat open with laparoscopic repair.

Materials & Methods: A retrospective medical records review of all patients operated for RIH from 2005-2015 was performed. Patients with an index open hernia repair were included in the study. Demographic data, operative data for index and RIH surgery were recorded. Perioperative outcomes of RIH surgery are compared between open and laparoscopic techniques. Totally extraperitoneal and Lichtenstein repair are the default method of laparoscopic and open techniques.

Results: 140 RIH surgeries were performed over the study period. Majority (95.7%) of patients were male with mean age 65.2 years (range 33-85). Mean time to recurrence was 16.8 months (4.6-40). Majority of patients were treated by repeat open tension free mesh repair (n=84, 60%). Demographic data between open and laparoscopic RIH groups were similar except higher rate of ischemic heart disease (p<0.044) in open repair group.

Outcomes of repeat open surgery are compared to laparoscopic repair and there was no difference in seroma (4.9% vs. 7.3%, p=0.71), scrotal hematoma (9.8% vs. 3.6%, p =0.32), acute urinary retention (2.4% vs. 1.9%, p=1.00), post-operative wound infection (3.7% vs. nil, p=0.27), chronic groin pain (4.9% vs. nil, p=0.15), and re-recurrence (11% vs. 3.6%, p=0.51).

Conclusion: Although laparoscopic approach is advocated for RIH following an index open surgery, open repair is still done frequently. Outcomes of repeat open RIH repair following an index open repair are inferior as compared with laparoscopy.

Disclosure of Interest: None declared
A SINGLE-CENTER EXPERIENCE WITH LAPAROSCOPIC INTRAPERITONEAL ONLAY MESH REPAIR (IPOM) IN 159 PATIENTS
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Introduction: Abdominal wall hernias are very common and there are different techniques available for a repair. Nowadays minimal invasive methods have gained popularity and various meshes are available. There still remains concern about the intraperitoneal position of the mesh and mesh related complications. We report our results of 10 years’ experience with intraperitoneal onlay mesh repair (IPOM) regarding short and long-term outcome comparing different meshes.

Materials & Methods: We included 159 IPOMs performed for primary or secondary abdominal wall hernias in our hospital between 6/2006 and 2/2015. Mean age of patients was 59 (31-89) years with 99 male and 60 female patients. Experienced surgeons principally performed the operations according to our institutes SOP. We have used mainly 3 types of composite mesh (Dynamesh®, Parietex®, Ventralight®). The mesh was positioned with help of transfascial sutures and fixed either with absorbable or non-absorbable tacks or a combination of tacks and sutures. A first follow-up including clinical examination was planned 12 weeks after the operation. All patients were followed up 2016 with a questionnaire with particular reference to hernia recurrence, local complications and reinterventions.

Results: The 159 hernias treated are allotted as follows: Primary 60; Incisional 78; Recurrent 13; Various 8. Early complications reported included 2 wound infections; of which 1 was treated with negative-pressure wound therapy. Hematomas were found in 3 patients, not necessitating treatment. Most patients were satisfied with the result at 12 weeks follow-up. 26 patients (13,2 %) had residual pain by movement and 6 patients (3,8%) described abdominal discomfort. 1 case of subileus und 1 chronic wound infection were reported. A seroma formed in 6 patients (3,8%). 72 patients could be analyzed after a mean follow-up of 68 (12-120) months. 22 patients had died of unrelated causes, 65 were non-responders. Recurrence rate was 6,9% (n=10). Complications by adhesions were verified by subsequent operations in 2 cases.

Conclusion: Laparoscopic intraperitoneal onlay mesh repair for abdominal wall hernias seems to be safe and efficient with good long-term results. It has few surgical-site infections and a low recurrence rate. We did not find any correlation between complications und the type of mesh or the fixation used.

Disclosure of Interest: None declared
NOVEL BENCHMARKING IN LIVER TRANSPLANTATION


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Introduction: To benchmark outcome of “ideal” liver transplantation (LT) cases in a large multicentric cohort of patients using novel tools to assess postoperative morbidity. The best achievable results in low risk LT cases – i.e. benchmark values – are unknown. The absence of such information has hampered any conclusive comparisons of results among centers or different population of patients. Only mortality appears as a reliable marker, while morbidity and other key outcome parameters have remained elusive.

Materials & Methods: The study was performed over a 5-yr period in 17 well-established international liver transplantation centers. Benchmark cases were defined as cadaveric livers transplanted into low MELD (≤ 20 points) recipients excluding acute liver failure, portal vein thrombosis, re-transplantation and previous abdominal surgery. A variety of endpoints were collected up to 1 year post-transplantation including a novel tool – the comprehensive complication index (CCI) – to assess morbidity longitudinally. CCI is a new metric incorporating all complications by severity with values ranging from 0 (no complication) to 100 (death). Benchmark cut-offs were defined as the 75th percentile of the median distribution among all centers. To test the robustness of benchmark values, comparisons were made with the next higher risk population (MELD 20 – 30) of the entire cohort, and a series of re-transplantation in one program.

Results: Out of 7492 LT patients, 2024 benchmark cases (27%) were analyzed in detail, representing 8-50% of cases per center. First-year patient survival was 92%, 2% requiring re-transplantation. 83% of patients developed at least one complication, while 58% developed ≥ two complications. Half of complications occurred after hospital discharge leading to a 40% readmission rate, and significant number of complications developed up to 1 yr. Biliary complications occurred in 19% of patients, often after 3-6 months. Benchmark cut-offs for CCI at discharge and 12 months were ≤ 29.6 and ≤ 42.1, respectively (Table 1). Comparisons with higher risk group patients with MELD 20-30 (n=712) disclosed poorer values for almost all endpoints parameters. To illustrate the utility of benchmark values, the analysis of 50 re-transplantation cases from one center revealed dramatically poorer outcome values (Table 1).

Image:
**Conclusion:** Benchmark cases represented a quarter of overall LT, a figure which varies highly among centers. Despite excellent one-year survival, morbidity was high, increasing significantly up to one year after surgery. The next next higher risk group (MELD 20-30) or the highest risk group (i.e., patients requiring a second graft) disclosed incrementally poorer outcome values. This analysis may be crucial for conclusive comparisons among patient groups.

**Disclosure of Interest:** None declared
RESPIRATORY SYMPTOMS AND COMPLICATIONS ARE SIGNIFICANTLY REDUCED AFTER TRANSORAL STAPLING OF ZENKER DIVERTICULUM

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Introduction: Zenker diverticulum is a rare condition commonly associated with dysphagia and respiratory symptoms, which are potentially life-threatening in the elderly population¹. Transoral stapling is safe and effective for the treatment of dysphagia and regurgitation; however, no data are available regarding the effectiveness of the procedure on respiratory symptoms and complications.

Materials & Methods: All adult patients who underwent transoral stapling for Zenker diverticulum between 2001 and 2016 were included in the study. Preoperative symptoms were evaluated using a dedicated foregut questionnaire. The operation was performed under general anesthesia. Follow-up consisted of barium swallow study, upper gastrointestinal endoscopy, and a dedicated foregut questionnaire administered by phone or at the outpatient clinic. The primary outcome was the long-term success of transoral stapling on chronic cough and aspiration pneumonia. The secondary outcomes were the success of the procedure on dysphagia and regurgitation. Independent Wilcoxon signed-rank test, Chi-square test, Fisher’s exact test and McNemar test were used as appropriate. The recurrence-free probability was evaluated with the Kaplan-Meier method. A p-value less than 0.05 was considered statistically significant.

Results: A total of 151 patients were included in the study. The median age was 72 years, 73% of patients were males. The median hospital stay was 2 days. The overall morbidity rate was 2.6%. The median follow-up was 38 months (range 6-105 months). At the univariate analysis, aspiration pneumonia and female sex were associated with cough, while severe regurgitation, weight loss and female sex were associated with the presence of aspiration pneumonia. A statistically significant reduction of cough (39.3% vs. 7.4%, p<0.001) and of recurrent pneumonia (8.3% vs. 0.0%, p=0.016) was found. Moreover, there was a significant reduction in the rate of dysphagia (77.4% v. 7.4%, p<0.001) and regurgitation (65.5% vs. 6.2%, p<0.001). The Kaplan-Meier curve (Figure 1) showed that the recurrence-free probability at 90 months of follow-up was 0.821 (CI: 0.748-0.901).

Image:

Conclusion: Transoral stapling is safe and can effectively reduce the burden of respiratory symptoms and complications associated with Zenker diverticulum.


Disclosure of Interest: None declared
Survival of 456 Esophageal Cancer Patients After Surgical and Non-Surgical Treatment

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Introduction: Despite recent advances in diagnostics and therapy, esophageal cancer (EC) remains a major challenge in oncology. Depending on the tumor stage and histological subtype, different therapeutic strategies including surgical resection, chemotherapy (CT), radiotherapy (RT), radio-chemotherapy (RCT) or multimodal concepts, are pursued in EC. Here, we analyzed the survival in an unbiased cohort of patients diagnosed with EC, focusing on different therapeutic concepts as well as clinical and histopathological factors.

Materials & Methods: Outcome of 456 patients diagnosed with EC treated between 1996 and 2011 in our clinic was analyzed. Analysis was performed site-by-site for patient who received palliative and curative treatment. Moreover, outcome of EC patients was evaluated according to therapeutic strategies and clinical and histopathological factors.

Results: Majority of patients was diagnosed with squamous cell carcinomas (336 patients, 74%). Of all 456 patients 238 patients (52%) received curative treatment. Of these curatively treated patients, 97 patients (41%) were treated by surgical resection. 5-year overall survival rate (5y-OSR) of curatively treated patients amounted 32% and was significantly superior to palliatively treated patients (5y-OSR: 1%). Within the curatively treated cohort, patient that received surgical resection demonstrated the best outcome (5y-OSR: 46%) compared to patients that were treated by RT, CT or RCT (5y-OSR: 20%). Perioperative mortality was 5% and perioperative morbidity 63%. Analyzing clinical and pathological factors revealed age, tumor localization, histological subtype, grading, tumor stage and surgical procedure as important prognostic factors for survival.

Conclusion: Surgical resection in combination with multimodal treatment concepts achieves the longest survival rates compared to non-surgical therapies and provided the highest chance for cure. Future attempts will aim to increase the number of patients suitable for surgical therapy. To accomplish this, optimization of neoadjuvant therapeutic concepts to effectively achieve down-staging of the tumor will be required. Moreover, perioperative morbidity and mortality needs to be diminished by novel minimal invasive surgical techniques and perioperative minimization of potential risk factors such as pulmonary function and nutritional status.

Disclosure of Interest: None declared
DEFINING BENCHMARKS FOR TRANSTHORACIC ESOPHAGECTOMY. A RISK-ADJUSTED MULTICENTER ANALYSIS OF 770 TOTAL MINIMALLY INVASIVE ESOPHAGECTOMIES


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Introduction: To define outcomes in transthoracic esophagectomy.

The total minimally invasive approach, performed by experts, may serve as a benchmark procedure to define results of transthoracic esophagectomy.

Materials & Methods: 770 total minimally invasive transthoracic esophagectomies, performed by experts in 12 high-volume centers for esophageal surgery over a 5-year period, were analyzed. 103 patients (13%) fulfilled the criteria of low comorbidity with an ASA score 1 and an WHO/ECOG score 0. Endpoints, calculated at 30 days after discharge, included postoperative morbidity measured by the Clavien-Dindo classification and the comprehensive complication index (CCI). Benchmark values were defined as the 75th percentile of median morbidity values to represent best achievable results.

Results: Patients were predominantly male (81%) with a mean age of 63 years (31-83). High intrathoracic (Ivor Lewis) and cervical esophagogastrostomy (McKeown) were performed in 430 (56%) and 340 (44%) patients, respectively. Median ICU and hospital stay was 1 (IQR 2-7) and 17.5 (IQR 9-21) days, respectively. 60.3% of patients developed at least one complication, and 31.2% experienced major morbidity (≥ grade III), mostly related to anastomotic leakage (116 patients) and pulmonary/cardiac events (243 and 131 patients, respectively). Overall complication rate was higher after McKeown compared with Ivor Lewis procedures (P=0.007), but mortality (4.7% vs 3.7%), morbidity ≥ grade III, and anastomotic leakage rates were similar. Patients with low and high comorbidity had comparable mean CCI (20.6 vs 22.7), and overall (57.3% vs 60.7%) and major (28.2% vs 31.6%) complication rates. 30 days after discharge, benchmark values were ≤64.9%; ≤36.8% and ≤34.7% for overall/minor/major complications, and ≤20.9 for the CCI.

Conclusion: This outcome analysis of patients undergoing total minimally invasive transthoracic esophagectomy may serve as a reference to evaluate surgical performance in major esophageal resection.

Disclosure of Interest: None declared
PLASMA MiRNAs EFFECTIVELY DISTINGUISH PATIENTS WITH PANCREATIC CANCER FROM CONTROLS: A MULTICENTER STUDY

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Introduction: To identify plasma microRNAs (miRNAs) for distinguishing pancreatic cancer (PC). Accurate pretreatment diagnosis of PC remains challenging, whether plasma miRNAs could be used as biomarkers is still unknown.

Materials & Methods: In this three-phase, multicenter study, peripheral blood samples were obtained preoperatively in 3 phases: discovery phase (7 PC patients, 6 chronic pancreatitis (CP) patients and 5 healthy volunteers (N)), preliminary validation phase (29 PC, 16 CP and 31 N), and large-sample validation phase (156 PC, 65 N, 57 CP, 27 pancreatic neuroendocrine tumors (PNET) patients, and 58 patients with other pancreatic tumors (OPT)). The diagnostic values of the miRNAs were assessed and compared with the carbohydrate antigen 19-9 (CA19-9).

Results: The discovery phase demonstrated that 29 miRNAs were dysregulated in the PC patients compared with the controls. In the preliminary validation phase, 13 miRNAs were shown to be dysregulated in PC patients and were selected for validation in a multicenter trial. MiR-486-5p had diagnostic value in discriminating PC patients from normal subjects or CP patients, with AUC values of 0.861, 0.707, respectively. MiR-938 displayed diagnostic value in differentiating PC patients from CP, PNET or OPT patients, with AUC values of 0.693, 0.660, 0.618, respectively. Additionally, we demonstrated that the value of miR-486-5p in discriminating PC patients from normal subjects or CP patients were comparable to that of CA19-9 (P=0.602 and P=0.230).

Conclusion: This study identified several plasma miRNAs with potential for distinguishing PC patients from normal subjects or other pancreatic tumors.


Disclosure of Interest: None declared
Introduction: Irreversible Electroporation (IRE) is a non-thermal ablation technique with promising results for treating locally advanced pancreatic cancer (LAPC). This study was conducted to evaluate safety and efficacy of IRE in the management of LAPC.

Materials & Methods: This was a retrospective single center study of ten patients with radiographic and biopsy proven stage III pancreatic head or body cancer that received open IRE with intraoperative ultrasound imaging. Perioperative complications at 90 days, tumor volume measurements, local recurrence and survival were recorded.

Results: Ten patients, with a median age of 62, underwent IRE for locally advanced pancreatic head cancer (n=7) and body cancer (n=3). All patients were treated successfully with an open IRE approach. Five patients experienced grade II (Clavien- Dindo) procedure related complications. There were no grade 3 or 4 complications. Median follow up was 10 months. Tumor volume decrease at 6-month imaging follow up was found in 80% of patients (n=8). Local disease progression was observed in one patient and there was no evidence of metastatic disease in any patient. One patient died at 6 months after IRE. Median overall survival was 10 months.

Conclusion: Our initial experience with IRE showed encouraging results regarding safety, feasibility and efficacy in patients with locally advanced pancreatic head or body cancer. Further investigation is needed.

Disclosure of Interest: None declared
Introduction: Few data exist on risk factors for surgical site infections (SSI) among patients treated in an enhanced recovery after surgery (ERAS) pathway. This study aimed to assess risk factors for SSI after pancreas surgery in a non-ERAS group and an ERAS cohort.

Materials & Methods: All pancreas surgeries were prospectively collected from January 2000 to December 2015. Risk factors for SSI were calculated using uni- and multivariable binary logistic regressions in non-ERAS and ERAS patients.

Results: Pancreas surgery was performed in 549 patients, among which 144 presented SSI (26%). In the non-ERAS group (n=377), SSI incidence was 27% (99/377), and risk factors for SSI were male gender and preoperative biliary stenting. Since 2012, 172 consecutive patients were managed within an ERAS pathway. Forty-five patients (26%) had SSI. On multivariable analysis no risk factor for SSI in the ERAS cohort was found. In the ERAS group, patients with a pathway compliance <70% had higher occurrence of SSI (30/45=67% vs. 7/127=6%, p<0.001).

Conclusion: In the non-ERAS cohort, male gender and preoperative biliary stenting were risk factors for SSI. The introduction of ERAS modified the risk factors without changing the SSI incidence. Male gender and biliary stenting were not found to be risk factors anymore in the ERAS group. In an ERAS pathway, having an overall compliance >70% may reduce the SSI rate.

Disclosure of Interest: None declared
Introduction: Postoperative pancreatic fistula (POPF) is a major cause of morbidity and mortality following pancreaticoduodenectomy. A pharmacologic approach using perioperative octreotide, a long acting somatostatin analogue having inhibitory action on pancreatic exocrine secretion, was proposed to reduce the incidence of POPF. Despite contradictory results in various randomized controlled trials (RCTs), prophylactic Octreotide has been widely used in last two decades to reduce POPF. The present metaanalysis aims to assess the effectiveness of prophylactic octreotide in preventing POPF following pancreaticoduodenectomy.

Materials & Methods: A literature search was performed in Pubmed for the randomized controlled trials (RCTs) that compared prophylactic octreotide with placebo following pancreaticoduodenectomy, published prior to October 2016. Review manager (Cochrane Collaboration's software) version RevMan 5.2 was used for analysis. Those RCTs which had compared prophylactic Octreotide with placebo to reduce POPF following pancreaticoduodenectomy were considered eligible for the metaanalysis. Low quality (Jadad score of two or less) RCTs or those including mixed pancreatic resections without reporting specific pancreaticoduodenectomy outcomes were excluded. The effect size for dichotomous and continuous data was displayed as odds ratio (OR) and weighted mean difference (WMD) respectively with their corresponding 95% confidence intervals. A fixed effect or random effects model was used to pool the data according to the result of a statistical heterogeneity test.

Results: There were eight RCTs available for the analysis. A total of 959 patients were included in the meta-analysis – 492 received prophylactic perioperative octreotide and 467 patients received placebo. Perioperative octreotide was not found to significantly decrease the total number of POPF (OR 1.03, 95% CI 0.73-1.45, p value 0.85) or clinically significant POPF (OR 0.76, 95% CI 0.35-1.65, p value 0.49) compared to placebo. There was also no difference in the duration of hospital stay (WMD 1.19, 95% CI -1.84-4.23, p value 0.44) or postoperative mortality (OR 2.04, 95% CI 0.87-4.78, p value 0.10) in two groups. Perioperative octreotide was also not found to significantly delay the gastric emptying (OR 0.76, 95% CI 0.41-1.40, p value 0.38).
Conclusion: The present metaanalysis does not support the prophylactic role of octreotide to prevent POPF following pancreaticoduodenectomy.
Disclosure of Interest: None declared
TOTAL NEOADJUVANT THERAPY FOR BORDERLINE RESECTABLE PANCREATIC CANCER

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Introduction: There is increasing interest in the role of total neoadjuvant therapy (TNT) for patients with pancreatic cancer. This entails systemic chemotherapy followed by chemoradiotherapy, and as long as their disease remains localized, then definitive surgery. The perceived benefits are that all patients receive multimodality therapy and the potential down staging of borderline resectable (BR) tumors for curative resection. The objective of this study is to evaluate whether TNT has an overall survival (OS) benefit compared to upfront surgery.

Materials & Methods: This is a retrospective study of 187 patients treated at our institution from 2000-2013 with pancreatic adenocarcinoma. Patients undergoing distal pancreatectomy, those with macroscopic disease discovered at the time of surgery, and those with stage IV disease were excluded.

Results: After review, 160 patients met inclusion criteria. The analytic cohort was 53% female and 7% non-white race. Median age at surgery was 68 years (range 37-91). Sixty-eight (42.5%) received TNT and 92 (57.5%) received upfront surgery. All of the TNT patients were BR with a clinical stage of IIA, IIB, or III. The majority of upfront surgery patients were early stage. Eight (11.7%) of the TNT patients had a complete pathologic response. Median survival from date of diagnosis was 18 months in the upfront surgery group and 25 months in the TNT group (p=.0368). The TNT regimens were mainly gemcitabine and/or oxaliplatin-based and rarely 5-FU alone. The median initial CA19-9 pre-TNT was 175 and 34.4 post-TNT. In the upfront surgery group, the median initial CA19-9 was 189. 66% of the TNT patients had a greater than 50% drop in CA19-9 from their initial value on presentation to their post-TNT level. 25.8% had a less than 50% drop and 6% had an increase. In the upfront surgery group, 16.6% had a greater than 50% drop, 38.8% had a less than 50% drop, and 44.4% had an increase in CA19-9 levels in the short-time period from presentation to surgery.

Image:
Conclusion: Although limited data exist on the utility of TNT, our review shows a statistically significant improvement in OS for the TNT group, which consisted of borderline resectable tumors, compared to the upfront surgery group. Additionally, the CA19-9 responses were greater in the TNT group, which in general has been shown to be a marker of disease progression, recurrence, and survival. We believe that TNT is a good option for patients with borderline resectable tumors and offers improved survival compared to upfront surgery.

Disclosure of Interest: None declared
MULTICENTER PHASE II STUDY OF PORTAL INFUSION CHEMOTHERAPY FOLLOWED BY GEMCITABINE FOR RESECTED PANCREATIC CANCER (TOSPAC-01)

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Introduction: The CONKO-001 and JSAP-02 studies demonstrated a survival benefit from adjuvant GEM monotherapy in curatively resected pancreatic cancer patients, but there is still a need to improve the efficacy of treatment.

Materials & Methods: A multicenter phase 2 study, was designed to evaluate the feasibility and efficacy of adjuvant chemotherapy after surgery using the following regimen: 5-FU and heparin-based portal infusion chemotherapy (PI) combined with systemic administration of MMC and CDDP for 4 weeks (PI4W) followed by GEM for 6 months. Patients received PI4W therapy (250 mg/day of 5-FU with 2,000 IU/day of heparin for 4 weeks, 4 mg MMC on days 6, 13, 20, 27, and 10 mg CDDP on days 7, 14, 21, 28, followed by GEM therapy [1000 mg/m2 d1, 8, and 15 every 4 weeks] for 6 months).

Results: Between November 2010 to August 2013, 71 patients were registered and 53 patients who underwent complete resection were eligible for this analysis. The enrolled patients consisted of 28 men and 25 women with a mean age of 69 years (range 39–82). Thirty were treated by PD, PPPD, or SSPPD, 20 by DP, and 3 by TP. Fifty-one patients (96.2%) underwent R0 resection. By the UICC TNM classification, there were for stages IA/IB/IIB/IIB/III/IV 3/1/1/2/34/1/2, respectively. Forty-seven patients (88.7%) completed PI4W. The median RFS was 15 months and estimated RFS at 1, 3, and 5 years was 58.3%, 34.6%, and 32.5%, respectively. The median OS was 32 months and estimated OS at 1, 3, and 5 years was 84.8%, 42.8%, and 34.8%, respectively.

Conclusion: Treatment with PI4W for 4 weeks after surgery is a promising additional adjuvant therapy for patients after potentially curative resection of pancreatic cancer.

Disclosure of Interest: None declared
PROSPECTIVE RANDOMIZED TRIAL OF USE OF IN-HOUSE PREPARED LOW-COST RADIOPHARMACEUTICAL VERSUS COMMERCIAL RADIOPHARMACEUTICAL FOR SENTINEL LYMPH NODE BIOPSY IN PATIENTS WITH EARLY INVASIVE BREAST CANCER

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Introduction: The current standard-of-care for surgical staging of the axilla in clinically node-negative (N0) early breast cancers is sentinel lymph node biopsy (SLNB), which requires expensive radiopharmaceuticals for efficacious results. In-house produced low-cost radiopharmaceuticals may be the solution, and have shown efficacy in earlier observational/pilot studies. This study aimed to prospectively compare intra-operative SLN identification-rates, efficacy and cost efficacy of low-cost, in-house prepared radiopharmaceutical (99mTc-Antimony-colloid) versus commercially-marketed radiopharmaceutical (99mTc-Sulphur-colloid) for carrying out SLNB.

Materials & Methods: This was a prospective randomized trial of clinically N0 early breast cancer patients (T1/2, N0 status), undergoing primary surgery. 78 patients were recruited and randomized into two groups - half (39) each either receiving 99mTc-Antimony-colloid (Group-1) or 99mTc-Sulphur-colloid (Group-2). The combined method of low-cost methylene-blue & gamma probe was used to perform SLNB, the SLN(s) sent for frozen section. Following this, an axillary dissection was done in all (Validation SLNB), H&E sections examined. Indices of the SLNB procedure were calculated and compared between the two groups. Additionally, accuracy of SLNB in a subgroup of large (≥3cm) tumors was also calculated. Data was analysed using SPSS ver17.0 software.

Results: Both groups had comparable characteristics with regard to mean age, stage, tumor size, tumor duration, hormone receptor & Her2neu status. SLN identification rates (IR) in Group 1 & 2 were 100% and 97.4% respectively (p>0.05). False negative rates (FNR) in Group 1 & 2 were 6.3% (1/16 patients) and 7.7% (1/13 patients) respectively (p>0.05). There were no major allergic reactions in either group. A significant subset of patients of both groups (53.8%) had large (≥3cm) tumors (17 patients in Group-1 and 25 patients in Group-2). SLNB in large tumors showed an IR of 97.6% and FNR of 0%.

Conclusion: The accuracy of SLNB in early breast cancer patients undergoing primary surgery is comparable using either 99mTc-antimony or 99mTc-sulphur colloid as radiopharmaceutical. In-house prepared, low-cost 99mTc-antimony colloid shows equal efficacy while being 18-times more economical than 99mTc-sulphur colloid carrying out SLNB. Accuracy of SLNB in large (≥3cm) tumors was found to be comparable to that in smaller tumors.

Disclosure of Interest: None declared
Introduction: A nationwide breast cancer screening programme was introduced in the year 2002 for women aged 45-65 years biennially in Hungary. The aim of our study was to evaluate the short and long term results of screen-detected patients to symptomatic patients.

Materials & Methods: To investigate and report the short term and 10-year follow up results, we analyzed our Breast Unit’s prospectively led database of screened (Group A) and symptomatic (Group B) patients from the period of 2002 to 2006. We compared the short term results, as clinicopathologic features of tumors and the impact of screening on surgical radicalism. The overall (OS), disease-specific (DSS) and disease-free survival (DFS) of different groups were evaluated, as long term results.

Results: There were 38460 mammographic screening examinations in this period. Average attendance was 47.6% with a 4.8% of recall rate. After the exclusion of patients with inadequate follow up 155 patients had surgery in the Group A and 262 symptomatic patients were examined and operated on breast cancer. Screen-detected women were younger (54 vs 58.8 years; p<0.001) and they had significantly smaller tumors with lower T- and N-stage. In the Group A the breast-conserving surgery rate was significantly higher than in the Group B (65% vs. 54%; p=0.04). Proportion of the adjuvant oncological treatment (radio-, chemo- and endocrine-therapy) was similar in the two groups. All type of survival statistics were significantly better in the screen-detected group at the median follow-up of 123 months compared to the Group B. The OS was 84.2% vs. 70.4% (p=0.002), and the DFS was 83.7% vs. 73.2% (p=0.017). The disease-specific survival was even higher in the Group A (88.5% vs. 80%; p=0.022), and this meant a 42% reduction in breast cancer mortality (Relative Risk 0.58; 95%CI = 0.33-0.98). However, the age-matched analysis comparing the Group A to women aged 45-65 years from the Group B did not find any differences in the above mentioned survivals.

Conclusion: Our comparative, observational study proved the effect of mammography screening on short and long term results for the population. On the other hand, the advantage of age-specific screening for survival can disappear in the era of multimodal treatment of breast cancer.

Disclosure of Interest: None declared
 INCIDENCE AND RISK FACTORS FOR VENOUS THROMBOEMBOLISM IN FEMALE PATIENTS AFTER BREAST SURGERY
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Introduction: The association between cancer and venous thromboembolism (VTE) has been known for over a century. Despite not having the highest VTE incidence rate when compared to other types of cancer, breast cancer is the most diagnosed tumor in women and the number of patients undergoing breast surgery is continuously increasing. We aimed to analyze the incidence and risk factors for VTE in women diagnosed with breast cancer who underwent breast surgery.

Materials & Methods: This retrospective chart review study included all female patients diagnosed with mammary pathology and treated surgically in our Clinic between January 2002 and January 2012. Primary endpoint was the observation of one or more events of VTE during a 10 year-follow-up period. Secondary endpoint was the analysis of risk factors for VTE. Data analysis was performed using R (version 3.1.1) and considering a significant value p<0.05.

Results: Among 5039 women who underwent breast surgery, 1056 were found to have no evidence of malignity, whereas 3983 were diagnosed with breast cancer. VTE incidence rate resulted significantly higher in patients with invasive breast cancer than in women with benign mammary pathology or in situ carcinomas. Moreover, it emerged that invasive histological subtypes other than lobular or ductal were associated with a higher VTE incidence. In addition, chronic hypertension, high BMI, invasive histological cancer subtype and evidence of metastasis turned out to be the most significant risk factors for VTE in women who underwent breast surgery.

Conclusion: Compared to general population and to women with benign mammary pathology, VTE incidence rate in women with breast cancer is significantly higher. Therefore, all patients diagnosed with breast cancer and scheduled to undergo breast surgery should be thoroughly examined to evaluate all risk factors and a prophylaxis should be conducted accordingly.

Disclosure of Interest: None declared
67.04
IMPACT OF TIMING FOR BRCA MUTATION ON SURGICAL DECISION IN BRCA CARRIERS WITH BREAST CANCER
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Introduction: The first aim of our study was to evaluate the surgical decision making of BRCA mutation carriers based on timing of knowledge of BRCA mutation status. The second was to evaluate outcome of breast cancer following surgical treatment.

Materials & Methods: This was a retrospective study of 823 patients diagnosed with invasive breast cancer, tested for BRCA mutation and treated with primary surgery at Samsung Medical Center between 2004 and 2015. We reviewed timing of the BRCA test results and types of surgery. Types of initial surgery were classified by breast conserving surgery (BCS), unilateral mastectomy, or bilateral mastectomy and we established whether contralateral mastectomy and risk reducing mastectomy.

Results: Among 823 patients, a total of 164 BRCA mutation carriers were identified. Only 15 (8.2%) patients had known the BRCA test results before their surgery whereas 149 (90.9%) had known the results after the surgery. In patients with unilateral cancer, there was a significantly difference between groups whose BRCA mutation status known before surgery and groups whose BRCA status unknown before surgery regarding choice of surgery. (p=0.017) There was no significant difference across surgery types for IBTR (p=0.924), and there was no significant difference for risk of contralateral breast cancer (p=0.69).

Conclusion: Identification of a BRCA mutation status can influence surgical decision making for breast cancer treatment. Thus, it is important to provide genetic counselling and genetic testing before surgical choice and development of treatment strategies needs for patients with a high risk of breast cancer.


Disclosure of Interest: None declared
Introduction: With the introduction of an organized mammographic screening the incidence of ductal carcinoma in situ (DCIS) experienced an important increase. On the other hand, there has been a trend to reduce indications for sentinel lymph node biopsy (SLNB), which can for example be omitted in patients with low risk DCIS. We reviewed our experience with SLNB among patients with DCIS.

Materials & Methods: We collected retrospective data about patients operated at their breast for ductal carcinoma in situ (pTis), ductal carcinoma in situ with microinvasion (pT1mi) and invasive ductal carcinoma (IDC) sized <2cm (pT1) between January 2002 and June 2016, focusing on the result of SLNB. Considered outcomes were overall and disease-free survival. We considering significant p<0.05.

Results: We found during the considered period 543 DCIS, 84 DCIS with microinvasive focuses of IDC and 2111 IDC sized up to pT1. In case of DCIS with or without microinvasion, SLNB resulted micrometastatic respectively in the 6.0% and 1.7% of cases, and macrometastatic respectively in the 3.6% and 0.9% of cases. Furthermore, 5 years OS of patients affected by DCIS with and without any microinvasive component resulted respectively 98.8% (95%CI 96.4-100.0%) and 99.8% (95%CI 99.4-100.0%). While in the IDC group the 5 years overall survival was 98.3% (95%CI 97.7-98.9%). Local recurrence rate of DCIS with and without any microinvasion was respectively 7.9% and 2.5% at 5 years of follow up, and their distant recurrence rate was respectively 4% and 0% at 5 years of follow up. Invasive ductal histotype, tumor grading ≥2 and lymph node macrometastasis were the only predictive factors for overall survival. Significant predictive factors for distant metastases were DCIS with microinvasion (HR 13.75 95%CI 1.42-133.43; p<0.05), IDC, macroscopic lymph node metastasis, and tumor grading ≥2. Furthermore, predictive factors for microinvasive component in DCIS were tumor multifocality/multicentricity, grading ≥2, and the presence of lymph nodes ITCs or micrometastases.

Conclusion: Sentinel node metastasis may occur also in case of DCIS, being in the most cases micrometastasis. Even in the absence of an evident invasive component, microinvasion should always be suspected in these cases, and their management should be guided also by prognostic factors such as high tumor grading, multifocality/multicentricity and sentinel lymph node positivity. In any case, overall and disease-free survival in this group of patients resulted favorable.

Disclosure of Interest: None declared
PREOPERATIVE CARBOHYDRATE LOAD AND INTRAOPERATIVELY INFUSED OMEGA-3 POLYUNSATURATED FATTY ACIDS POSITIVELY IMPACT NOSOCOMIAL MORBIDITY AFTER CORONARY ARTERY BYPASS GRAFTING

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Introduction: A strategy of limited preoperative fasting, with carbohydrate (CHO) loading and intraoperative infusion of omega-3 polyunsaturated fatty acids (ω-3 PUFA), has seldom been tried in the context of cardiovascular surgery. The aim of this study was to assess morbidity (especially postoperative atrial fibrillation [POAF]) in ICU patients after coronary artery bypass grafting (CABG)/cardiopulmonary bypass (CPB) in combination, if preoperative fasts are curtailed in favor of carbohydrate (CHO) loading, and omega-3 polyunsaturated fatty acids (ω-3 PUFA) are infused intraoperatively.

Materials & Methods: Fifty-seven patients undergoing CABG were randomly assigned to receive 12.5% maltodextrin (200 ml, 2 h before anesthesia), without infusing ω-3 PUFA (CHO, n=14); water (200 ml, 2 h before anesthesia), without infusing ω-3 PUFA (controls, n=14); 12.5% maltodextrin (200 ml, 2 h before anesthesia) plus intraoperative ω-3 PUFA (0.2 mcg/kg) (CHO+W3, n=15); or water (200 ml, 2 h before anesthesia) plus intraoperative ω-3 PUFA (0.2 mcg/kg) (W3, n=14). Perioperative clinical variables and mortality were analyzed, examining the incidence of POAF, as well as the need for inotropic vasoactive drugs during surgery and in ICU.

Results: Two deaths occurred (3.5%), but there were no instances of bronchoaspiration and mediastinitis. Neither ICU stays nor total postoperative stays differed by group (P>0.05). Patients given preoperative CHO loads (CHO and CHO+W3 groups) experienced fewer instances of hospital infection (RR=0.29, 95%CI 0.09-0.94; P=0.049) and were less reliant on vasoactive amines during surgery (RR=0.59, 95% CI 0.37-0.94; P=0.04). Similarly, the number of patients requiring vasoactive drugs while recovering in ICU differed significantly by group (P=0.008), showing benefits in patients given CHO loads. The overall incidence of POAF was 29.8% (17/57), differing significantly by group (P=0.009). Groups given ω-3 PUFA (W3 and CHO+W3 groups) experienced significantly fewer instances of POAF (RR=4.83, 95% CI 1.55-15.01; P<0.001).

Conclusion: Preoperative curtailment of fasting was safe in this randomized trial. When implemented in conjunction with CHO loading and infusion of ω-3 PUFA during surgery, expedited recovery from CABG with CPB was observed.


Disclosure of Interest: None declared
Introduction: The aims of this study were to identify whether differences in the distribution and physiology of adipose tissue and skeletal muscle in obese and non-obese individuals contribute to the magnitude of the postoperative inflammatory response and insulin resistance, with and without preoperative treatment with carbohydrate drinks.

Materials & Methods: Adult participants between 18-80 years undergoing elective open abdominal surgery were invited to participate in this two by two factorial, randomised, double-blinded, placebo-controlled pilot study. Participants were subjected to the hyperinsulinaemic-euglycaemic clamp pre- and post-operatively; muscle and fat biopsies were taken pre- and post-operatively and analysed after RNA extraction and body composition was measured.

Results: Major abdominal surgery was associated with the development of insulin resistance but this was not influenced by obesity or preoperative carbohydrate treatment. Activation of the triggering receptor expressed on myeloid cells (TREM1) pathway was seen in response to surgery in omental fat samples. In postoperative vastus lateralis muscle samples, gene expression differences indicated activation of the peroxisome proliferator-activated receptor (PPAR-α)/ retinoid X-receptor (RXR-α) pathway in obese compared with non-obese participants. There were no significant changes in gene expression pathways associated with carbohydrate loading.

Conclusion: The perioperative environment is metabolically highly active. The reduction of insulin sensitivity associated with major abdominal surgery was confirmed but there were no changes or differences associated with preoperative carbohydrate loading or obesity.

Disclosure of Interest: None declared
THE CHARACTERISTICS OF OXIDATIVE STRESS ACTIVITY IN PATIENTS WITH BILIARY ATRESIA

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Introduction: Biliary atresia (BA) is a disorder of infants in which there is obliteration or discontinuity of the extrahepatic biliary system, resulting in obstruction of bile flow. Oxidative stress is an abnormal phenomenon occurring inside our cells or tissues when production of oxygen radicals exceeds their antioxidant capacity. To investigate the oxidative stress activity of patients with biliary atresia (BA) by determining the activity levels of serum superoxide dismutase (SOD), urinary 8-iso prostaglandinF2α (8-iso-PGF2α) and 8-hydroxy-2’-deoxyguanosine (8-OHdG).

Materials & Methods: BA patients (n=12) were evaluated. Their preoperative and postoperative oxidative stress activity levels were examined. Their postoperative oxidative stress activity was evaluated on postoperative day 30. The preoperative liver function and liver histology were investigated retrospectively. The patients were divided into two groups: the No-icteric group (Group N, n=7), which showed a low total bilirubin <2.0mg/dl level on postoperative day 30 and the icteric group (Group I, n=5), which did not.

Results: All preoperative oxidative stress activity levels were increased. The activity levels were as follows: serum SOD, 6.27 ± 1.64 U/ml (95% CI: 5.32–7.22); urinary 8-iso-PGF2α, 2288±1439 (95% CI: 1374–3202) pg/mg Cre; urinary 8-OHdG, 49.0±22.2 (95% CI: 34.9–63.1) ng/mg Cre, respectively. The concentration of 8-iso-PGF2α had a significantly positive correlation with D-bil (r=0.6224; p<0.05). No other liver function test levels were correlated with the preoperative oxidative stress activity levels. The postoperative urinary 8-iso-PGF2α level of Group I was significantly higher than that of Group N (2717±1968 vs 1379±529; p<0.05).

Conclusion: BA patients showed increased oxidative stress activity levels. The urinary 8-iso level was considered to be greatly affected by cholestasis.

Disclosure of Interest: None declared
HUMAN SKELETAL MUSCLE IN THE POSTPRANDIAL MUSCLE-FULL PERIOD IS REFRACTORY TO THE ANABOLIC EFFECTS OF LEUCINE

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Introduction: Increased plasma essential amino acid (EAA) concentration in the postprandial period is the major anabolic driver stimulating skeletal muscle myofibrillar protein synthesis (MPS). Leucine is unique among EAAs in activating anabolic signalling cascades, promoting EAA uptake by peripheral tissue and maximizing postprandial MPS. The duration of stimulated MPS is finite and may return to basal rates despite elevated plasma EAA concentration, demonstrating a so-called “muscle-full” state. Rat studies suggest that provision of leucine in the late postprandial period can restimulate maximal MPS but this has not been tested in humans. A better understanding of human muscle sensitivity/refractoriness to anabolic stimuli will help design rational strategies for perioperative and critical care nutrition.

Materials & Methods: With university ethics committee approval, after overnight fast and during infusion of $^{13}$C$_6$ Phenylalanine, 8 healthy older male volunteers (70.2±2.3y) consumed 15g EAA as a single bolus (BOLUS). An additional 8 volunteers (70.6±2.6y) consumed identical 15g EAA and, after 90 min, a 3g leucine “top up” (LEU). Mass spectrometry of intermittent muscle biopsies permitted measurement of fractional synthetic rate (FSR) of MPS via isotope enrichment. Insulin was measured by ELISA and EAAs by automated fluorometry. Statistical analysis was by two-way repeated measure-ANOVA.

Results: This regimen achieved an initial rapid hyperinsulinaemia (~5miU·ml$^{-1}$ basal to ~12miU·ml$^{-1}$ 25-45 min postfeed), essential aminoacidaemia (~900mM basal to ~3000mM 45-60 min postfeed) and leucineaemia (~140mM basal to ~900mM 45-60 min postfeed) in both groups (no difference LEU versus BOLUS). Divergence was seen beyond 90 min; leucine was ~1150mM and ~350mM at 135 min postfeed (LEU, BOLUS respectively, P<0.001). Despite this, identical FSR profiles were observed. BOLUS feeding achieved an increase in FSR from 0.046%·hr$^{-1}$ to 0.085%·hr$^{-1}$ after a latency of 90 min, which returned to basal rates (0.051%·hr$^{-1}$) after 180 min. LEU FSRs modulated with BOLUS, returning to basal (0.055%·hr$^{-1}$) after 180 min with no evidence of prolongation of stimulation.

Conclusion: The muscle-full state in healthy humans represents refractoriness to anabolic stimulation that is not overcome by rapid, intense hyperleucinaemia. The optimal interval between effective pulsed feeds likely exceeds 90 min. Although a muscle-full state has been observed in rats and humans, there are likely to be mechanistic differences in the actual blocks to anabolism.

Disclosure of Interest: None declared
SHORT AND LONG TERM OUTCOMES OF CHILDREN AND ADOLESCENTS WITH PAPILLARY THYROID CARCINOMA

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Introduction: Significant evolution of care for children and adolescents with papillary thyroid carcinoma (PTC) has made the assessment of modern outcomes difficult. Our group evaluated the short and long term outcomes of a contemporary cohort of pediatric patients treated for papillary thyroid carcinoma by a multidisciplinary team.

Materials & Methods: We performed a retrospective chart review of 77 patients less than 21 years of age surgically treated for PTC at two academic institutions between 2000 and 2016. Presentation, preoperative workup, surgical procedure, short term outcomes of wound complications, vocal cord paralysis, hypoparathyroidism and hypocalcemia; long term outcomes of disease free survival, recurrence rates, need for further surgeries, follow up, and overall survival were assessed.

Results: Median patient age was 14 years, 72% were female, and all patients presented with a palpable neck mass. Overall patient survival rate was 100% with median 4 years follow up. Only 4 patients did not receive preoperative US to evaluate possible lymph-node metastases (of those 2 had CT scans instead). Regional lymph-node metastases at time of surgery were identified in 67% of patients, with distant metastases occurring in 8%. Consequently, 92% of patients were TNM Stage I at time of operation. Central lymph-node dissection (LND) was performed in 71%, additional lateral LND in 41%, bilateral LND in 12%, and lobectomy in 8 patients (all but one had a negative or indeterminant preoperative FNA), with 5 lobectomy patients receiving subsequent completion thyroidectomy following pathology results. Of all patients, 90% measured a nadir serum calcium that met hypocalcemia definitions, although only half of these patients became symptomatic. Greater than 6 months of hypocalcemic symptoms requiring treatment was noted in 8% of patients. There were no wound complications, axillary nerve injuries, or unintentional permanent laryngeal nerve injuries. 62% of patients received I-131 treatment, and 10% of the children had a local recurrence in the neck.

Conclusion: Our data demonstrate an increased incidence of PTC in females, greater pediatric incidence of lymph-node and distant metastases compared with adult populations, and greater need for repeat surgery in those receiving less than total thyroidectomy. However, while this pediatric cohort still showed higher recurrence rates than adults, this contemporary pediatric patient group highlights recurrence rates significantly lower than in alternate studies.

Disclosure of Interest: None declared
CHILD MOTOR VEHICLE RESTRAINT IS A PUBLIC HEALTH CONCERN ON THE USA-MEXICO BORDER

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Introduction: Motor vehicle collisions (MVC) are a significant cause of pediatric morbidity, particularly in low- middle income countries. El Paso, Texas is in a high-income country, but represents an underserved region and shares a porous border with a middle-income country. The objective of this study was to describe car seat use in children on the USA – Mexico border.

Materials & Methods: A retrospective review was conducted for children 0 – 9 years old, admitted to the region’s only level I trauma center from 2010-2015. Simultaneously, data was obtained from the SAFE KIDS El Paso database, a program that encourages car seat use through inspection at city checkpoints.

Results: There were 250 MVC admissions and 9 fatalities in children 0 – 9 years old from 2010-2015. At least 52% of admitted children were improperly restrained. Age was directly correlated to proper restraint use, with younger children more likely to be restrained (p <0.005). 24% of MVC took place within the child’s home zip code. 9% of MVC occurred in Mexico, 29% in New Mexico and 50% in El Paso. In the SAFE KIDS database, 2746 car seats were inspected. Comparing the trauma admissions to SAFE KIDS, there was some correlation between the location of MVCs and screening checkpoints (r= 0.50). There was a weaker correlation between admitted children’s neighborhoods and the screening locations (r=0.32). Of the car seats inspected, only 37% of parents knew the crash history and 3% were using a car seat previously involved in a MVC. While 96% of inspected children were placed appropriately in the backseat, 80% of children were found to be inappropriately restrained. Children coming from New Mexico had the worst rate of restraint (14%) and highest injury severity scores. In general, unrestrained children had higher injury severity scores (p<0.0008).

Image:
**Conclusion:** Proper use of car seats is a public health concern on the USA-Mexico border, and many children are not properly restrained. Screening may be improved by focusing on the zip codes where at-risk children live and where the majority of accidents occur. Car safety education should be focused in underserved and low-income areas.

**Disclosure of Interest:** None declared
Introduction: Five billion people worldwide do not have access to safe, affordable surgical care. A significant proportion live in sub-Saharan Africa (SSA), where up to 50% of the population are children. There is limited literature on neonatal and paediatric surgery in SSA and children’s surgery does not appear on any of the National Health Strategic Plans for the 47 independent countries across SSA.

Objectives: To form a collaboration of surgeons and allied health professionals involved in children's surgery across SSA and to collectively undertake largest prospective cohort study in this region.

Materials & Methods: Data will be collected via REDCap website on all patients with gastroschisis, anorectal malformation, appendicitis, inguinal hernia and intussusception, during a 1-month period, of collaborators' choice, between October 2016 to April 2017. There are 280 collaborators from 140 hospital teams in 28-countries across SSA participating in the study. Estimated study population: 30 patients/hospital team. Local ethics approval is required for participation. All collaborators will be co-authors.

The primary outcome is in-hospital mortality. Secondary outcomes include post-intervention complications. Data will be collected on institutional facilities, patient demographics, duration from condition onset to presentation, peri-operative resuscitation, intervention and outcome.

Results: Differences in outcomes between SSA and high-income countries will be calculated using chi-squared analysis. Multi-level multivariate logistic regression analysis will be used to identify interventions and peri-operative factors associated with improved outcomes; \( p<0.05 \) will be deemed significant.

Conclusion: Results will be used to advocate for enhanced children’s surgical services in SSA. We shall identify context-appropriate interventions associated with improved outcome. The collaboration will help to enhance research capacity in the region.

Disclosure of Interest: None declared
HIGH–RISK DEVELOPMENTAL PERIOD WITH LOW NRF-2 EXPRESSION PLAYING A VITAL ROLE IN DEVELOPING FOCAL INTESTINAL PERFORATION (FIP) AND NECROTIZING ENTEROCOLITIS (NEC).

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Introduction: Intestinal cell survival depends on a controlled production of reactive oxidants. Immature cells, especially in preterm babies, are therefore particularly vulnerable to oxidants. An imbalance in the regulation of toxic reactive oxygen species (ROS) may lead to ischemia of the intestinal wall, the underlying cause for necrotizing enterocolitis (NEC) and focal intestinal perforation (FIP), which happens earlier in life than NEC. The Nuclear Factor erythroid-2 (NFE2)-related factor 2 (Nrf-2) has been assigned an increased role as a crucial regulator of cellular resistance to ROS. Therefore, variations in the expression of Nrf-2 may be intrinsically associated to the pathogenesis of NEC and FIP. We hypothesize that there is a time-dependent imbalance in ROS regulation mediated by Nrf-2, which is more severe in FIP than in NEC, yet in both diseases similarly varied as compared to controls.

Materials & Methods: Intestinal samples from children with NEC (n=24) or FIP (n=9), comparing to control samples (n=16) were studied through semi-quantitative immunohistochemistry (IHC) and real-time PCR (light-cycler qPCR). The primary antibody was monoclonal rabbit Anti-Nrf-2 (Abcam Co., Cambridge, UK). Data were analyzed statistically accepting a confidence interval of 95%.

Results: We found the lowest expression of Nrf-2 (12% positive) in FIP samples followed by NEC (17%) compared to controls (22%). Nrf-2 expression in FIP was significantly lower than in control samples (p=0.02) and NEC (p=0.01). Preliminary qPCR data tend to confirm these findings.

Conclusion: Our data strongly suggest that the ROS induced damage occurs early postnataally during a critical window, when Nrf-2 expression is low in premature children. Additionally, there seems to be a time-dependent increase in the expression of Nrf-2, yet not enough to curtail the development of FIP and NEC. These data also support our postulated triple-risk model for NEC, in which a vulnerable infant subjected to an external injury during a high-risk developmental period develops the disease.

Disclosure of Interest: None declared
Introduction: Surgical reconstruction is the only treatment option for bladder exstrophy. The aim of the reconstructive procedure are closure of the open bladder plate, bladder neck, urethral plate, abdominal wall, simphysial gap, resulting in a cosmetically acceptable abdominal wall, a good capacity pelvic bladder, normal looking external genitalia with acceptable continence. The role of pelvic osteotomy is controversial. However the pelvic brim needs to be completed, so that the closed bladder and bladder neck can retained its pelvic position and maintain the urethral angulation.

Materials & Methods: Forty five children (30 male and 15 female) age range from 3 days to 16 years underwent one stage reconstruction during 1996 to 2016 in the Department of Paediatric Surgery, (BSMMU). Only ten were neonates and fifteen were of failed repair. Reconstruction included, mobilization of the bladder plate, bladder neck and posterior urethra as a composite block and release of the penile corpora from inferior pelvic rami without osteotomy. Bladder plate, bladder neck, posterior and penile urethra were closed in layers. An additional soft tissue along with the obturator muscle were rapped in the posterior urethra. Bladder were drained by a T-tube. The bladder drop down to the pelvic cavity and wound was closed. Patient was not immobilized by plaster or splint postoperatively. Post-operative follow up included clinical examination, urine and blood analysis, ultrasonography and retrograde cystourethrography.

Results: Mean operating time was 145 minutes, hospital stay was 3 weeks. Cosmetic results were satisfactory in all cases. Wound infection and supra-pubic bladder prolapse three, peno-pubic fistula in five and penile fistula in two cases. Fifteen were dry during day time for 2 to 3 hours, twenty can maintain themselves by using cotton pad or cloth, five had total incontinence and were managed by mitrofenoff procedure. Five were missed from follow up.

Conclusion: A complete single stage exstrophy-epispadias repair by soft tissue in neonate and children within 3 months offers good result in terms of cosmesis and continence. This procedure can also be done for older children and failed exstrophy repair. This is relatively simple, time saving and cost effective procedure.

Disclosure of Interest: None declared
ROLE OF PREOPERATIVE CT SCANNING IN NEWBORNS WITH CONGENITAL ANORECTAL MALFORMATIONS

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Introduction: In Anorectal malformations anatomy of the disorder classifies disease, decides surgical management and prognosticates regarding the expected bowel function; which is of immense importance as mortality after surgery is <1%. Multiple studies show single stage repair to be physiologically more sound Resulting in better outcomes; thus is the standard of care. Therefore in newborns which require acute surgical intervention CT adequately visualises the anatomy providing the route map to surgery and is easily available in comparison to MRI which requires anesthesia and hence subjects to risks in newborns. The study aims to assess the role of Multi detector CT scanning with 3D reconstruction in newborns planned for single stage repairs in terms of correlation with intraoperative findings, and whether it is able to change management in these patients and thus acting as a preoperative study of choice in this patient population.

Materials & Methods: Prospective study; sample size 48 patients subjected to clinical examination, inverted radiography and I.V. contrast enhanced CT scanning in which various variables were assessed(pouch location, fistula, muscle thickness and indices, etc) surgical findings were compared and treated as gold standard

Results: CT findings correlated brilliantly with intraoperative findings CT detected fistula in 25% cases, changed management in 37.5% cases Out of various variables EASTI(external anal sphincter thickness index) correlated brilliantly with each and every aspect of malformation (type and severity of malformation, level of pouch, muscle development)

Conclusion: CT can be used as a preoperative investigation in affording patients planned for single stage early repair EASTI can emerge as a robust marker of severity of ARM, can help in classification, prognostication, standardisation
Disclosure of Interest: None declared
Introduction: Enteral nutrition is mainstay of nutritional support in surgical patients. Primary post-operative ileus (PPI) occurs after surgery, but resolves spontaneously within 2 – 4 days. Patients are traditionally left nil per os (NPO) post-operatively until PPI resolves, but this “dogma” is currently a subject of intense debate. Safety and benefits of early oral feeding after gastrointestinal surgery is approved in many similar studies in adults. However, there is a paucity of studies on its safety and usefulness in children.

Aim: To determine the necessity of delaying commencement of enteral feeding until return of bowel sounds after laparotomy in children.

Materials & Methods: A prospective, randomized, controlled trial involving 56 patients, aged 15 years and less, who had laparotomy for gastrointestinal surgery. They were randomized into 2 groups, case and control. The cases were started on enteral feeding before return of bowel sounds, while the controls were commenced on oral intake after return of bowel sounds. Primary outcome was incidence of feed intolerance and secondary outcomes were time-to-establishment of full oral intake and duration of hospital stay. Results are presented as mean (range). P≤0.05 was regarded as significant.

Results: The groups were comparable in the baseline demographic profile. Mean age of the cases was 73.6 months (0.1 – 180 months) and 78.9 months (0.3 – 168 months) in the controls, P = 0.735. The common diagnoses included peritonitis – 16 (57.1%) in the cases versus 15 (53.6%) in the controls; intestinal obstruction – 7 (25.0%) in the cases versus

11 (39.3%) in the controls with p = 0.215. Bowel procedures done included 12 (42.9%) resection and anastomosis in the cases versus 10 (35.7%) in the controls. Feeding intolerance (in the form of vomiting and abdominal distension) was seen in 5 (8.9%) participants with 4 (14.3%) in the cases and 1 (3.6%) in the control, p = 0.160. Time to full enteral diet was significantly shorter in the cases (71.1 ± 28.7) hours than the controls (92.0 ± 31.0,) with P = 0.014. The Mean duration of post-operative hospital stay was significantly shorter in the cases than the controls (7.46 ± 3.8 days versus 11.1 ± 5.2days, p = 0.005).

Conclusion: Delay in commencement of feeding, after laparotomy, until return of bowel sounds, is not necessary and in fact, brings about significant delay in return to full enteral diet as well as a significantly longer duration of hospital stay.

Disclosure of Interest: None declared
Introduction: Esophagocoloplasty and gastric pull-up remains two most frequent reconstruction methods for esophageal replacement in the case of long-gap esophageal atresia or extensive corrosive strictures. The aim of this single center study to compare results or gastric pull-up and colonic interposition in terms of complications, graft function and patient satisfaction. We analyzed results of 172 patients who underwent esophageal replacement in our hospital.


The most common indications for esophageal replacement included different varieties of esophageal atresia (127), caustic injury (23), and peptic strictures (8). Colon transposition and gastric pull-up were performed using blunt mediastinal dissection in all patients without thoracotomy. Colon transposition were performed using antireflux Transplant Protection. Gastric pull-up was performed according to classical technique.

Results: No difference was noted between the two groups with regard to the mortality rate (0.9% in the esophagocoloplasty group and 0% in the gastric pull-up group, P > .05). There were 1 graft necrosis, 1 (0.8%) in the esophagocoloplasty group and there was no necrosis in the gastric transposition group. Anastomotic leakage occurred in 23,8% in the esophagocoloplasty group and 17,4% in the gastric pull-up group.

Patient follow-up ranged from 6 to 72 months. Among patients undergoing gastric pull-up, regurgitation and vomit in was observed in 44,4% during follow-up. None of the patients with colonic interposition had reflux or regurgitation. Stomachache after feeding were in 59,3% after gastric pull-up, and 33.3% after colon interposition. Night regurgitation and cough in gastric pull-up group was 55.6% and 23,8% in colon interposition group. feeding difficulties and limitations were in in 74.1% in gastric pull-up group and 9.5% in colon interposition group. All this difference statistically significant (p < 0.5).

Conclusion: Overall satisfaction was superior in patients undergoing colonic interposition followed by gastric pull-up. Our study suggests that graft function and patient satisfaction is better in colon transplantation group and esophagocoloplasty must be the first choice for esophageal replacement in children.

Disclosure of Interest: None declared
PARATHYROID, THYROID AND RECURRENT LARYNGEAL NERVE ANATOMY IN AN INDIAN RHINOCEROS

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Introduction: The parathyroid was first identified in the Indian rhinoceros in 1849 by Sir Richard Owen. Histology was not performed. We performed a necropsy in an Indian rhinoceros, recapitualting the dissection and display what appear to be the inital identification of the recurrent laryngeal nerve, anatomy and histology of the largest rhinoceros parathyroid glands identified.

Materials & Methods: Patrick T. Rhino, a 41 year old Indian rhinoceros was born in 1974. His early years were unremarkable. In 2006 he was donated to the White Oak Sanctuary in Yulee, Florida where he bred and sustained minor injuries. In his geriatric years he developed a cataract and DJD. At age 41, he developed progressive ataxia and lameness and was euthanized to minimize suffering when he was unable to stand. ROS, FH, SH and medication history were unremarkable. Physical exam was age and species appropriate. Premortem serum demonstrated: creat 1.8 mg/dL (0.8-2.1), calcium 10.6 mg/dL (9.7-13.1), phos 3.8 mg/dL (2.5-6.7), alk phos 69 U/L (26-158) and an intact PTH of 44.1 pg/mL (ref range unknown). Necropsy revealed intervertebral DJD with thoracic spondylosis which combined with osteoporosis resulted in thoracic myelopathy and ataxia. The neck block was sent in formalin to the Yale University School of Medicine.

Results: Detailed dissection was performed under loupe magnification. Presumed structures were photographed in situ and biopsied. The thyroid was identified deep to the strap muscles, received its blood supply from the inferior and superior thyroid arteries and was blue in color. The right recurrent laryngeal nerve, identified for the first time in the rhinoceros, was deep to the inferior thyroid artery and traced throughout its cervical course. Single parathyroid glands identified on the lateral thyroid lobes received their blood supply from the inferior thyroid arteries and were confirmed histologically as normocellular parathyroids. They appear to be the largest parathyroids yet identified in the rhinoceros with estimated weights of 6,280 mg (right, image below) and 10,990 mg (left). Although the etiology of the parathyroid gland enlargement is unknown, the specimen was preserved recapitulating the dissection performed by Sir Richard Owen.

Conclusion: The parathyroids, thyroid and recurrent laryngeal nerve were identified in an Indian rhinoceros. This appears to be the first display of the rhinoceros recurrent laryngeal nerve and the parathyroid glands are the largest yet identified in the rhinoceros.


Disclosure of Interest: None declared
85.02
INDOCYANINE GREEN FLUORESCENCE IMAGING FOR IDENTIFYING AND ASSESSING THE PERFUSION OF PARATHYROID GLANDS IN TRANSORAL ENDOSCOPIC THYROIDECTOMY VESTIBULAR APPROACH (TOETVA): A PRELIMINARY STUDY

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Introduction: Postoperative hypocalcaemia following total thyroidectomy is one of the most common complication, and may have a significant effect on quality of life (1-3). The main cause of hypocalcaemia after total thyroidectomy is hypoparathyroidism due to intraoperative damage to the parathyroid glands by trauma, inadvertent parathyroid gland removal or devascularization (4). The present study evaluated the feasibility and safety of near-infrared (NIR) fluorescent imaging with intraoperative parathyroid gland indocyanine green angiography to identify parathyroid glands and predict parathyroid gland function in patients who undergo Transoral Endoscopic Thyroidectomy, Vestibular Approach (TOETVA) (5).

Materials & Methods: A retrospective database of patients who underwent TOETVA between January 2015 and June 2016 in the Department of Surgery, Police General Hospital was reviewed. Angiography with the fluorescent dye indocyanine green (ICG) was performed in 32 patients undergoing total thyroidectomy, to identify and visualize vascularization of parathyroid glands. Postoperative parathyroid hormone levels, serum calcium levels, and clinical data of parathyroid-related outcomes were recorded.

Results: Thirty-two patients underwent total thyroidectomy with ICG imaging. There were 126 identified parathyroid glands visually, 96 (76.2%) of which showed ICG fluorescence uptake or were considered vascularized glands. Postoperatively, one patient (3%) had transient hypocalcaemia. None of the 32 patients presented permanent hypocalcaemia, and none received treatment for hypoparathyroidism. There is no incidental parathyroidectomy was founded.

Conclusion: Indocyanine Green Fluorescence Imaging of parathyroid glands during Transoral Endoscopic Thyroidectomy, Vestibular Approach (TOETVA) is safe and feasible. ICG Fluorescence Imaging might be a useful adjunct in identifying parathyroid glands and help preventing post-thyroidectomy hypoparathyroidism.


Disclosure of Interest: None declared
MINIMALLY INVASIVE ADRENALECTOMY FOR ADRENOCORTICAL CARCINOMA: 5 YEAR TRENDS AND PREDICTORS OF CONVERSION

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Introduction: Adrenocortical carcinoma (ACC) is rare and often fatal. Surgery offers the best chance of cure. As minimally invasive procedures for cancer become more common, the role for ACC continues to be debated. We looked at the use of minimally invasive (MI) approaches over time and risk factors for conversion using a large national database.

Materials & Methods: Patients with localized disease for ACC from 2010-2014 were identified in the National Cancer Data Base. A retrospective review was conducted examining surgical approach, patient demographics and tumor characteristics. Chi-square was used to identify differences between groups and the Kaplan-Meier method was used to evaluate overall survival.

Results: Over the 5-year study period 589 patients underwent adrenalectomy for ACC, of which 200 were by a MI approach. Between 2010 and 2014 the use of MI surgery increased from 26% to 43% with an increase in robotics utilization (5.2 to 14%). There was no difference in the use of MI surgery based on facility type (p=0.4) or geographic location (p=0.63). Conversion to open adrenalectomy was required in 38/200 (19%). Average tumor size was larger for the converted group (10.2cm versus 8.6cm) and size >5cm was the only significant predictor of conversion (p=0.04). There was no difference in age (p=0.83), gender (p=0.34), race (p=0.44), insurance status (p=0.91), Charlson-Deyo comorbidity index (p=0.06), extent of disease, positive margin (p=0.12) or lympho-vascular invasion (p=0.59). None of the patients with pathologic stage I disease required conversion (0/19). 13 of 52 (25%) of stage II patients were converted to open. Overall survival for the converted group was 60% at 1 year versus 80% for the minimally invasive group despite no difference in tumor characteristics other than size and no deaths within 30 days of surgery.

Conclusion: The use of a minimally invasive approach for ACC is increasing – up to 43% of all adrenalectomies performed in the final study year were by a MI approach. Size >5cm was the only predictor of conversion to open and should be considered along with the presence of local invasion when choosing a surgical approach to achieve complete tumor resection.

Disclosure of Interest: None declared
MORBIDITY FOLLOWING TRANSANAL TOTAL MESORECTAL EXCISION FOR RECTAL CANCER
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Introduction: Transanal total mesorectal excision (taTME) has emerged as an alternative to open and laparoscopic techniques for mid and low rectal cancer. Reports published to date concluded that it is a safe and feasible technique. However, concerns exist about procedure related complications and if there are differences with what high quality randomized trials displayed for pure laparoscopic TME (37-54%). This study shows the morbidity outcomes of the largest series published of taTME.

Materials & Methods: We analyzed the outcomes of all patients with mid and low rectal cancer treated by taTME at our hospital. All patients were entered in a prospectively collected database.

Results: One hundred eighteen patients (63.4%) with mid rectal tumor and 68 (36.6%) with low rectal tumor undergoing taTME were identified. Mean age was 65.0 years, 118 patients (63.4%) were male and 53.4% had a BMI>25Kg/m². The majority of patients were classified as ASA II (82.0%) and ASA III (13.7%). Preoperative staging showed T1 in 3.3%, T2 in 20.1%, T3 in 67.9% and T4 and in 7.6%. Neoadjuvant treatment was given in 67.2%. Mean operative time was 147.8 min. Splenic flexure was mobilized in 38.3%, and a diverting ileostomy was performed in 85.4% of the cases. Anastomosis was created in 98.4% of the cases, of which 31.9% were handsewn and 68.1% stapled. Intraoperative complications occurred in 14 cases (8.1%). The 30-day postoperative complications rate was 36.8%: anastomotic leakage 7.7%, intraabdominal collection 7.1%, ileus 11.5%, urinary retention 4.4% and haemorrhage 2.7%. Of these complications 26.3% were classified as minor complications (Clavien-Dindo I-II) and 9.8% were classified as major complications (Clavien-Dindo III-IV). Reintervention was needed in 14 (7.7%) cases. Mean length of hospital stay was 8 days and the readmission rate was 11.7%. The three-month mortality rate was 1.1% (n=2): due to spontaneous oesophageal perforation (n=1) and myocardial infarction in the immediate postoperative period (n=1).

Conclusion: In a high volume center for the treatment of rectal cancer, the morbidity following taTME is similar to the one following pure laparoscopic TME.

Disclosure of Interest: None declared
DEFINING OPTIMAL SURGICAL TREATMENT FOR RECURRENT HEPATOCELLULAR CARCINOMA. 
-A PROPENSITY SCORE MATCHED ANALYSIS

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Introduction: Salvage liver transplantation (sLT) and repeated resection (RR) are effective treatment for recurrent hepatocellular carcinoma (HCC), comparison of the oncological outcomes between these two modalities were scarce.

Materials & Methods: Consecutive patients admitted for either sLT or RR for recurrent HCC were recruited. All patients in the present series received either prior hepatectomy, ablative therapy or both before RR and sLT. Paediatric patients and patients treated by non-curative approach were excluded. Patient demographic, perioperative and outcome data were analyzed. Survival analysis was performed after propensity score matching.

Results: There were 277 eligible patients recruited, 67 and 210 of them underwent sLT and RR respectively. Significant differences in preoperative haemoglobin, albumin, hepatitis B carrier status, MELD score, and tumor number were found (all P<0.001) between sLT and RR group. Multivariate analysis revealed that type of treatment (P=0.002, OR=2.13 95%CI 1.2-3.2), lapse time from last curative treatment (P=0.022, OR=0.994 95%CI 0.988-0.999), alpha fetal protein (AFP) (P=0.01 OR=1.00 95%CI 1.00-1.00) and tumour number (P<0.001, OR=1.23 95%CI 1.14-1.32) were independent factors associated with overall survival. After 1:3 PS matching, there were 36 sLT and 108 RS patients for comparison. The median age, MELD, AFP, tumor size and number of the matched population were 57, 7.5, 16U/ml, 2.5cm and 1 respectively. There was no difference in the hospital mortality and complication rate (Clavien Illa or above) between the groups, while the blood loss (P<0.001), operation time (P<0.001) and hospital stay (P=0.002) were significantly more in the sLT group. Patients in sLT group had significantly longer disease free (140 vs 49 months, P=0.031) and overall survival (176 vs 55.3 months, P=0.026).

Image:

Conclusion: Salvage LT is superior to repeated resection for treatment of recurrent HCC and is associated with more than two-fold increase in long-term survival.

Disclosure of Interest: None declared
ANTIREFLUX PROCEDURES IN THE US: INFLUENCE OF SURGICAL VOLUME ON PERIOPERATIVE OUTCOMES AND COSTS. TIME FOR CENTRALIZATION?

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Introduction: Previous reports have shown a decline in the number of antireflux procedures in the last decade. While this drop may be in part explained by the obesity epidemic and the rapid increase in the utilization of bariatric surgery, concerns about surgical results in non-specialized centers may have played an important role in this decline. We aimed to analyze the impact of surgical volume on perioperative outcomes and costs for patients undergoing antireflux surgery.

Materials & Methods: We performed a retrospective analysis of the Nationwide Inpatient Sample from 2000 to 2013. Adult patients (≥ 18 years old) with gastroesophageal reflux disease who underwent fundoplication were included. Hospital surgical volume was determined using the 30th and 60th percentile cut points using weighted discharges. Surgical volume was categorized as small (<10 operations/year), intermediate (10-25 operations/year), or high (>25 operations/year). Linear and logistic regression, adjusted for patient demographics, comorbidities, hospital characteristics and laparoscopic approach, were used to assess the effect of surgical volume on patient outcomes and determine the charges for health care.

Results: A total of 75,544 patients were included. Patients at low volume hospitals, compared to high volume were more likely to have postoperative bleeding, cardiac failure, renal failure, respiratory failure and inpatient mortality. Patients receiving care at an intermediate volume hospital, compared to high volume presented higher incidence of postoperative infection, esophageal perforation, bleeding, cardiac failure, renal failure and respiratory failure. On average, patients at low volume hospitals stayed 1.08 days longer and patients at intermediate volume hospitals stayed 0.55 days longer. Adjusted change in estimate charges analysis showed an increase of 5,120 dollars per patient in low volume centers and an increase of 4,010 dollars per patient in intermediate volume centers (Table 1).
Conclusion: High surgical volume is related to a significant decrease of perioperative morbidity, shorter length of hospital stay, and lower costs for the health care system. Centralization of antireflux procedures in high volume centers should be considered to achieve better perioperative outcomes and to avoid higher expenses.

Disclosure of Interest: None declared
Introduction: Sarcopenia is a known predictor of morbidity and mortality in patients undergoing major pancreatic surgeries. We sought to combine sarcopenia with established risk predictors to improve their prognostic capacity for postoperative outcome and morbidity.

Materials & Methods: As established parameters to predict preoperative mortality risk for patients, the ASA classification and the Charlson Comorbidity Index (CCI) were used. The Hounsfield Units Average Calculation (HUAC) was measured to define sarcopenia in 424 patients undergoing pancreatic resections for malignancies. Patients in the lowest sex-adjusted quartile for HUAC were defined as having sarcopenia (muscle wasting). Multivariable Cox regression analysis was utilized to identify preoperative risk factors associated with postoperative morbidity.

Results: Median patient age was 63 years (19-87), 47.9% patients were male, and half the cohort had multiple comorbidities (Charlson Comorbidity Index [CCI] > 6, 63.2 %), 30-day mortality was 5.8% (n=25). Median HUAC was 19.78 HU (IQR: 15.94-23.54) with 145 patients (34.2%) having sarcopenia. Preoperative frailty defined by sarcopenia was associated with an increased risk for postoperative complications (OR 1.55, CI 95% 0.98-2.45, p=0.014), and a higher 30-day mortality (HR 5.17, CI 95% 1.57-16.69, p=0.004). With an AUC of 0.85 HUAC showed the highest predictability for 30-day mortality (CI 95% 0.78-0.91, p=0.0001). Patients with CCI ≥ 6 and sarcopenia defined by the HUAC had a 9.78 higher risk of dying in the immediate postoperative phase (HR 9.78, CI 95% 2.98-32, p=0.0001).

Conclusion: Sarcopenia predicts postoperative mortality and complications best and it should be incorporated to conventional risk scores to identify high risk patients.


Disclosure of Interest: None declared
Introduction: There are significant financial implications to the management of burn injury. With increasing sophistication of critical care services and wound management, an assessment of the true cost of burn care is imperative. Unfortunately, there is a paucity of data regarding the cost of burn care at American Burn Association Burn center. We therefore sought to perform a burn care cost analysis at a large regional burn center in the United States.

Materials & Methods: A retrospective analysis of patients admitted to a regional burn center from 2002-2012. Independent variables analyzed included basic demographics, burn mechanism, presence of inhalation injury, %TBSA (total body surface area), length of hospital stay, mechanical ventilation, insurance status, and total hospital charges. Bivariate analysis was performed based on survival, inhalation injury and mechanical ventilation status. The mean and median total hospital charges per year was calculated. Charge per %TBSA per hospital day were determined. All hospital charges and reimbursements were converted to 2016 US dollar value using inflation correction.

Results: A total of 7,446 patients were admitted and included in this study. Overall survival rate was 96%. The average age and %TBSA was 31.7 (± 22.4 years) and 8.6% (range: 0-100%, median = 5%) respectively. Most common mechanism is scald (n = 3,575, 48%) followed by flame (n = 3,390, 46%). The overall mean total hospital charge was $57,452.37(range: $801-$671,866; median = $27,711) with 5,485 (74%) burn patients having insurance. The mean charge per %TBSA per hospital day is $522.57. After inflation correction, the average hospital charge is $68,174.64 (range: $54,459-$82,486, median = $72,084) with a mean charge per %TBSA per hospital day of $600.19. The charge per %TBSA per hospital day has risen since 2002 ($538.85 vs $909.50 in 2012) as the average %TBSA has declined. Reimbursements to providers have remained stagnant since 2009 ($1095 vs 938.70 in 2012).

Conclusion: Total hospital charges and charge per %TBSA per hospital day have risen at our large regional American Burn Association burn center with stagnant reimbursements. Our findings encourage re-examination of current practices in effort to reduce the costs of care to burn patients while improving efficiency and resource utilization.

Disclosure of Interest: None declared
A SIMPLE METHOD OF SKIN GRAFT FIXATION WITH HYDROFIBER – NO SPLINTS REQUIRED

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Introduction: Split thickness skin grafts (STSG) are often required after debridement of third degree burns. After the placement of skin grafts, a dressing is chosen to cover the STSG. These dressings are meant to immobilize the graft, prevent shearing and prevent hematoma or seroma formation under the graft. Splinting is often required over the limbs to achieve immobilization. But in hot, humid climates patients often complain of discomfort due to splinting. We describe a method of using hydrofiber over the skin graft to achieve a simple means of fixation without the need for splinting.

Materials & Methods: Twenty patients over a 6 month period from March 2016 to August 2016 who underwent STSG with hydrofiber placed over it as fixation was included in the study. No splints were used in all these patients. In all these patients STSG was performed in the upper and lower limbs.

Results: Due to the hydrofiber over the STSG, gauze changes took place on first day post operatively. The patients were allowed to mobilize. The hydrofiber was removed on the fifth day post grafting. Once there was good take of the skin graft, the hydrofiber slowly peeled off. In one patient he was discharged immediately after surgery and was followed up at OPD. There was good take of the skin graft in all 20 patients. No complete failures were seen.

Conclusion: Immobilization of the skin graft is essential after STSG. Splinting or tie-over bolster dressing is the traditional method of immobilization, especially if STSG has been performed in the limbs. But it is uncomfortable especially in tropical climates. This method of applying hydrofiber over the STSG allows absorption of fluids, reduced maceration with good contouring of the wound. Hydrofiber is useful as a dressing to immobilize skin grafts over the limbs. It spares the need for splinting, is easy to apply and increases patient comfort and compliance. It also decreases the length of hospitalization required after skin grafting.

Disclosure of Interest: None declared
Introduction: The Centers for Disease Control and Prevention WISQARS database and the American Burn Association National Burn Repository facilitate analysis of the epidemiology and outcomes of burn injury and the identification of prevention targets and successes.

Materials & Methods: The WISQARS database was used to evaluate changes in the incidence of both fatal and nonfatal burn injury and identify populations and areas of high risk. In similar fashion, the ABA National Burn Repository was utilized to identify the demographics and outcomes of burn patients treated in burn centers in the United States. The databases and review of selected publications, particularly SafetyLit, were used to identify and evaluate prevention activities.

Results: In the 21st century, the incidence of nonfatal burn injury has decreased by 22% with an age adjusted rate per 100,000 decrease of 29%. From 1975 to 2015, the incidence of fatal burn injury decreased by 52% with an age adjusted rate per 100,000 decrease of 70%. The prominence of burn injury as a cause of nonfatal injury varies between age groups, seventh most common for age less than 1, twelfth most common for ages 25-34, and fourteenth most common for all ages combined. The ABA National Burn Repository data revealed that patients treated at the 96 participating U.S. hospitals were predominantly men, 73% of whom were injured in the home with 75% having burns involving less than 10% of the total body surface area. The mortality rate for all cases was 3.3% and 5.8% for fire/flame injuries. High risk groups, in addition to young children, include the elderly and military personnel in armed conflict, and deserve special attention for prevention efforts. Emerging prevention targets include glass fronted fireplaces, swimming pool electrical injuries, cell batteries, and cyanoacrylate burns.

Conclusion: The WISQARS and NBR databases facilitate monitoring of the epidemiology and demographic changes in burn injury, documentation of improvement in burn care, identification of prevention targets, and estimations of the costs of burn patient care. The validity of the noted decreases in burn incidence, and improved survival of burn patients is supported by having occurred during a 40% expansion of the U.S. population.

Disclosure of Interest: None declared
Introduction: The quality of surgical education in Europe is a matter of continuous debate. Segmental colonic resections are claimed to be surgical procedures typically taught to surgical trainees. We aimed to assess the percentage of segmental colonic resections taught to Swiss residents from 2012 to 2015 and to identify factors that influence the percentage used for surgical training.

Materials & Methods: Based on the nationwide Swiss prospective sample of the AQC (Arbeitsgemeinschaft für Qualitätssicherung in der Chirurgie) all segmental colonic resections (ileocecal resection, right- and left hemicolectomy, and sigmoid resection) performed at participating centers between 2012 and 2015 were identified. The hierarchical position of the surgeon performing the individual operation was assessed. The number of resections taught to residents was compared to the number performed by senior surgeons (chairmen, junior and senior staff surgeons). Subsequently, factors predictive for procedures to be taught were analyzed.

Results: From the 3330 segmental colonic resections identified 1863 were left-sided and 1497 were right-sided resections. From these 3330 colon resections 2% were taught to residents (n=70), while 16% were taught to junior staff surgeons (n=521) and 3% were taught to senior staff surgeons (n=94). Factors that predicted increased teaching rates include: larger hospital size (p < 0.001), general insurance (p < 0.001), higher ASA classification (p < 0.001), older patient (p < 0.001), emergency surgery (p = 0.004), benign disease (p < 0.001), benign disease, and right-sided colon resection (p < 0.001).

Conclusion: The percentage of colonic resections taught to residents is surprisingly low. Despite colonic resections being an integral part of general surgical training, the majority of such operations are not used for resident training but for training of attending surgeons. Increased utilization of segmental colonic resections for training of residents may therefore provide an opportunity to improve surgical skills and experience of residents nearing completion of their training.

Disclosure of Interest: None declared
Introduction: Graves’ disease is an endocrine surgical condition with significant cardiovascular effects. Though the exact mechanism is not known, catecholamine hypersensitivity and hyperadrenergic state is a proposed hypothesis. Surgical thyroidectomy is challenging due to risk of thyroid storm and hypervascular goiters. Though in present times, anti-thyroid medications obviated the risk of thyroid storm, intraoperative hypertensive and arrhythmic episodes are not infrequent. In this context, we analysed the influence of clinical parameters and serum thyroid hormone titers in correlation with intraoperative cardiac and hemodynamic (CHD) events.

Materials & Methods: This is a prospective study of 145 diffuse toxic goiters spanning 4 years from November 2012 to October 2016 conducted in Endocrine and Metabolic Surgery department of a tertiary care Hospital. All clinical, investigative and anaesthetic details are recorded in proforma based database. All the cases underwent total thyroidectomy. Serum free thyroxine (FT4), free tri-iodothyronine (FT3) levels were measured intraoperatively and post-operatively at 2, 4 and 6 hours after gland removal. Compared both the groups with and without hemodynamic and cardiac disturbances to determine factors responsible for these events. Descriptive, Univariate and multivariate analysis were done by SPSS 14.0.

Results: CHD events - Intraoperative hypertension (IH) occurred in 42, supraventricular tachyarrhythmia in 8, ventricular ectopics in 3 and bundle branch blocks in 2 cases. Eventful cases are placed in group A and group B included no event cases. Groups A and B included 55 and 90 cases respectively. Mean age of group A is 42±6.2 (35-72) and B is 32.4±7 (16-66). There was no mortality or major postoperative morbidities. In group A-T3; FT4 levels were 1.6 pg/mL (2-4.4); 2.56±1.2 ng/dL (0.93-1.7) intraoperatively and 3.65±1.3 pg/mL; 1.62±0.8 ng/dL postoperatively (6 hours). In group B- FT3; FT4 levels were 3.42±1.5 pg/mL; 1.71±1.1 ng/dL intraoperatively and 3.14±1.2 pg/mL; 1.55±1.2 ng/dL postoperatively.

Conclusion: CHD events were more common in above 40 years, with preoperative hypertension, diabetes, severe thyrotoxicosis and long standing goiters. FT4 levels correlated with these events in more than 80% cases, suggesting its precipitatory role, though causal association is yet to be established. Thus, diffuse toxic goiters needs meticulous anaesthetic and perioperative care even after achieving euthyroidism.

Disclosure of Interest: None declared
CAN NATIVE ARTERIOVENOUS FISTULA BE SAFELY MADE BY TRAINEES? COMPARISON OF RESULTS OF NATIVE ARTERIOVENOUS FISTULA FOR VASCULAR ACCESS MADE BY TRAINEES WITH THAT OF CONSULTANTS.

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Introduction: Native arteriovenous (AVF) is preferred mode of vascular access for hemodialysis. There are reports which suggest that the results of AVF are influenced by the experience of the operating surgeons.¹ This study evaluates the results of the AVF performed by the surgical trainees.

Materials & Methods: The prospectively maintained data of the patients during the period of 2012 to 2014 were included in the study. The primary success was taken as the AVF which could be used for three sessions of the dialysis. The patients were followed up at one year to evaluate the long term success. The statistical analysis was done using SPSS software.

Results: A total of 111 patients who underwent AVF included in the study. Out of these 47 (41%) were forearm fistulas (radiocephalic) and 64 (59%) were upper arm fistulas. Out of these 57 were operated by consultant and 54 were operated by trainee. The distribution of age, gender, diabetes and type of fistulas were similar in the two groups. The primary success was established in 91 AVF (81.9%). The failure to use the fistula for the dialysis made by trainee were 10/54 (18.5%) and 10/57 (17.5%) by consultants. There was no statistical difference in the result of AVF made by trainees and consultants (p=0.89, chi square test). At one year followup failure of AVF made by trainees and consultants were 20/54 and 17/57 respectively with no statistical difference (p= 0.68).

Conclusion: The AVF can be safely made by the trainees. It has the advantages of imparting training of surgeons in vascular surgery and reducing the waiting list of AVF in the resource limited setting without compromising the results.


Disclosure of Interest: None declared
VALIDATION OF A TISSUE BASED SIMULATOR FOR LAPAROSCOPIC AND ROBOTIC FOREGUT SURGERY

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Introduction: The safe adoption of laparoscopic and robotic foregut surgery must maximize relevant training prior to transference to the clinical setting. A significant gap presently exists between virtual reality and “box lap” simulators and live surgery. Live animal and cadaver use has significant downsides, including high expenses that make difficult their utilization in low-income countries. We have developed a high fidelity and economic real tissue simulator that allows for training in foregut operations.

Materials & Methods: Our foregut surgery model is based on porcine tissue blocks that include lungs, heart, aorta, esophagus, diaphragm, stomach, duodenum, liver and spleen. Tissue is preserved in an alcohol based solution that retains fresh tissue characteristics for several weeks. The tissue block is mounted in a human mannequin and perfused with artificial blood. The anterior abdominal wall is constructed so as to allow for laparoscopic and robotic surgical training. Five expert attending foregut surgeons performed laparoscopic and robotic Heller myotomy, Nissen fundoplication and sleeve gastrectomy on the model. After completing the procedures, face validity was measured by surgeon responses to a questionnaire defining the perceived relationship to real surgery, ranging from really unrealistic to highly realistic.

Results: The simulator was rated as highly realistic in terms of operative space, organs size and shape, and instrument usage for all three procedures in both laparoscopic and robotic surgery. In addition, all surgeons felt the model could significantly shorten the learning curve for performing these procedures.

Conclusion: The results of this study show that our model, based on animal tissue blocks, is economical, easy to use, and offers a very realistic representation of laparoscopic and robotic foregut operations, thus achieving a high level of face validity. This low-cost simulation model will allow training surgeons in laparoscopic and robotic foregut procedures in low-income countries.

Disclosure of Interest: None declared
ROLE OF MEDICAL STUDENTS IN RESEARCH: INFLUENCING FUTURE ACADEMIC SURGEONS
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Introduction: There has been a decline in the number of medical students choosing a career in academic surgery. Looking into the past, there have been medical students who began their journey into research earlier in their careers, and went on to eventually become surgeonscientists. The breakthroughs these students have achieved serve as positive examples for the medical students. The aim of this review is to determine the numerous factors that currently influence a medical student’s decision to undertaking surgery as a career. In order to identify and succeed in increasing student interest, this article looks into the benefits that student-conducted surgical research can have on the healthcare system as a whole.

Materials & Methods: A literature review was done to determine the various factors that may influence a medical student and junior doctor’s decision to become an academic clinician. In order to identify and succeed in increasing student interest in this field of medicine, this article looks into the benefits student-conducted surgical research can have on the healthcare system as a whole. Moreover, famous doctors who initiated research as medical students and the positive impact they’ve made on cardiac surgery today was evaluated. Additionally, current medical school curriculum and figures revealing the need for cardiac surgeons today were explored.

Results: It has been evident for years that less students are venturing into the field of surgery. In US alone 10% of surgical residency positions remain unfilled. Statistics reveal that cardiothoracic surgeons compose of a small group, less than 4000, in the United States. Of these, even fewer devote their time to research. History showcases many doctors who began research as medical students such as Sir Jay McLean. Looking into the medical school curriculum, it was noted that it was quite similar between different schools but the incorporation of research varied. Some medical schools have actively promoted research by setting up research fellowships for students to take part in. Mentoring has also shown to be beneficial in generating interest amongst students to engage in surgical research.

Conclusion: Early exposure to surgery and research has become evident in playing a crucial role in students’ career decisions. Certain changes must be implemented in medical school curriculum for surgical research to be introduced. Additionally, mentoring by established surgeons, creating fellowships and workshops have proven to aid in promoting academic surgery.


Disclosure of Interest: None declared
ATTITUDES, EXPERIENCE DURING TRAINING AND PROFESSIONAL EXPECTATIONS IN GENERATION Y SURGICAL RESIDENTS
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Introduction: Residency programs, especially in surgery, have been undergoing constant changes. Profile of residents in surgical fields is changing as well, since now residents are part of the Generation Y. This change in profile mandates a re-evaluation to adapt surgical residency programs. Five years ago we carried out a study evaluating attitudes, experience during training, and professional expectations of residents. This study aims to survey surgical residents to reassess their attitudes, experience during training, and professional expectations.

Materials & Methods: Surgical residents from different years of training and specialties were evaluated. We applied an adapted questionnaire where residents were asked to agree or disagree with affirmations, taking into account human, technical and professional dimensions, randomly oriented. Questions were grouped in: professional satisfaction, residency program satisfaction, expectations with future, financial expectations and correct attitude towards patients. Questionnaires were not identified and responses were kept anonymous. A single independent interviewer applied the questionnaires.

Results: We present preliminary results of 34 (to a goal of 50) residents (65% males, median age 27 years). 76% were junior residents and 24% were senior residents. According to the domains: (a) half of residents are satisfied professionally while the other half has a neutral position; (b) half of residents are satisfied with the residency program, however two thirds are unsatisfied with surgical volume, mentorship and didactic content; (c) expectations with future, two third of the residents are not confident to perform operations after residency, the majority of them believes an specialization is necessary; (d) most residents believe financial compensation will decrease with time, but concern with reimbursement is low; and (e) most residents are concerned about injuring patients, but only 65% are satisfied working with patients.

Conclusion: Current residents present less job satisfaction, more criticism of teaching techniques and greater concern about preparedness for future. Previous results showed high satisfaction with the specialty, but large financial concern and conflicting opinions about the future of the specialty. These changes matches the profile of Generation Y, who is more iconoclastic when compared to previous generations.

Disclosure of Interest: None declared
TUTORIAL ASSISTANCE FOR BOARD CERTIFICATION IN SURGERY: FREQUENCY, ASSOCIATED TIME AND COST

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Introduction: Tutorial assistance is related to extra time and cost and the hospitals’ financial compensation for this activity is under debate. We therefore aimed at quantifying the extra time and resulting cost required to train one surgical resident in the operating theatre for board certification in Switzerland as an example of a training curriculum involving several surgical subspecialties. Additionally, we intended to quantify the percentage of tutorial assistance.

Materials & Methods: We analyzed 200,700 operations carried out between 2008 and 2012. Median duration of procedure categories was calculated according to four different seniority levels. The extra time if the procedure was performed by residents, and resulting cost were analyzed. The percentage of procedures carried out by residents as compared to more experienced surgeons was assessed over time.

Results: On average, residents performed about a third of all operations including typical teaching procedures like appendectomies. An increase in duration and cost of well-defined procedures categories e.g. cholecystectomies was demonstrated if a resident performed the procedure. In less well-defined categories, residents seemed to perform less difficult procedures than senior consultants resulting in shorter durations of surgery.

Conclusion: The financial impact of tutorial assistance is important and solutions need to be found to compensate for this activity. The low percentage of procedures performed by trainees may make it difficult to fulfill requirements for board certification within a reasonable period of time. This should be addressed within the training curriculum.

Disclosure of Interest: None declared
94.08
INCORPORATION OF A GLOBAL SURGERY ROTATION INTO AN ACADEMIC GENERAL SURGERY RESIDENCY PROGRAM: IMPACT AND PERCEPTIONS
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Introduction: Global surgery, a rapidly growing field, is now recognized as a vital component of public health, given marked health disparities globally. Indeed, 18% of the worldwide burden of disease is surgical, and an estimated 1.4 million deaths could be avoided yearly by access to basic surgical care. To address the lack of surgical workforce in low/middle income countries (LMICs), and to foster interest and education among US-trained surgeons to engage in global surgery, our institution established a partnership with an academic hospital in Kenya. We incorporated a 4-week global surgery rotation into the residency program, integrated with the training of Kenyan residents. This study evaluates perceptions of participating residents, as well as the rotation’s impact on future global health involvement.

Materials & Methods: Surgery residents who matriculated into a single academic residency program from 2006-2016 were reviewed. Those who subsequently rotated in Kenya were interviewed upon their return to assess perceptions of that rotation. Finally, their subsequent involvement in global surgery was assessed in order to measure sustainability and further potential impact.

Results: A total of 88 residents matriculated into the program from 2006-2016. Of those, 17 spent 4 weeks on a surgery rotation in Kenya. Satisfaction with the experience was high, with 13/17 (76%) stating that they were highly satisfied. Many residents perceived their teaching skills to be improved (10/17, 59%). For 11/17 (65%), this was their first experience providing surgical care in an international setting. A total of 8/17 (47%) remain actively engaged in global surgery endeavors.

Conclusion: The field of global surgery is growing, with considerable interest among general surgery trainees. The addition of a formal rotation facilitates experience in surgical care in LMICs, broadens the training (and world-view) of US-based residents, and may contribute to surgical capacity building by training local residents. Perhaps most notable is a trend towards sustainability, as nearly half of those who rotated overseas during their residency have continued to be active in practice. We advocate for expansion of formal collaborative initiatives between US-based academic institutions and international academic institutions, as a pivotal strategy to address the global burden of surgical disease, expand the surgical workforce, and contribute to global surgery education and research.

Disclosure of Interest: None declared
GLOBAL LANDSCAPE OF ENDOCRINE SURGERY TRAINING PROGRAMMES AND IT’S IMPACT ON DEVELOPMENT OF THE SPECIALTY

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Introduction: Ample literature exists supporting the view that highly structured endocrine surgery fellowship programmes are associated with better knowledge and surgical skill, high standard of care, better patient and surgeon satisfaction and research activity. This study examines progressive development of endocrine surgery training programmes around the globe and it’s impact on development of this new surgical specialty.

Materials & Methods: Review of all currently existing endocrine surgery fellowship programmes, structured courses as reported in english literature, official websites of endocrine surgery professional bodies and University / Institution and personal communication were carried out. Data so achieved was compiled and analyzed.

Results: Globally 75 fellowship positions could be identified which is a significant growth from the year 2000 when only 23 positions were available. In the past six years, the number of positions have increased by 100% worldwide and 350% in India and number of endocrine surgeons by 47%. Total number of specialist endocrine surgeons have increased (n= 288 in 2000 and n= 1165 in 2016).

Introduction of a fellowship program is heralded by foundation of professional bodies in all eleven countries. In the year 2000 only five countries had professional body. Among developing countries, India has observed rapid growth trend in the development of this specialty. Since the foundation of first academic endocrine surgery department in the year 1989 to current eight academic departments and being the first country to launch a three year structured training course leading to a professional degree recognised by a regulatory body stand to this testimony. Positive impact of dedicated endocrine surgery programme on research activity can be seen in India as 440 original articles been published on endocrine surgery between 1975-2016, 57% of these in the last decade. Endocrine Surgeons contributed most (52%) compared to Surgical Oncologists, ENT surgeons and General Surgeons, in particular, most publications (86%) excluding thyroid subjects are authored by Endocrine Surgeons.

Conclusion: Establishment of professional endocrine surgery bodies by motivated endocrine surgeons and institution of training programmes in the form of fellowships/courses have influenced the present growth of endocrine surgery specialty. Further, this study also reveals that over three-quarters of globe do not have access to endocrine surgery training programme.

Disclosure of Interest: None declared
SURGICAL MANAGEMENT OF PHEOCHROMOCYTOMA AND PARAGANGLIOMA IN VON HIPPEL-LINDAU DISEASE: IS CORTICAL SPARING ADRENALECTOMY EFFECTIVE?

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Introduction: Von Hippel-Lindau (VHL) disease is a rare genetic disorder characterized by a variety of benign and malignant neoplasms including pheochromocytoma and paraganglioma (PPGL). Our aim was to review our institutional experience with the surgical management of PPGL in the setting of VHL with the goal of determining safety and efficacy of cortical sparing adrenalectomy.

Materials & Methods: Retrospective review of a prospectively maintained database aimed to identify all patients with VHL who were evaluated at our institution between 1996 - 2016. Clinical data from all patients with an identified PPGL were analyzed. Data points examined included clinical presentation, preoperative evaluation, surgical management, and outcomes.

Results: A total of 377 patients were identified with VHL (192 females) over the study period. Twenty three patients (6%) had an identifiable adrenal mass or paraganglioma, including 9 females, average age 31 years (range, 4-43). Symptoms of catecholamine excess were present in 43% of the 23 patients. Biochemical analysis revealed no abnormality in 30% of patients. Fifty seven percent of patients were diagnosed with PPGL incidentally on imaging done for other reasons. Twenty one patients had isolated pheochromocytoma (11 unilateral and 9 bilateral). Three patients had isolated paraganglioma without pheochromocytoma. Two patients underwent resection for both pheochromocytoma and paraganglioma. A single patient had synchronous metastatic disease on initial evaluation. One patient presented with metastatic pheochromocytoma after bilateral adrenalectomy elsewhere and underwent resection of metastatic disease. Laparoscopic resection was performed in 43%. There were no deaths, with an overall operative morbidity of 2 patients (9%). Cortical sparing adrenalectomy was performed in 35% of patients (5 patients with bilateral pheochromocytoma and 3 patients with unilateral pheochromocytoma). Seventy five percent of these patients did not require long term steroid replacement. No recurrence was identified after resection with an average follow up period 5.7 years (range, 0-17).

Conclusion: Nearly half of all VHL patients who develop pheochromocytoma will present with bilateral disease. Cortical sparing adrenalectomy may prevent permanent corticosteroid dependency and provides a safe and effective treatment for pheochromocytoma in patients with VHL.

Disclosure of Interest: None declared
A MULTI-INSTITUTIONAL COMPARISON OF ADRENAL VENOUS SAMPLING IN PATIENTS WITH PRIMARY HYPERALDOSTERONISM: CAUTION ADVISED IF SUCCESSFUL BILATERAL ADRENAL VEIN SAMPLING IS NOT ACHIEVED

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Introduction: In patients with primary aldosteronism (PA), adrenal venous sampling (AVS) is recommended to differentiate between unilateral (UNI) or bilateral (BIL) adrenal disease. AVS is dependent on technical accuracy, particularly cannulation of the right adrenal vein (RAV). A recent surgical series suggested that lateralization could be predicted, based on the ratio of aldosterone:cortisol levels (A:C) between the left adrenal vein (LAV) and inferior vena cava (IVC), with a 100% positive predictive value (PPV). This study aimed to confirm those findings, utilizing a larger, multi-institutional validation cohort of patients with both UNI and BIL PA.

Materials & Methods: A retrospective review was performed of patients with PA from 2 tertiary care institutions who underwent AVS between 2002–2016. Patients were excluded if the AVS failed cannulation of the RAV or if there was incomplete data/no follow-up. Laterality of adrenal disease was predicted by an A:C ratio of >3-4:1 between the dominant and non-dominant adrenal. UNI disease was confirmed by postoperative improvement or resolution of hypertension and/or biochemical normalization. Final categorization results were compared to the calculated LAV/IVC A:C ratios utilizing the published criteria (Lt >5.5; Rt <0.5).

Results: Of 223 patients, 125 (57%) had UNI and 98 (43%) had BIL disease on AVS. Median follow-up for patients who underwent adrenalectomy (n=115) was 5 months (interquartile range, 2-9). AVS and LAV/IVC findings were concordant for laterality of UNI (n=68) or presence of BIL (n=74) disease in only 142 (64%) patients. If only the LAV/IVC ratio was utilized for the 223 patients, 52 (23%) patients with UNI disease on AVS and who had biochemical cure or improved hypertension after surgery, may not have been offered surgery. In addition, 24 (11%) patients with BIL disease on AVS lateralized on the LAV/IVC ratios and may have been incorrectly offered surgical therapy (PPV 70%). Median (IQR) LAV/IVC ratios were 5.26 (3.52-7.73) for Lt-sided, 0.31 (0.16-0.86) for Rt-sided, and 2.84 (1.44-4.51) for BIL disease; based on these data, no LAV/IVC ratio accurately predicted laterality.

Conclusion: This multi-institutional validation study of PA patients with both UNI and BIL adrenal disease failed to demonstrate the same PPV as previously reported. No LAV/IVC A:C ratio was discriminatory enough to predict unilateral PA. Bilateral AVS remains the gold-standard for differentiating UNI vs. BIL disease in PA.

Disclosure of Interest: None declared
CHANGES IN KIDNEY FUNCTION AFTER ADRENALECTOMY IN PATIENTS WITH PRIMARY ALDOSTERONISM

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Introduction: Recent studies have reported that primary aldosteronism (PA) may lead to hyperfiltration in the glomerulus of the kidney and may therefore induce direct renal structural damage independent of the hypertension. However, primary aldosteronism often masks the actual kidney dysfunction caused by the hyperfiltration and a decline of eGFR (estimated glomerular filtration rate) after adrenalectomy is often observed in patients with PA.

Materials & Methods: A retrospective study was performed on 52 patients with PA (23M, 29F; age 26-75 years) who underwent unilateral adrenalectomy (ADX) from 9/2005 to 12/2015, in our institution. To determine kidney function changes after ADX, pre-and postoperative eGFR were reviewed.

Results: Plasma renin activity and aldosterone concentration were normalized after ADX in all subjects. The eGFR was decreased, on average, from 71.4 to 56.3 mL/min/1.73 m² postoperatively (P<0.05). In fourteen (26.9%) of 52 patients, eGFR had already decreased to below 60 mL/min/1.73 m² (<G2 of the eGFR classification of the KDIGO 2012) preoperatively and, in two, two and one out of the fourteen cases, eGFR classification remained at G3a, G3b and G4, respectively. In six and three of the remaining nine patients, the eGFR classification progressed to G3a and to G3b respectively, after ADX. Consequently, a total of 22 (42.3%) out of 52 patients had progression in their eGFR classification.

Conclusion: The present study suggests that in approximately 40% of the patients, their eGFR classification progressed due to unmasking of actual renal impairment after ADX. Renal function should be carefully monitored after ADX for patients with PA, especially in patients in whom eGFR is low even before ADX.

Disclosure of Interest: None declared
Introduction: Determination of outcome after adrenalectomy for primary aldosteronism (PA) is limited by lack of standardized definitions and clarity around how to report changes in biochemistry, blood pressure and medications. The Primary Aldosteronism Surgical Outcomes (PASO) group recently established new consensus definitions for biochemical and clinical cure of PA. We hypothesize that use of PASO criteria will better stratify patient outcomes after surgery compared to previous criteria.

Materials & Methods: Patients undergoing adrenalectomy for PA from 1996-2016 were studied as early (1996-2007, group 1) and late (2009-2016, group 2) groups. Clinical data were reviewed. Daily doses of antihypertensive medications were calculated using the WHO ATC/DDD Index. Definitions of cure using our traditional system for defining post-surgical outcomes were compared to those using PASO definitions.

Results: 276 patients with PA were identified. 201/214 (93.9%) underwent successful adrenal vein sampling (AVS). Of 117 patients undergoing adrenalectomy, 85 (59 males) had unilateral aldosterone excess based on AVS. In group 1 (35 patients), 30 patients had clinical follow-up. 6 had biochemical data. All 30 patients were documented to be cured based on decreased blood pressure, medication and/or normokalemia without need for supplementation. Using PASO criteria, only 3 patients had complete short-term follow-up data. None had long-term data. In group 2 (55 patients), there was a 52% increase in postoperative biochemical testing. By PASO criteria, of 33 patients with both biochemical and clinical follow-up data, only 2 achieved complete clinical and biochemical success. 28 had partial clinical or biochemical success, and 3 had missing partial or biochemical success. Had our traditional definition for cure been used, 31/33 would have been considered cured. In 6 patients with >1 postoperative aldosterone level, aldosterone rose a mean of 8.31 ± 3.25 ng/dL over a mean of 189 ± 191 days, with half of the group changing from complete biochemical success to partial or missing biochemical success during extended observation.

Conclusion: While short term postoperative biochemical and clinical follow-up of PA patients has improved, limited long-term follow-up confounds the assessment of durable response to surgery. PASO definitions of success allow for improved stratification of outcomes. Future PA studies should report findings based on PASO definitions.

Disclosure of Interest: None declared
ACTIVATING FGFR1 MUTATIONS IN SPORADIC PHEOCHROMOCYTMAS
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Introduction: Pheochromocytomas are neuroendocrine tumors of the adrenal glands. Up to 40% of the cases are caused by germline mutations in one of at least 12 susceptibility genes, making them the human neoplasms with the highest degree of heritability. Recurrent somatic alterations are found in about 50% of the more common sporadic tumors with NF1 being the most common mutated gene (20-25%). In many sporadic tumors, however, a genetic explanation is still lacking.

Materials & Methods: We investigated the genomic landscape of sporadic pheochromocytomas with whole-exome sequencing of 16 paired tumor and normal DNA samples.

Results: We discovered on average 33 non-silent somatic variants per tumor. One of the recurrently mutated genes was FGFR1, encoding the fibroblast growth factor receptor 1, which was recently revealed as an oncogene in paediatric brain tumors. Including a subsequent analysis of a larger cohort, activating FGFR1 mutations were detected in three of 80 sporadic pheochromocytomas (3.8%). Gene expression microarray profiling showed that these tumors clustered with NF1- RET- and HRAS-mutated pheochromocytomas, indicating activation of the MAPK and PI3K-AKT signal transduction pathways.

Conclusion: Besides RET, FGFR1 is only the second protooncogene found to be recurrently mutated in pheochromocytomas. The results advance our biological understanding of pheochromocytoma and suggest that somatic FGFR1 activation is an important event in a subset of sporadic pheochromocytomas.

Disclosure of Interest: None declared
MINIMALLY INVASIVE SURGERY IN PEDIATRIC PHEOCHROMOCYTOMAS AND RETROPERITONEAL PARAGANGLIOMAS: RESULTS IN 41 PATIENTS

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Introduction: Pheochromocytomas (Pheo) and paragangliomas (PG) are rare tumors in children accounting for about 1% of the pediatric hypertensive cases. While minimally invasive surgical techniques are well established in adult patients with Pheo, the experiences in children are extremely limited. To the best of our knowledge, we herewith present the largest study of young patients operated on chromaffine tumors by minimally invasive access.

Materials & Methods: In a setting of a prospective study (1/2001 - 9/2015), 41 consecutive children and adolescents (32 m, 9 f; age: 15.8 ± 3.0 y, range: 8.4-19.9 y) were operated on. Thirty-four patients suffered from inherited diseases (23 VHL, 6 SDHB, 3 SDHD, 1 MEN 2A, 1 MEN 2B). Twenty-three patients received alpha-receptor-blockade preoperatively. From the whole group, 24 patients had PHEO (18 unilateral, 6 bilateral), 12 presented retroperitoneal PG and 5 patients suffered from PHEO and PG. Of 29 children with PHEO, 17 had unilateral and 12 bilateral disease (6 synchronous, 6 metachronous). Altogether, 56 tumors (size: 3.2±2.2 cm) were removed (39 PHEO, 17 PG). All operations were performed by a minimally invasive access (30 retroperitoneoscopic, 9 laparoscopic, 1 combined, 1 extraperitoneal). In 34 PHEOs, 4 total and 30 partial adrenalectomies were performed.

Results: One patient died after introduction of anesthesia due to cardiac arrest. All other complications were minor. Conversion to open surgery was necessary in two cases with PGs. Operating time for unilateral PHEOs was 62±25 minutes, in bilateral cases 115±22 minutes, 169±133 minutes in PGs and 238±226 minutes in combined cases. Median blood loss was 20 ml (range: 0-500). No blood transfusion was applied in any case. Intraoperatively, systolic peak pressure was 171±47 mmHg with alpha-blockade and 184±43 mmHg without alpha-blockade (not significant). Median postoperative stay was 4 days. After a mean follow-up of 6.0 years, two patients with VHL presented recurrent disease of the ipsilateral adrenal gland (after 19 and 22 months). In the bilateral PHEO group all 12 patients are steroid independent postoperatively.

Conclusion: PHEOs and/or PGs in children and adolescents should preferably be removed by minimally invasive surgery. Partial adrenalectomy provides long term steroid independence in bilateral PHEOs and a low rate of ipsilateral recurrence. Alpha-receptor-blockade has no relevant influence on intraoperative systolic peak pressures.

Disclosure of Interest: None declared
HOW DO TREATMENT AND OUTCOMES OF ANAL ADENOCARCINOMA COMPARE TO MORE COMMON ANORECTAL CANCERS? THE RESULTS OF A NATIONAL COHORT STUDY.

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Introduction: Anal adenocarcinoma (AAC) is a rare disease treated with neoadjuvant chemoradiation followed by curative intent surgery and post-resection adjuvant systemic chemotherapy, which differs from the treatment of anal squamous cell carcinoma (ASC). Due to the rarity of AAC, data regarding outcomes are lacking. We sought to describe this rare disease and compare demographics and outcomes with ASC and rectal adenocarcinoma (RAC).

Materials & Methods: The United States' National Cancer Database (NCDB) was queried for all adult patients presenting with non-metastatic RAC, ASC, or AAC from 2003-2011. The primary outcome was overall survival. Intergroup comparisons, unadjusted Kaplan-Meier, and multivariable Cox proportional hazards modeling were used to (1) compare outcomes between RAC and AAC and (2) identify factors associated with survival within AAC.

Results: 129,153 patients were included (N=2,117 AAC, 19,427 ASC, 107,609 RAC see table). AAC patients were less likely than RAC patients to have surgery, and had a much higher incidence of positive margins than RAC patients (table). Regardless of treatment received, AAC patients had the shortest median overall survival, whereas patients with ASC had the longest. Multivariable analysis demonstrated persistently increased mortality hazard for AAC compared to RAC (HR 1.11, p=0.003). Independent tumor and treatment related predictors of increased mortality hazard included positive margins (HR 1.54), increased disease stage (Stage II HR 2.49; Stage III HR 4.41), non-surgical management (HR 1.48), and non-receipt of chemotherapy (HR 1.87) (all p<0.001).

<table>
<thead>
<tr>
<th>AAC</th>
<th>RAC</th>
<th>p</th>
<th>ASC</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 65+</td>
<td>50%</td>
<td>45%</td>
<td>&lt;0.001</td>
<td>25.4%</td>
</tr>
<tr>
<td>Female Gender</td>
<td>47.9%</td>
<td>45.0%</td>
<td>&lt;0.001</td>
<td>60.4%</td>
</tr>
<tr>
<td>African American</td>
<td>14.4%</td>
<td>8.5%</td>
<td>&lt;0.001</td>
<td>12.2%</td>
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<tr>
<td>High Comorbidity Score</td>
<td>4.9%</td>
<td>4.8%</td>
<td>0.085</td>
<td>7.1%</td>
</tr>
<tr>
<td>High Grade</td>
<td>75.8%</td>
<td>86.0%</td>
<td>&lt;0.001</td>
<td>22.4%</td>
</tr>
<tr>
<td>Positive Margins</td>
<td>16.3%</td>
<td>6.1%</td>
<td>&lt;0.001</td>
<td>39.1%</td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgery</td>
<td>72.5%</td>
<td>87.1%</td>
<td>&lt;0.001</td>
<td>44.3%</td>
</tr>
<tr>
<td>Radiation</td>
<td>58.2%</td>
<td>57.8%</td>
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<td>74.1%</td>
</tr>
<tr>
<td>Chemotherapy</td>
<td>54.7%</td>
<td>57.8%</td>
<td>0.002</td>
<td>96.1%</td>
</tr>
<tr>
<td>Median OS (months) [95% CI]</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>65.2 [61.1-70.4]</td>
<td>109.2 [107.4-110.3]</td>
<td>NR</td>
<td></td>
</tr>
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<td>86.4 [75.2-NR]</td>
<td>118.9 [117.0-121]</td>
<td>NR</td>
<td></td>
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<tr>
<td>Chemo/Radiation</td>
<td>36.3 [32.6-44.1]</td>
<td>39.4 [37.7-40.8]</td>
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<td></td>
</tr>
<tr>
<td>Surgery + Chemo/Radiation</td>
<td>74.3 [67.5-93.0]</td>
<td>117.4 [115.1-120.0]</td>
<td>NR</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: AAC is a tumor with prognosis worse than either RAC or ASC. Non-surgical management is independently associated with increased mortality hazard. Patients presenting with AAC should be seen by a surgical specialist and considered for multidisciplinary management.

Disclosure of Interest: None declared
**Introduction:** The neutrophil-to-lymphocyte ratio (NLR) is an indicator of systemic inflammation and may be a predictive factor in several types of malignancy including colorectal cancer. The aim of this study is to investigate the prognostic impact of NLR in patients with lower rectal cancer treated with preoperative chemoradiotherapy (CRT) followed by radical surgery.

**Materials & Methods:** 48 patients (~2012) with locally advanced lower rectal cancer who underwent preoperative CRT and curative resection were enrolled in this study. Blood samples were obtained before CRT. NLR was dichotomized using a cut-off value of 2.3 in pre-CRT NLR, 3.8 in post-CRT NLR, which was settled based on median value, and we investigated their relationship with clinical outcomes.

**Results:** Clinical response of preoperative CRT was grade 0; n=1, grade 1; n=31, grade 2; n=11, grade 3, n=5, respectively. fStage was 0: n=6, I: n=13, II; n=18, III; n=11, respectively. A high NLR pre-NACRT was not significantly associated with disease-free survival (3-yr DFS: High NLR79.3% vs. Low NLR70.4%: N.S) and overall survival (5-yr OS: High NLR82.3% vs. Low NLR84.8%: N.S) NLR pre-CRT tended to correlate with the RESIST of NACRT (N.S).

In contrast, a high NLR post-CRT was significantly associated with disease-free survival (3-yr DFS: High NLR62.6% vs. Low NLR82.6%; p<0.05) and overall survival (5-yr OS: High NLR60.1% vs. Low NLR95.7%; N.S). NLR post-CRT was tended to correlate with the Clinical response of CRT (p=0.08)

**Conclusion:** A high NLR after preoperative CRT was associated with poor prognosis in patients with rectal cancer.
Disclosure of Interest: None declared
INTRODUCTION: The “Associating Liver Partition and Portal vein Ligation for Staged hepatectomy” (ALPPS) procedure is associated with a wide range of reported morbidity and mortality rates, depending on patient, disease, technical and center characteristics. However, no reference values are available on outcomes after ALPPS. Studies have suggested poorer outcome in low volume centers, in patients > 67 years of age and diseases other than colorectal metastases.

MATERIALS & METHODS: All 859 patients registered in the International ALPPS registry were screened for eligibility. Benchmark values derived from 7 parameters including centers having performed at least 30 cases, patients younger than 67 years of age, and with colorectal metastasis. Data are presented as proportions and 95% confidence intervals (95% CI) or median and interquartile range (IQR). This study received approval by the scientific committee of the ALPPS registry.

RESULTS: 111 (13%) of all ALPPS patients met the inclusion criteria of “benchmark” cases, with a median age of 57 (47-61) years, 37 (33%) females. 97% (95-99) of benchmark patients reached stage 2, 66% (48-64) developed complications including 18% (12-23) grade >3a complication, and median comprehensive complication index (CCI) of 12, 6% (3-9) developed liver failure based on the ISGLS criteria on postoperative day 5 after ALPPS stage 2. The 90-day mortality rate was 5% (1-9) with an 87% overall 1-year survival rate. A subgroup analysis within the benchmark population revealed a zero percent 90-day mortality in patients below the age of 55 years.

CONCLUSION: This is the first study to establish benchmark values after ALPPS, serving as a reference for evaluating surgical performance among centers, indications, other surgical procedures and treatment strategies. ALPPS may be performed safely in selected patients with comparable morbidity rates to the best series of major HPB procedures.

DISCLOSURE OF INTEREST: None declared
**Introduction:** Partial pancreateo-duodenectomy (PD) is the standard treatment for tumors of the pancreatic head. Preservation of the pylorus has been widely accepted as standard procedure. Delayed gastric emptying (DGE) is a common complication causing impaired oral intake, prolonged hospital stay and postponed further treatment. Recently, pylorus resection with preservation of the stomach has been shown to reduce the incidence of DGE. The aim of this study was to investigate the effect of pylorus resection on postoperative DGE in PD.

**Materials & Methods:** Patients undergoing PD for any indication at the University of Heidelberg were randomized to either PD with pylorus preservation (PP) or PD with pylorus resection and complete stomach preservation (PR). The primary endpoint was DGE within 30 days according to the International Study Group of Pancreatic Surgery (ISGPS) definition. Secondary endpoints were operative time, blood loss, postoperative complications, mortality, length of hospital stay, and quality of life.

**Results:** 188 patients were recruited from February 2013 to June 2016. Ninety-five patients were randomized to PP and 93 patients to PR. There were no baseline imbalances between the groups. Overall, 53 of 188 patients (28.2%) developed a DGE (grade: A 15.5%; B 8.8%; C 3.3%). In the PP group 24 of 95 patients (25.3%) and in the PR group 29 of 93 patients (31.2%) developed a DGE (odds ratio 1.534, 95% confidence interval 0.788 to 2.987; p=0.2079). None of the secondary endpoints differed significantly between the groups. However, higher BMI was a significant risk factor for DGE severity.

**Conclusion:** In this randomized controlled trial, pylorus resection during PD did not impact the incidence or severity of DGE. The development of DGE seems to be multifactorial and may not be attributable to pyloric dysfunction alone. Pylorus preservation should therefore remain the standard of care in PD.

**Disclosure of Interest:** None declared
DEFINITION OF LOCAL RESECTION MARGINS IN PATIENTS WITH CHRONIC PANCREATITIS

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Introduction: Traditionally pacemaker of chronic pancreatitis (CP) are the head of the pancreas and Frey procedure are the standard approach in treatment of those patients. The aim of our investigation were to define stage and zone of pancreatic fibrosis as criteria to choose a type of surgical treatment of patient with CP.

Materials & Methods: The results of surgical treatment of 181 patients with CP complicated with pancreatic hypertension were submitted. According to TIGAR-O classification in 162 (90%) patients CP occur after attack of acute pancreatitis, and 172 (95%) patients were alcohol abused. According to Marcel – Rome classification calcification CP had 21 patients, obstructive – 34, inflammation form – 2, fibrosis – 12, cyst – 112.

In 37 patients during surgery procedure, we check a tissue resistant pressure (TRP) with Stryker tissue pressure monitor and pressure inside the main pancreatic duct. Histologically fibrosis define into four stages according to Stolt (1987).

In 37 patients Frey procedure were done in 6, Frey-Izbicki (patent of Ukraine 103273 from 25.09.13) in 26, pancreatoduodenal resection in 5.

Results: In all cases TRP was highest it the place of pancreatic duct stricture (>200 mm.Hg), as in other parts of the pancreas it decrease till 120 mm.Hg and lower. Ductal pressure was increased only in 22 (59,5%) patients. All patients histologically had 4 grade of fibrosis in the stricture place, and there was clear correlation with TRP and histological fibrosis grade. TRP was >200 mm.Hg in the head of the pancreas only in 30 (81,1%) patients. In 7 patients location of the stricture were in the place between the pancreatic head and neck and TRP in that place proved zone of severe fibrosis. Patient with calcification (head – 6, total – 8) and obstructive CP (increased of the main duct like a chine of lakes – 8 patients) had TRP as high as >200 mm.Hg in all part of the pancreas indicating the total pancreatic fibrosis.

Conclusion: The pacemaker of CP should be considered as zone of maximal fibrosis that not always located in the pancreatic head. Therefore, surgical procedure should not only decrease ductal pressure and make local resection of the head of the pancreas but wide excision of the pancreatic stricture with the opening of the secondary and tertiary ducts (Frey-Izbicki procedure). Moreover, excision should performed in zone of maximal TRP (>200 mm.Hg), but in place TRP lower 120 mm.Hg it is enough to do simple draining procedure.

Disclosure of Interest: None declared
STUDY ON RISK FACTORS FOR COMPLICATIONS OF IMMEDIATE BREAST RECONSTRUCTION AFTER MASTECTOMY

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Introduction: Nipple-sparing mastectomy (NSM) and skin-sparing mastectomy (SSM) followed by breast reconstruction are increasingly applied for surgical treatment of breast cancer. While nipple-areolar complex and skin necrosis is one of the serious complications. It remains to be determined which clinical and pathological factors are associated with these complications.

Materials & Methods: This study included 412 consecutive cases who underwent immediate breast reconstruction after breast cancer surgery from 2006 to 2016 in our institute. Clinical and pathological factors included in the analysis were histological type, ER, PR, HER2, Ki-67, nuclear grade, distance between skin or nipple and tumor (DST), pathological stage, T, N, primary systemic therapy (PST), type of surgery (NSM / SSM / total mastectomy), incision site (para-areola / inframammary / lateral / tumor site), surgeon, resection volume (RV). Logistic regression analysis was used for the assessment of risk factors for nipple-areolar or skin necrosis.

Results: Median age was 47 years. Histological types included invasive ductal carcinoma in 70.4%, invasive lobular carcinoma in 6.8%, non-invasive carcinoma in 26.2%. The positive rates of ER, PR, HER2 were 81.8%, 76.7%, 15.3%, respectively. Neoadjuvant chemotherapy and endocrine therapy were performed in 18.9% and 2.9%, respectively. Histological stages were stage 0 in 23.8%, 1 in 29.6%, 2A in 26.7%, and no residual cancer cells in 2.4%. Total mastectomy, NSM, SSM were applied in 46.8%, 29.9%, 23.3%, respectively. Immediate breast reconstruction included tissue expander (TE) in 91.7%, silicone breast implant in 1.9%, musculocutaneous flap in 6.3%. Resection of skin flap due to necrosis was needed in 5.8% of all cases. Resection of nipple-areolar complex was needed in 13.0% of the cases with NSM. Univariate analysis revealed that RV (p=0.0206), incision site (p<.0001), and DST (p<.0001) were risk factors for nipple-areolar complex necrosis. The RV (p=0.0316) was the only significant factor for resection of skin flap. In the multivariate analysis, RV (p=0.010), incision site (p<.0001), and DST (p=0.020) were independent risk factors for nipple-areolar complex necrosis while the RV (p=0.0161) was the only independent factor for skin flap necrosis.

Conclusion: The resection volume and incision site were associated with risk of necrosis of skin flap and nipple-areolar complex. We may suggest total mastectomy rather than NSM or SSM followed by breast reconstruction for patient of large breast size.


Disclosure of Interest: None declared
A RANDOMIZED TRIAL COMPARING QUALITY OF LIFE IN LADIES WITH EARLY BREAST CARCINOMA UNDERGOING ONCOPLASTY VERSUS CONVENTIONAL BREAST CONSERVATION SURGERY

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Introduction: The surgical treatment of breast cancer is accompanied by physical changes to the breast and body that may significantly, and often permanently, alter a woman’s perception of her physical, emotional, and sexual wholeness. The goal of optimizing the cosmetic and oncologic outcomes of BCS has been addressed in recent years by the emergence of the field of oncoplastic surgery, however, little is known about its effects on long-term quality-of-life in early-stage breast cancer patients. This is the first randomized trial in the world comparing oncoplasty with conventional BCS.

Materials & Methods: In a randomized controlled trial with 2x2 factorial design, 64 patients with palpable T1–T2 invasive breast cancers were recruited from 1st April 2015 to 31st October 2016. Eligible participants were randomly assigned to either 1cm or 2 cm margin of excision and then to volume displacement Oncoplasty or simple closure of the defect. At 6 months follow-up patients were asked to fill up the EORTC QLQC30 and BR23 QOL questionnaire.

Results:
The mean age of the study group, was 47.9 years (SD 12.3). After 6 months follow-up, the mean score of the QLQC 30 and BR23 QOL questionnaire showed no significant difference in the Oncoplasty group compared to conventional BCS group for both 1 and 2 cm margin of excision. Although the cosmetic satisfaction rate was significantly higher in the Oncoplasty group with similar rates of local recurrence.

<table>
<thead>
<tr>
<th>QLQC30 QUALITY OF LIFE SCORE</th>
<th>Closure</th>
<th>1 cm</th>
<th>2 cm</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Simple</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>p-value</td>
</tr>
<tr>
<td>Global health scale</td>
<td></td>
<td>63.4(18.9)</td>
<td>59.8(29.6)</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>Oncoplasty</td>
<td>60.7(25.3)</td>
<td>64.8(15.6)</td>
<td>0.59</td>
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<td></td>
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<td>0.73</td>
<td>0.57</td>
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</table>
**Conclusion:** Oncoplastic breast surgery is a cosmetically appealing alternative to conventional breast conservation surgery but the impact on quality of life is not significantly different.

**References:**

**Disclosure of Interest:** None declared
Introduction: The prognostic value of KLF4 in triple negative breast cancer (TNBC) was described. Here we report an analysis of KLF4 expression in peripheral blood circulating tumor cells (CTCs) from patients with TNBC, which provided evidence that KLF4 negatively regulates the metastasis and growth of TNBC.

Materials & Methods: We assessed the expression levels of KLF4 in 84 patients with TNBC by immunohistochemical staining and studied the patterns of metastasis/recurrence clinicopathologically. In addition, CTCs in the peripheral blood of TNBC patients were identified and compared with primary lesions in terms of KLF4 expression. Moreover, the expression of KLF4 was inhibited by transfecting cultured TNBC cells (MDA-MB231) with the small interfering RNA (siRNA) of KLF4 to analyze the effects of KLF4 on cell proliferation and epithelial-mesenchymal transition (EMT) -like changes.

Results: In the 84 patients with TNBC, higher KLF4 expression was associated with significantly better overall survival (OS) and disease-free survival (DFS). An analysis of KLF4 expression in CTCs of the TNBC patients showed that KLF4 expression was lower in CTCs than in cancer cells in primary lesions. TNBC cells (MDA-MB231) with inhibited KLF4 expression exhibited a greater ability to growth than controls. These cells also underwent EMT-like changes with reduced expression of epithelial factors such as E-cadherin. Treating these TNBC cells with eribulin resulted a reduction of the expression of stem cell/EMT markers.

Conclusion: TNBC patients with reduced KLF4 expression had poor outcomes. The results of our experiments suggest the expression of KLF4 is one of the important factor that inhibit the EMT and growth of TNBC.


Disclosure of Interest: None declared
Introduction: Nipple sparing mastectomy (NSM) has been gathering increased recognition as an alternative to more traditional mastectomy approaches. However, the oncological safety of these procedures is still to be elucidated. The purpose of this study is to investigate technical feasibility of NSM without increasing the risk of local recurrence and complications.

Materials & Methods: One hundred twenty-four stage 0-III breast cancer patients received NSM between January 2001 and April 2013 at Keio University Hospital. Eligible patients were without skin involvement and not indicated for breast-conserving therapy by preoperative imaging. The pathological analysis of the subareolar tissue was performed and nipple-areolar-complex (NAC) would be removed if positive. Five hundred twenty-eight breast cancer patients who had mastectomy during the same period were used as a control group.

Results: The median age was 46.0 years (range 29–68). The mean clinical tumor size was 2.8±1.2cm and the mean distance between the nipple and the tumor was 2.5±1.7cm. One hundred fourteen patients (91.9%) had clinically node-negative status. NAC involvement was observed in 4 patients (3.2%). Three patients (2.4%) presented with epidermal necrosis. After a median follow-up period of 37.3 months (range 1-136), there were 7 recurrences (5.6%), including 4 local recurrences (3.2%) and 3 distant metastases (2.4%). There was no statistically significant difference in local recurrence between the patients with NSM and mastectomy (3.2% vs. 2.8%; p=0.805). Immediate and delayed reconstruction was performed in 2 cases (1.6%) and 52 cases (41.9%), respectively.

Conclusion: Our results suggested NSM may provide oncologic safety for strongly motivated and carefully selected patients.

Disclosure of Interest: None declared
**Nipple Sparing Mastectomy in Breast Cancer: Extended Indications. The Middle East Institute of Health Experience**


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**Introduction:** Nipple-sparing mastectomy (NSM) is offered as a surgical treatment for breast cancer. It preserves the skin overlying the breast and the nipple areola complex. This study reviews our experience with NSM, performed on early and advanced breast cancer patients.

**Materials & Methods:** Retrospective study from October 2004 till September 2016 evaluates the outcomes of 170 patients who underwent 223 NSM with immediate breast reconstruction performed for a favorable cosmetic result. Sentinel lymph node biopsy was performed for 151 patients. The cosmetic and oncologic outcomes are presented.

**Results:** 170 patients in our study group had a total of 223 NSM; 53 patients with bilateral and 117 with unilateral procedures. 81 patients had invasive breast cancer (locally advanced: 27); 60 had DCIS; 11 patients had a history of breast cancer (invasive: 6; DCIS: 5) and presented with diffuse microcalcifications (5) and atypical ductal hyperplasia (5), typical ductal hyperplasia (1); 8 patients had a history of previous breast cancer treated with mastectomy; 10 patients were BRCA-1 positive. Sentinel lymph node was positive in 34 patients: 16/54 patients with invasive cancer, 2/60 patients with DCIS and in 16/27 patients with locally advanced breast cancer (LABC) post neoadjuvant chemotherapy. They received axillary lymph node dissection. 50 patients received adjuvant chemotherapy, radiation or both for their first breast cancer 2 to 7 years before their NSM (radiation to ipsilateral or contralateral breast: 10). 15 patients received adjuvant radiation. 36 patients received adjuvant chemotherapy. The average tumor size: invasive cancer: 1.8 ± 0.6 cm; locally advanced breast cancer: 4.5 cm ± 1.7 cm. The age range was 22-74 years. Local recurrence occurred in 2 patients; 9 patients had distant metastases. 31 patients had complications: wound infection and or partial nipple necrosis that recovered on conservative therapy: 14; nipple-areola complex necrosis with removal of the prosthesis: 4; contracture of the capsule: 4. Three patients had a positive retroareolar biopsy and NAC was excised. No patient was lost to follow-up. Immediate implant reconstruction: 209 had immediate implant reconstruction; 14 patients had early-delayed reconstruction.

**Conclusion:** NSM can be offered to patients with low risk or advanced breast cancer, oncologically safe and offers a superior cosmetic result with immediate reconstruction. In advanced cases, the complication rates are comparable to those reported for patients undergoing mastectomy followed by radiation.

**Disclosure of Interest:** None declared
VIDEO-ASSISTED THYROIDECTOMY FOR PAPILLARY THYROID CARCINOMA: ONCOLOGIC OUTCOME IN PATIENTS WITH FOLLOW-UP ≥ 10 YEARS
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Introduction: Video-assisted thyroidectomy (VAT) emerged as an effective treatment for selected patients with papillary thyroid carcinoma (PTC) at the short term evaluation. No data concerning long term oncologic outcome are currently available. We evaluated oncologic outcome of patients who underwent VAT for PTC with a follow-up ≥10 years.

Materials & Methods: The medical records of all the patients who successfully underwent VAT for PTC were reviewed. The patients with a minimum of 120-months follow-up data available were included. Seventy-eight patients underwent simultaneous central neck node removal. Postoperative complications included 4 transient recurrent palsies, 76 transient and 1 permanent hypocalcemia. Final histology showed 206pT1, 21pT2 and 30pT3. Central neck node metastases were found in 18 patients. One hundred and four low-risk patients (100pT1, 3pT2 and 1micro-pT3) were followed with ultrasound and serum thyroglobulin (sTg) on levothyroxine (LT4). At a mean follow up of 136.6±17.5 months (range:120-183), mean sTg on LT4 was 0.1±0.2 ng/ml. None of them showed recurrence at ultrasound evaluation. The remaining 153 patients (106pT1, 18pT2, 29pT3-18 pN1a) underwent nuclear medicine evaluation. Among these 153, 62 did not underwent radio-iodine ablation (RAI) because of sTg off LT4<1 ng/ml and radiiodine uptake (RAIU) <2% at diagnostic whole body scan. At a mean follow up of 150.0±16.1 months (range:121-197), mean sTg on LT4 was 0.1±0.1 ng/ml. None of them showed recurrence at ultrasound evaluation. The remaining 91 patients underwent RAI. Mean pre-RAI sTg off-LT4 was 8.3±4.6 ng/ml and mean RAIU was 2.8±4.2%. Among these 91, 3 pN1a patients developed a lateral neck node recurrence, respectively 2, 3 and 11 years after initial surgery. No other recurrence was observed at a mean follow up of 150.0±16.1 months (range:121-197). At the latest follow up mean sTg on LT4 in this subgroup of patients was 0.1±0.2 ng/ml.

Conclusion: In patients who underwent VAT for PTC, at a follow up longer than 10 years, recurrence rate observed is not increased with respect to those reported after conventional surgery. These results further confirm that VAT is a valid option for selected patients with PTC.

Disclosure of Interest: None declared
PAPILLARY THYROID CARCINOMA (PTC) IN CHILDREN AND ADULTS: COMPARISON OF INITIAL PRESENTATION AND LONG-TERM POSTOPERATIVE OUTCOME IN 4432 PATIENTS CONSERVATIVELY TREATED AT MAYO CLINIC DURING 8 DECADES

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Introduction: The 2015 ATA Guidelines for PTC management in children1 and adults2 recommend a personalized approach, where primary tumor and regional metastases (RM) are completely resected at first surgery and remnant ablation (RA) is restricted to high-risk patients, policies that our group has endorsed for four decades. To assess our therapeutic efficacy with a conservative approach, we studied 190 children and 4,242 adults treated for PTC during eight decades.

Materials & Methods: The children were aged 3-18 yr (mean 14); the adults 19-95 yr (mean 48). Follow-up ranged to 69 yr; mean for children and adults, 26.6 and 15.0 yr. Bilateral lobar resection was performed in 86% of children, 88% of adults and followed by RA in 30% of children, 29% of adults; nodes were excised in 86% of children, 66% of adults. Recurrence and cause-specific mortality (CSM) details were taken from a computerized database.

Results: Children, when compared to adults, had larger primary tumors (2.6 vs 1.9 cm) which more often were DNA diploid (88 vs 77%), grossly invasive (17 vs 9%) and incompletely resected (6 vs 3%). At presentation, children, when compared to adults, had more RM (75 vs 40%) and distant metastases, DM (4.7 vs 1.9%). MACIS scores <6 (low-risk) in children and adults were 91 and 84%. After complete resection, 30-yr recurrence rates at local, regional, and distant sites were no different (p=NS) in children (3, 16, and 5%) than adults (5, 16 and 5%). 30-yr CSM rates were 1% in children and 5% in adults (p=0.01). 10-yr CSM rates for children and adults with DM at diagnosis were 0% and 63% (p<0.001). Comparing 1936-75 (Cohort A) with 1976-2015 (Cohort B), 30-yr CSM rates in Cohort B, compared to Cohort A, were similar (p=0.67) in children (0 vs 1.5%) and in adults (0.7 vs 1.5%; p=0.08). MACIS <6 children and adults in Cohort B, compared to Cohort A, had significantly higher recurrence at local and regional, but not at distant sites. MACIS 6+ adults in Cohort B, compared to Cohort A, had lower 30-yr CSM rates (30 vs 47%; p<0.001), which were not associated with decreased recurrence at any site.

Conclusion: Children treated since 1976, despite presenting with more extensive PTC when compared to adults, have postoperative recurrences at similar frequency, typically "live with" DM and die of PTC less often. Both children and adults recently treated for MACIS<6 PTC have a <1% chance at 30 years of CSM; adults with higher MACIS scores (6 or more) have a 30-yr CSM rate of 30%.


Disclosure of Interest: None declared
OVERALL SURVIVAL OF PAPILLARY THYROID CARCINOMA PATIENTS: A LONG-TERM FOLLOW-UP, SINGLE-INSTITUTION STUDY OF 5,897 PATIENTS

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Introduction: Papillary thyroid carcinoma (PTC) generally shows an excellent prognosis except for cases with aggressive backgrounds or clinicopathological features. Very few studies have examined the overall survival (OS) of PTC patients. Here we investigated the OS of a large number of PTC patients.

Materials & Methods: We enrolled 5,897 patients who underwent an initial surgery between 1987 and 2005: 658 males, 5,339 females aged 7–89 yrs (median 51 yrs). The postoperative follow-up periods ranged from 4 to 357 months (median: 177 mos). We performed a multivariate analysis for OS analyzing gender, patient age (≥ 55 yrs), distant metastasis at diagnosis (M1), significant extrathyroid extension, tumor size (T; cutoffs 2 and 4 cm), large node metastasis (n≥3 cm), and extranodal tumor extension (LN-Ex).

Results: To date, 387 patients (6.6%) died from various causes; 117 of them died of PTC. The 10-, 15-, and 20-year OS rates were 97.3%, 95.0% and 90.0%, respectively. The 10-, 15-, and 20-year cause-specific survival (CSS) rates were 99.3%, 98.8%, and 96.8%, respectively. In the multivariate analysis for the entire series, age ≥55 yrs most strongly affected the patients’ OS (hazard ratio [HR], 8.33), followed by M1 (6.06). In patients aged ≥55 yrs, M1 was the most important prognostic factor for OS, and the HR (8.00) was much higher than the HRs of other factors (range 1.17–2.79). In patients aged <55 yrs, the HR of M1 for OS was smaller at 4.24 than that in the patients aged ≥55 yrs, and it was similar to the HRs of n≥3 cm (4.02) and LN-Ex (2.87).

Conclusion: In our entire series of PTC patients, advanced age was the most important prognostic factor for their OS. M1 significantly affected the survival duration in the older patients, and how to control distant metastasis in old patients is a significant future task. In the young patients, the prognostic value of M1 for OS was not extraordinarily high compared with that of other factors.

Disclosure of Interest: None declared
SYNERGISTIC ANTI-CANCER ACTIVITY OF TYROSINE KINASE INHIBITORS AND PACLITAXEL WITH RADIATION ON ANAPLASTIC THYROID CANCER IN VITRO AND IN VIVO
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Introduction: Anaplastic thyroid carcinoma (ATC) although rare is the most deadly form of thyroid cancer. The fatality rate for ATC is high-pitched, the survival rate at 1 year after diagnosis is <20%. The goal of this study was to investigate the anti-tumor activities of paclitaxel with radiation and in combination with tyrosine kinase inhibitors(TKI) in anaplastic thyroid cancer cells in vitro and in vivo and to explore its effects on apoptotic cell death pathways.

Materials & Methods: Three ATC cell lines were exposed to TKI in the presence or absence of paclitaxel with radiation and cell viability was determined by MTT assay. Effects of combined treatment on cell cycle and intracellular signaling pathways were assessed by flow cytometry and western blot analysis. The ATC cell lines xenograft model was used to examine the anti-tumor activity in vivo.

Results: Our data showed that paclitaxel with radiation and TKIs synergistically decreased cell viability in ATC cells, and also significantly increased apoptotic cell death in these cells, as proved by the cleavage of caspase-3 and DNA fragmentation. Paclitaxel and TKI with radiation combination was reduced anti-apoptotic factor in ATC. Thus, TKI that targeted the vascular endothelial growth factor receptor family (VEGFR-2 and -3) and platelet-derived growth factor receptor family (PDGFR-beta and Kit), which play key roles in tumor progression and angiogenesis. Combination therapy with paclitaxel and TKI with radiation significantly decreased vessel density, and most significantly reduced tumor volume and increased survival in ATC xenografts.

Conclusion: These results propose that paclitaxel and TKI with radiation has significant anti-cancer activity in preclinical models, potentially suggesting a new clinical approach for patients of advanced thyroid cancer type.

Disclosure of Interest: None declared
Introduction: The extent of thyroid resection in multinodular nontoxic goiter (MNG) remains controversial. The aim of the present study was to validate initial results of various thyroid resection modes at 5-year follow-up published in World J Surg 2010;34:1203-13 [1] in a 10-year follow-up, with special emphasis put on the recurrence rate and need for revision thyroid surgery balanced against the cumulative risk of postoperative and post-revision morbidity.

Materials & Methods: From 01/2000 through 12/2003, 600 consenting patients with MNG qualified for thyroidectomy at our institution were randomized to three groups equal in size, n = 200 in each (TT – total thyroidectomy; DO – Dunhill operation; BST – bilateral subtotal thyroidectomy). All patients were subjected to ultrasonographic, cytological, and biochemical follow-up at least for 60 months postoperatively. However, for all consenting patients the follow-up period was extended till 120 months postoperatively. The primary outcome measure was prevalence of recurrent goiter and need for revision thyroid surgery. The secondary outcome measure was the cumulative postoperative and post-revision morbidity rate (hypoparathyroidism and recurrent laryngeal nerve injury).

Results: At 10-year 23 (11.5%) TT vs. 25 (12.5%) DO vs. 26 (13.0%) BST patient were lost to follow-up. Recurrent goiter was found at 10-year in 1 (0.56%) TT vs. 15 (8.57%) DO vs. 39 (22.41%) BST (p < 0.001 for TT versus DO or BST), and revision thyroidectomy was necessary in 1 (0.56%) TT vs. 5 (2.85%) DO vs. 14 (8.04%) BST patients (p < 0.001 for TT vs. BST). Cumulative permanent postoperative hypoparathyroidism after initial surgery and revision thyroidectomy was present in 1 (0.56%) TT vs. 2 (1.14%) DO vs. 5 (2.87%) BST patients (not significant differences), whereas the cumulative permanent recurrent laryngeal nerve injury rate was found in 4 (2.25%) TT vs. 5 (2.85%) DO vs. 5 (2.87%) BST patients (not significant differences). Primary outcomes were two-fold inferior at 10-year when compared to 5-year results for DO and BST, but not for TT.

Conclusion: Total thyroidectomy can be regarded as the procedure of choice for patients with MNG as it is beneficial in terms of a significantly lower incidence of goiter recurrence and less frequent need for revision thyroidectomy than other more limited thyroid resections, whereas the cumulative risk of permanent hypoparathyroidism and cumulative risk of recurrent laryngeal nerve palsy is not increased.


Disclosure of Interest: None declared
RECOVERY OF VOICE AFTER RECONSTRUCTION OF THE RECURRENT LARYNGEAL NERVE AND ADJUVANT NIMODIPINE

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Introduction: Transection injury to the recurrent laryngeal nerve (RLN) has in the past been associated with permanent vocal fold palsy, and treatment options have been limited to voice therapy or local treatment of vocal folds. Immediate microsurgical repair by anastomosis with ansa cervicalis or the proximal RLN is reported to induce a better function, but without movement of the vocal fold. Nimodine improves functional recovery after experimental peripheral motor nerve injury and also after cranial nerve injury in patients. We previously reported a case where microsurgical repair of the RLN and postoperative treatment with nimodipine resulted in a normalized voice and ab/adduction of the vocal fold.

Materials & Methods: During the period 2002-2016, 28 patients were admitted with intraoperative complete unilateral injury of the RLN. Ethical permit was obtained, and all patients gave their permission to contribute their data. Patients underwent surgical repair with epineural sutures of the recurrent laryngeal nerve either in the same séance as the injury or in a re-operation 1-4 days later. After nerve repair, patients received nimodipine for 2-3 months. Flexible laryngoscopy was performed the first postoperative day and then repeatedly up to 14 months postoperatively. Patients also completed the Voice Handicap Index (VHI) and their maximum phonation time (MPT) was recorded during the follow-up.

Results: All patients recovered well after surgery, and nimodipine was well tolerated with no drop outs. During the follow-up, VHI and phonation time normalized indicating a near complete recovery from unilateral RLN injury. Several patients also showed an emerging small ab/adduction of the vocal fold on the repaired side on flexible laryngoscopy several months after the repair.

Conclusion: In this cohort study, we report the results of the first 28 consecutive cases at our center subjected to reconstruction of the RLN including nimodipine treatment. This group of patients demonstrated a long-term (>3 years) recovery describing a normalized voice. Some patients, but not all, also presented a detectable ab/adduction of the vocal fold on the repaired side. Even though precise comparison to other treatment options is difficult due to heterogenic populations, the outcome of the current strategy is encouraging and should be considered after iatrogenic RLN transection injuries.

Disclosure of Interest: None declared
Management of recurrent pilonidal sinus with gluteal artery perforator based flap

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Introduction: The perforator-based flaps in the sacral and ischial region are designed according to the localization of perforators that penetrate the gluteus maximus muscle, reach the intra-fascial and supra-fascial planes with the overlying skin forming a rich vascular plexus. The majority of recurrent pilonidal sinuses are treated with simple surgical procedures, with variable recurrence rates.

Materials & Methods: Material & Methods:
Between 2011 and 2015, 10 cases of recurrent Pilonidal sinus were reconstructed with Gluteal Artery perforator based flaps after wide local excision. Care was taken to excise all the sinus tracts till the presacral fascia. The flaps were designed to avoid natal cleft suture line. The size of the flaps ranged from 8x8 cm to 15x10 cm. Majority of the patients were young males.

Results: All cases were followed up for a minimum of six months, with no recurrence. 9 flaps healed primarily while one had distal tip necrosis for which flap advancement and re-suturing was done six weeks after primary surgery. All donor sites were closed primarily.

Conclusion: Recurrent cases require wide local excision of all the sinus tracts, till the presacral fascia leading to large pre-sacral soft tissue defects. This flap has a robust and consistent blood supply, provides adequate bulk to close the soft tissue defects and prevents an intra natal suture line. In the light of this, they can be considered among the first surgical choices to re-surface soft tissue defects of the sacral region specially due to recurrent pilonidal sinuses.

Disclosure of Interest: None declared.
Introduction: Preoperative patients-reported outcomes (PRO) have shown to be a reliable tool to assess patient’s quality of life and symptoms to predict postoperative outcomes. Sarcopenia is another tool that is suggested to be a prognostic risk indicator of postoperative outcomes. We hypothesized that patients with preoperative sarcopenia will have deficits in preoperative PRO and quality of life (QOL). We wanted to see if patient's body composition assessed using CT scan would correlate with preoperative PRO.

Materials & Methods: A retrospective review of our research database from REDcap was initiated and patients with preoperative PROs and a preoperative CT scan within 1 year from the date of the operation have been identified. We abstracted demographics, anthropometric measures including BMI and height, preoperative QOL, pain and fatigue scores, and preoperative CT scans. CT scans were analyzed using MatLab software that was developed at our institution to evaluate body composition. Skeletal muscle index (SMI) was calculated using total muscle area/height². Linear correlation and ANOVA were used for analysis with α=0.05.

Results: We identified 189 patients with preoperative PRO and CT imaging, 95 men and 94 women, with a mean age of 58±14 years, BMI 28.9±6 kg/m² and height 170±9 cm. Mean PRO scores were 7±2 for QOL, 3±3 for pain and 5±3 for fatigue. Mean muscle area was 137±35 cm² for total abdominal muscles and 73±19 cm² for paraspinal muscles, and their mean attenuation were 35.4 and 39.1 Hounsfield units (HU), respectively. Mean SMI was 46.84cm²/m². For all patients, preoperative pain scores had a strong correlation with subcutaneous fat area (p-value 0.0096). Baseline QOL score significantly correlated with the mean HU of total abdominal (p-values 0.0083), this correlation was also significant in the obese patients (p-value <0.01). SMI did not correlate significantly with any of the PRO measures overall; however it showed a clinically significant correlation with pain scores in obese patients. Patients with BMI <25, showed that preoperative fatigue and pain scores correlate with intramuscular fat content and the mean HU of total abdominal, respectively. Paraspinal muscle area correlated with preoperative pain score in overweight and obese patients (p-value <0.01).

Conclusion: Patient-reported outcomes showed a relationship with some of the body composition measures using CT scan. The mean muscles attenuation had a strong correlation with PRO, while sarcopenia defined by SMI failed to show it.

Disclosure of Interest: None declared
POST ERCP INDUCED PANCREATITIS AND THE ROLE OF OCTREOTIDE IN ITS PREVENTION, A RANDOMIZED CONTROL STUDY

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Introduction: Endoscopic Retrograde Cholangio-Pancreatography (ERCP) has changed the management protocols of hepato-biliary and pancreatic diseases. Now the focus is on continued refinements of techniques to make ERCP safer and more effective.1,2 Pancreatitis is the most common complication with incidence of 3-5%.2,3 Hence, the minimization of both the incidence and severity of PEP is paramount. Even with the safe techniques and experienced endoscopist the incidence can still be not ruled out hence bringing the need for pharmacologic measures. Our is a study to evaluate if doses of octreotide can prevent the occurrence of PEP in a tertiary care centre of a developing country like INDIA.

Materials & Methods: Our aim was to find out the incidence and role of octreotide in preventing post-ERCP pancreatitis. We conducted a Prospective, single center, open labeled, a randomized placebo-controlled trial. The study was conducted over 8 months with 350 patients. 150 patients were excluded based on criteria. The rest 200 patients were randomized into group A 100 given octreotide doses and group B 100 patients given 0.9 NS. all the patients were assessed as per the modified ATLANTA classification of acute pancreatitis post procedure4

Results: The various definite and likely risk factors4 including various surgical techniques and baseline characteristics of patient were equally matched. 14 patients had complication of pancreatitis post-ERCP with 4 patients Group A and 10 in group B. A lower incidence in Group A patients not statistically significant was seen. In severity assessment all the patients were mild pancreatitis in group A whereas 5 mild, 3 moderate and 2 severe pancreatitis reported in group B. No allergic reactions reported. NNT value of our study was 16.7

Conclusion: Though there was a decrease in the incidence of PEP in the group receiving octreotide the same was not statistically significant. With NNT value of 14.9 (relatively high) as calculated in our study, octreotide cannot be given universally in all the patients undergoing ERCP. The same needs to be used in cases of high risk patients. As on reviewing previous literature, there is still a need for further RCTs and subsequent Meta-analysis with greater homogenous study populations and to find out dosage and schedules to administer in establishing its role in the prevention of Post-ERCP pancreatitis.


Disclosure of Interest: None declared
LAPAROSCOPIC TREATMENT OF CELIAC AXIS COMPRESSION SYNDROME – DUNBAR SYNDROME

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Introduction: Dunbar syndrome or celiac artery compression syndrome was described for the first time by Harjola in 1963. It’s an infrequent clinical condition, with few criteria for diagnosis and with obscure pathophysiology. It is usually associated with an extrinsic compression upon the celiac axis near its takeoff from the aorta by fibrous diaphragmatic bands or sympathetic neural fibers. This syndrome is as uncommon cause for upper abdominal angina. The classic symptoms include vomiting associated to post prandial pain, weight loss and souffle in the epigastric region. Diagnosis is made by abdominal angiotomography, arteriography and magnetic resonance imaging. Surgical ligament release is indicated in case of severe compression of the celiac trunk or in patients refractory to clinical treatment.

Materials & Methods: Female patient, 74 years old, vomiting with abdominal postprandial pain refractory to clinical treatment. At examination, her abdomen was a distended, sore to palpation on epigastric region. She was submitted to an upper digestive endoscopy with no changes. The patient was then submitted to a MRI with showed a pronounced stenosis of the celiac trunk, due to compression by the arcuate ligament of the diaphragm. The patient was then submitted to laparoscopic surgery. Intraoperatively, the clear extrinsic nature of compression of the celiac trunk by the diaphragmatic structures was well assessed visually and compressing pathologic muscular fibers were divided; the ligament was excised with resection of the neural and fibrotic tissues surrounding the aortic and visceral vessels. Patient improved with no intercurrence and was discharged on the second postoperative day.

Image:
Conclusion: Laparoscopic treatment of celiac axis compression syndrome is technically feasible and a useful alternative, in centers with experience in major laparoscopic surgery. Surgical treatment should be considered for patients with severe stenosis of the celiac trunk and with symptomatology refractory to clinical treatment. Disclosure of Interest: None declared
TWIDDLER’S SYNDROME: WELL-KNOWN IN PACEMAKERS, BUT NEW IN PORT SYSTEMS

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Introduction: The aim of this study was to assess the type and clinical relevance of complications leading to explantation of totally implantable venous access ports (TIVAPs). Closer focus was directed on the group of patients with mechanical malfunction of their devices. A substantial proportion of patients presented with a complication so far only described in pacemaker implantation: the Twiddler’s syndrome [1], where the displaced catheter is found winding around the chamber.

Materials & Methods: We screened the records of 523 consecutive patients who had undergone explantation of their TIVAPs between January 2013 and September 2016. The data of 468 eligible patients were analyzed descriptively.

Results: Within a period of 45 months 468 TIVAPs were explanted. One hundred seventy-seven (177) patients had their port explanted after the end of chemotherapy, while in 262 patients it was removed due to complications: in 196 (41.88%) patients because of infections, in 79 (16.84%) patients because of mechanical malfunction and in 17 (3.63%) patients due to thrombosis. The most common mechanical complication was catheter dislodgement or Twiddler’s-like syndrome, diagnosed in 20 (4.27%) patients. This was proved by chest radiographs.

Conclusion: In this series, mechanical malfunction was the second most common reason for explantation of the port. Twiddler’s-like syndrome was a common complication, interestingly, it has so far only described for pacemaker electrodes and not for port catheters. The interruption of ongoing chemotherapy or parenteral nutrition induces extra costs for the health system. Therefore, factors leading to and precautions against Twiddler’s syndrome require further assessment.


Disclosure of Interest: None declared
Introduction: Aim of the study was to analyze LRINEC score between patients with non-complicated and necrotizing Erysipelas as well as LRINEC score between streptococcal and non-streptococcal infection.

Materials & Methods: Into the prospective trial during one year period, patients with a diagnosis of the Erysipelas on the hospitalisation day, were enrolled. All enrolled patients were divided into two groups. Group 1 – noncomplicated Erysipelas. Patients were treated only conservatively with a complete recovery. Group 2 - necrotizing Erysipelas. Additionally to conservative treatment, also surgical debridement was performed. In both groups LRINEC score was documented on the hospitalization day (Day 0) and on the third day after starting of conservative treatment (Day 3). According to LRINEC score, all patients in both groups were arranged into High (>8), Intermediate (6-7) and Low (<6) risk score groups for necrotizing soft tissue infection.

Results: Into the trial, 94 patients were enrolled. Streptococcal Erysipelas was discovered in 76,71% of the patients and non-streptococcal in 23,29% respectively. 84 patients were enrolled into group 1. High risk score was in 12 patients (12,76%), Intermediate risk score was in 22 patients (23,40%), Low risk score in 60 patients (63,84%). Into the High and Intermediate risk score groups, the rate of streptococcal infection was found to be significantly higher (p<0,005) than non-streptococcal (83,33% versus 16,66%). There was no statistically significant difference between streptococcal and non-streptococcal infection into the Low risk score group (68,42% versus 31,58%). There was a good response to penicillin therapy on day 3, with statistically significant drops of the average score value within all three groups. In the High risk score group from 8,75 to 3,81, in the Intermediate group from 6,5 to 3,5, in the Low risk score group from 2,88 to 1,6. 10 patients were enrolled into group 2. Streptococcal infection was confirmed in 9 patients (90%). The average LRINEC score was 6,55 on Day 0 and 5,5 on Day 3 without no statistically significant decrease from penicillin therapy. Later in all patients, surgical debridement was performed.

Conclusion: LRINEC score has no practical importance for the early detection of necrotizing Erysipelas on the hospitalization day. LRINEC score should be recommended as a diagnostic tool in dynamic observation of Erysipelas course.

Disclosure of Interest: None declared
Introduction: Large ventral hernia from open abdomen is a complex abdominal wall problem. Many techniques such as component separation, advancement flaps, skin grafts and staged repairs are used depending on each patient’s comorbid conditions, type of hernia, and the surgeon’s preference. This report discusses the management in open abdomen from necrotizing fasciitis in severe malnutrition patient.

Materials & Methods: This was a case report of a 63-year-old female with ruptured appendicitis and necrotizing fasciitis of the entire anterior abdominal wall, who underwent right hemicolectomy and debridement of abdominal wall. Temporary abdominal closure with vacuum dressing was applied. Septic condition was improved and nutritional status was optimised. Large ventral hernia was repaired with composite mesh after the abdominal defect was well granulated. Regional flap advancement was done from both thighs to cover the defect. Clinical data was recorded. An informed consent was obtained.

Results: Hernia was managed successfully with composite mesh and regional flap advancement. The operative time was 250 minutes with estimated blood loss of 100 ml. Flap necrosis developed on day 3 post-operation and serial debridement was done. Vacuum dressing was applied continuously until the necrotic area was well granulated. Finally, split thickness skin graft was performed. Total hospital stay was 4 months. The patient was discharged with rehabilitation program.

Conclusion: Multidisciplinary approach with well planning is the key to success for large ventral hernia repair. Infection control and optimising nutritional status are also required. Complications should be managed and rehabilitation should be encouraged to improve quality of life.

Disclosure of Interest: None declared
Superior Mesenteric Artery Syndrome with Abdominal Compartment Syndrome and Bilateral Lower Limb Ischemia: An Extreme Case

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Introduction: Superior mesenteric artery (SMA) syndrome is a rare, unusual cause of intestinal obstruction. It is characterized by compression of the third part of the duodenum from narrowing of the anatomical space between the SMA and the aorta and is primarily attributed to the loss of the intervening mesenteric fat pad.

Although a prompt diagnosis with early intervention is of utmost importance, it is often delayed, as SMA syndrome is uncommon with nonspecific symptoms. Significant complications include mortality due to electrolyte abnormalities, aspiration and gastric perforation.

Materials & Methods: We present an interesting case of a 26-year-old girl with anorexia nervosa who developed severe gastric outlet obstruction secondary to SMA syndrome.

She presented to our institution in a moribund state with gastric outlet obstruction. It was of such significant severity, that in addition to gastric ischemia, it resulted in abdominal compartment syndrome with compression of the abdominal aorta resulting in intestinal and bilateral lower limb ischemia. 

Results: On admission to our institution, she was immediately resuscitated before being taken to the operating room for an immediate decompressive laparotomy. Intra-operative findings include a grossly distended and ischemic stomach extending from the xiphisternum to the pubic symphysis.

A gastrostomy was performed and 15 litres of undigested food was drained. On decompression of her stomach, there was immediate intestinal and lower limb reperfusion. Bilateral prophylactic dual-incision four-compartmental lower limb fasciotomies were performed.

Intra-operatively, she was hemodynamically unstable, with a blood pressure of 50/30mmHg despite being on triple inotropic support. A temporary abdominal closure was performed and she was transferred to the intensive care unit for further resuscitation.

Despite immediate surgical intervention as well as multi-disciplinary care by a general surgeon, vascular surgeon and an intensivist, she experienced multi-systemic decompensation and passed away 8 hours after her initial presentation to our institution.

Image:

*Image A: Gross gastric distension (Orange Arrow), extending from the left upper quadrant to the pelvis, displacing the small bowel loops to the right (Blue Arrow).*
Conclusion: This case demonstrates an extreme case of SMA syndrome with its potentially fatal multi-systemic complications. This is a rare instance whereby SMA syndrome presents as a surgical emergency.

Disclosure of Interest: None declared
Introduction: Cystogastrostomy is frequently done through an open approach. The laparoscopic cystogastrostomy has many advantages and will be demonstrated.

Materials & Methods: The technique of totally laparoscopic pancreatic cystogastrostomy is demonstrated. The indications, danger points, and technical details are shown in a video-based education format.

Results: The video demonstrates the steps during totally laparoscopic pancreatic cystogastrostomy and necrosectomy for the indication of pancreatic pseudocyst with necrosis. The procedure demonstrates: the pancreatic enteric anastomosis; cholangiography; choledoscopy; and completion cholecystectomy. The procedure is favored over the open approach because of the benefits of laparoscopic surgery. The procedure is favored over endoscopic approaches because of the ability to perform the cholecystectomy, cholangiogram +/- choledoscopy, and necrosectomy under a single anesthetic.

Conclusion: Totally laparoscopic pancreatic cystogastrostomy is an alternative to other approaches and affords the treatment of pancreatic pseudocyst with necrosis under a single anesthetic.

Disclosure of Interest: None declared
A MULTICENTER QUALITATIVE STUDY ASSESSING IMPLEMENTATION OF ENHANCED RECOVERY AFTER SURGERY PROGRAM
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Introduction: The existence of guidelines is not enough to change practice and many barriers exist to successfully implement enhanced recovery protocols (ERAS). The present survey aimed to assess reasons as well as difficulties for implementation.

Materials & Methods: A qualitative multicenter study was conducted among surgeons, anaesthesiologists and nurses from all implemented ERAS centers in Switzerland and Sweden. An online survey (31 closed questions) was sent by email, with reminders at 4, 8 and 12 weeks later, encouraging completion. Data were collected between August and December 2016.

Results: Seventy-seven out of 146 participants completed the survey (response rate 53%). Main motivations for ERAS implementation were reduced complications (91%), patient satisfaction (73%) and shorter hospital stay (62%). The most important barriers to implementation were time (69%), colleagues (68%) and logistical reasons (combination of organization, action and execution, 66%). The application of ERAS program represented major changes in clinical practice for 57% of participants and minor changes for 39%. Major changes were stated by 63% of the surgeons, 58% of the nurses and 35% of the anesthetists. The 3 most frequently cited patient-related barriers to implementation were personality (52%), co-morbidities (49%) and language barriers (31%). Concerning co-morbidities, the 3 most frequently reported were mental illness (64%), cardiovascular (38%) and physical aspects (27%).

Conclusion: Implementing evidence-based ERAS care into practice is challenging and requires important changes of clinical practice for all involved specialties. Main motivation to invest time, money and “nerves” is the expectation to reduce complications and hospital stay and to improve patients’ satisfaction.

Disclosure of Interest: None declared
- A RANDOMISED CONTROL STUDY OF EFFECTS OF INCISION SUPPORT USING AN ELASTICIZED ABDOMINAL BINDER POSTOPERATIVELY IN PATIENTS UNDERGOING MIDLINE LAPAROTOMY

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Introduction: Immobility and pain are modifiable risk factors for development of venous thromboembolism and pulmonary morbidity after abdominal surgery. Abdominal binders are hypothesised to reduce post-operative pain and improve mobilization of the patient. However there is a concern of further restricting post-operative pulmonary function, which is already a problem after abdominal surgery. The purpose of this study was to investigate the effect of abdominal incision support with an elasticized abdominal binder on postoperative pain, walk performance and pulmonary function in patients undergoing abdominal surgery via a midline incision.

Materials & Methods: Adult patients scheduled to undergo abdominal surgery via laparotomy in the period August 213 to July 2015 were enrolled after informed consent. Preoperative parameters of 6 minute walk test(6MWT), Visual Analogue Score(VAS) to assess pain, and Peak Expiratory Flow Rate(PEFR) were measured. Subjects were randomized to study (binder) or control (no binder) groups. VAS and PEFR were reassessed on post-operative 1, 3, and 5 and 6MWT was repeated on days 3 and 5.

Results: Surgery was associated with marked postoperative reductions in walk distance for both groups. 6MWT distance improved by day 5, and the distance was greater (p < 0.05) for patients wearing a binder than for the control group. Post-operative pain was significantly reduced in the study group, with a difference of 10%, 22% and 56% between study and control groups on days 1, 3 and 5 respectively. There was no difference in post-operative pulmonary function as measured by PEFR between the groups.

Conclusion: Elasticized abdominal binders reduce post-operative pain after abdominal surgery and also enable early mobilization of patients with no worsening of pulmonary function. They provide a non-invasive intervention for enhancing recovery and improving patients' experience following abdominal surgery and their use should be considered in routine post-operative care.

References:


Disclosure of Interest: None declared
Randomized Controlled Study Between LIFT (Ligation of Intersphincteric Fistula Tract) and Fistulotomy/Fistulectomy in Management of Anal Fistula

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Introduction: Ligation of intersphincteric fistula tract (LIFT) is a new sphincter sparing procedure for anal fistula. The objective of the study is to compare the outcome of conventional fistulotomy/fistulectomy and LIFT in patients of transsphincteric and suprasphincteric anal fistula.

Materials & Methods: Patients of transsphincteric and suprasphincteric anal fistula were included in the study. Assessment of continence was done by wexner score and anal manometry before and after the procedure. Patients were randomly allocated into two groups. In the first group LIFT was performed. In the second group patients were treated by fistulotomy or coring out fistulectomy. Patients were followed for a period of two years. The primary outcome measure was complete healing. The secondary outcome measure was change in continence.

Results: One hundred and thirty patients of transsphincteric anal fistula were included in the study. LIFT was performed in sixty five patients and the remaining sixty five patients were managed by fistulotomy/fistulectomy. After the LIFT procedure primary healing occurred in 56 patients (86.15%) and in the other group primary healing was observed in 52 patients (80%). There were no significant change in anal pressures and wexner score after LIFT. The mean resting anal pressure was significantly reduced in the second group. The wexner score was significantly raised in the second group. After LIFT procedure patients required less postoperative analgesia and the hospital stay was shorter. The mean healing time was less after LIFT and these patients returned to work earlier.

Conclusion: LIFT is a sphincter preserving procedure for the treatment of anal fistula with results superior to fistulectomy/fistulectomy.

Disclosure of Interest: None declared
ANORECTAL SURGERY: ULTRASOUND GUIDED ENDOLUMINAL ABLATION OF COMPLEX ANORECTAL FISTULAS WITH 980 MM LASER DIODE.

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Introduction: Complex anorectal fistulas are a difficult challenge for treatment. Multiple recurrences due to a lack of fistula closure when the tract is not clearly defined makes the treatment of complex fistulas very demanding for colorectal surgeons. The introduction of ultrasound guided fistula laser closure is a novel sphincter-saving procedure for the treatment of anal fistula. Primary closure of the track is achieved using laser energy emitted by a radial fibre connected to a 980 nm diode laser. The energy causes shrinkage of the tissue around the radial fibre with the aim being to close the track. This pilot study was designed to investigate the safety and effectiveness of this new technique in the treatment of anal fistula.

Materials & Methods: 37 patients with complex rectal fistulas (defined as recurrent, involving different organs, or secondary to Crohn’s disease) were included in the trial. Endorectal ultrasound evaluation of the fistula was performed in order to evaluate the length, diameter and structural anatomy of the fistulas. Under loco-regional anesthesia in an ambulatory setting the fistula was cannulated with a laser fiber (diameter of 400 or 600 nm). Guided by ultrasound the tip of the laser probe was guided to 1 cm of the fistula opening and there endoluminal ablation of the tract was performed with 5-7 watts, introducing a total amount of energy of 12 Joules/cm/seg until the tract was completely collapsed under ultrasound control.

Results: 24 patients have a follow up of 12 months while 13 patients have a follow up of 24 months. 1 patient (2.7%) had a local recurrence (presumably due to be in the first ten patients treated and while on learning curve), one patient with Crohn’s disease presented another fistula, which anatomically could not be related to the preliminary tract. All patients were discharged 6 hours after surgery and no dressings or analgesics were required during the first week post-operative. Return to work was in all patients in the next 72 hours.

Conclusion: Endoluminal ablation of complex rectal fistulas with ultrasound guidance is a feasible and safe ambulatory procedure with excellent results regarding morbidity, recurrences or patient satisfaction.

Disclosure of Interest: None declared
Introduction: Ethnic disparities in rates of bariatric surgery have been reported outside of New Zealand. Publicly funded bariatric surgery in New Zealand is steadily on the rise to meet a growing morbid obesity epidemic. Māori and Pacific are two ethnic minority groups that comprise 23.4% of New Zealand’s total population. Despite this, Māori and Pacific have disproportionately higher rates of morbid obesity than all other ethnic groups within New Zealand.

Materials & Methods: Using reported census and hospitalisation discharge data from the New Zealand Ministry of Health, we calculated estimate rates of bariatric surgery within New Zealand by ethnicity over a six year period (2009-2014).

Results: The number of obesity-related procedures recorded per 1,000 morbidly obese patients stratified by year is shown below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total morbidly obese population</th>
<th>Number of bariatric procedures performed</th>
<th>Bariatric procedures/morbidly obese (x1000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009/2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NZE/Other†</td>
<td>67816</td>
<td>232</td>
<td>3.4</td>
</tr>
<tr>
<td>Maori</td>
<td>45645</td>
<td>68</td>
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</tr>
<tr>
<td>Pacific</td>
<td>33473</td>
<td>32</td>
<td>1.0</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
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<td>190</td>
<td>2.8</td>
</tr>
<tr>
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<td>55</td>
<td>1.2</td>
</tr>
<tr>
<td>Pacific</td>
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</tr>
<tr>
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<tr>
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<td>2013/2014</td>
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<tr>
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<tr>
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<tr>
<td>Pacific</td>
<td>34425</td>
<td>48</td>
<td>1.4</td>
</tr>
</tbody>
</table>

† Other includes Asian and Middle Eastern

Conclusion: Whilst these data should be interpreted with caution, the estimated rates indicate that bariatric services are currently being provided inequitably across the major ethnic groups within New Zealand.

Disclosure of Interest: None declared
Introduction: The aim was to investigate the influence of the body-mass-index (BMI) onto patient-associated characteristics especially operative risk and tumor- and treatment-dependent long-term outcome, which was characterized by overall survival (OS), disease-free survival (DFS) and local recurrence rate (LRR).

Materials & Methods: All patients with histologically confirmed primary rectal cancer, who underwent surgery from 2008 to 2011 were included in this prospective multicenter observational study “rectal cancer (primary tumor) – elective surgery”. 68 items were reported by the physicians in charge including a follow-up if the patient signed consent form. Patients were divided in four groups – underweight, normal weight, overweight, obesity – referring to the WHO definition for the BMI. Multivariate analysis was performed to identify further influencing factors.

Results: 9,920 patients were included for analysis, of whom 2.1 % were underweight and 19.4 % obese. Mean age was 68 (range: 21 – 99) years. UICC tumor stages were more advanced in underweight and less advanced in overweight and obese patients (P<0.001). Cardiovascular risk factors as well as diabetes mellitus were more often found in obese patients (P<0.001 each). Pulmonary risk as well as abuse of alcohol and nicotine were increased in underweight cases (P<0.001 each). Therefore, ASA classification was worse in underweight and obese patients (P<0.001). OS was 59.0 % in total after five years. OS was worse in underweight (P<0.001) and better in overweight and obese patients (P<0.001 each) compared to normal weight. Five-yr-DFS was 58.1 %, which was not worsened by underweight (P=0.168) but was still better in patients with a BMI > 25 kg/m² (P<0.05 each). Median LRR after five years was 5.2 % without observed differences (P>0.05 each). Multivariate analysis found other independent risk factors for a worse OS and DFS, such as advanced age, higher ASA classification, pT3/4 status, lymph node invasion (pN+), distant metastasis (M1) and presence of a second malignancy as well as postoperative morbidity. Considerably overweight, obesity and preoperative bowel preparation were associated with a better OS.

Conclusion: In primary rectal cancer, underweight and obesity increased the operative risk significantly. We also found that underweight, most likely caused by tumorous catabolism, caused a worse long-term outcome. Interestingly, a BMI larger than 25 kg/m² was independently associated with better survival rates.

Disclosure of Interest: None declared
HEPATECTOMY FOR GALLBLADDER BENIGN LESIONS. ANALYSE OF 42 CASES
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Introduction: It is difficult to differentiate between malignant and benign gallbladder lesion. The aim of this study is to analyze the characteristics of gallbladder benign lesions treated by radical, which could help to ovoid this surgery.

Materials & Methods: All patients treated by radical surgery for gallbladder benign lesions were included in this study. The followed items were analyzed: age, sex, associated disease, morphological and biological exams performed, interval period of symptom, tumors markers, type of lesions (personnel classification), cytology of gallbladder bile, hepatic resection employed, morbidity, mortality and histological results. The personnel classification is as follow: diffuse extravisceral lesion, diffuse intravisceral, focal extravisceral and focal intravisceral based on lesions disturbance.

Results: Forty-two patients were included distributed for a total of 89 suspected gallbladder cancer operated on. There were 27females and 15males with mean age of 59,6 (23 – 78years). Twenty two, 15 and 5 patients were respectively classified as ASA I, ASA II and ASAIII. Abdominal ultrasound, CT Scann, magnetic resonance image and endoscopic ultrasound were performed in 39, 30, 5 and 2cases. Carbohydrate 19.9 (Ca19.9) and carcinoembryonnary antigen (CEA) were elevated in 8/42 (19%) and 0/42 (00%) cases. In 35 (83%) cases the diagnosis of gallbladder carcinoma was made preoperatively thirty-five patients. The form of diffuse extravisceral lesion, diffuse intravisceral, focal extravisceral and focal intravisceral lesions were respectively found in 13, 10, 9 and 10patients. The typical IV-V resection was realized in 37(88%) patients with enlarged surgery in 17(40%) of them. Thirty patients (71%) benefited from lymphadenectomy as part of radical surgery. Thirty patients (71%) benefited from lymphadenectomy as part of radical surgery. Six patients (14,2%) died in postoperative course and 12 (28,4%) had complicated postoperative course without mortality. Clinical interval period or/and regressive morphological image (specially rapid disappearance of jaundice), normal CEA rate, normal rate of hemoglobin, inflammatory associated lesions, elevated white globle, benign cytological galbladder bile are good criteria for benign lesions.

Conclusion: Conclusion: Caution must be made for the diffuse extravisceral form in the preoperative period with application of medical treatment. A period of 1 to 2 months could differentiate with malignant lesion. The other groups could be managed by cholecystectomy or hepatectomy without lymphadenectomy to ovoid mortality and morbidity.

Disclosure of Interest: None declared
A PROSPECTIVE STUDY EVALUATING RELATIONSHIP BETWEEN BREAST VOLUMETRY AND BREAST CONSERVATION SURGERY

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Introduction: Breast conservation Surgery (BCS) is the treatment of choice for early breast cancer. Surgical decision making for BCS is based on tumour, patient and resource related factors. One of the important factors is Breast volume versus Tumour ratio but no clear guidelines are available regarding BCS based on breast anthropometry. In this prospective study we evaluated impact of Breast Volumetry on Breast Conservation surgery rates.

Materials & Methods: 70 patients with operable breast cancer planned for surgery with cT1 to cT3 status from January 2016 to November 2016 were taken up for the study. Geometric Volumetry was performed and volumes calculated based on formula devised by Qiao et al. Based on Breast volume, patients were grouped in to three categories. Category I, II and III had volume ranges less than 170ml, 170 to 360ml and greater than 360ml respectively. Surgical decisions were taken based upon conventional criteria for BCS. BCS rates were calculated in the three categories of patients based on volumetry.

Results: Overall 17 patients had low volume breast, 35 had moderate volume breasts and 18 had high volume breast. BCS rate in low volume group was 17.64 percent while categories II and III had a BCS rates of 37.14 and 38.88 percent respectively.

Conclusion: Results of present study indicate the feasibility to do breast volumetry in routine clinical practice and volumetry based category can predict breast conservation rates.


Disclosure of Interest: None declared
ONCOLOGICAL SAFETY AND TECHNICAL FEASIBILITY OF NIPPLE-SPARING MASTECTOMY FOR BREAST CANCER: THE HONG KONG EXPERIENCE

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Introduction: Nipple-sparing mastectomy (NSM) has gained widespread popularity in recent years. Nonetheless, patient selection, technical consideration and oncological safety of its extension to breast cancer treatment remain uncertain. Few publications have reviewed the application of NSM in Asian populations.

Materials & Methods: We retrospectively reviewed 91 women with carcinoma of the breast, who underwent 97 NSM in Hong Kong Sanatorium and Hospital from 2009 to 2015. Breast cancer patients who required mastectomy and opt for immediate reconstruction were considered for NSM if they showed no obvious nipple involvement clinically. All breast specimens were subjected to intraoperative pathological examination of the subareolar tissue to exclude occult tumour infiltration before final decision of nipple-areola complex (NAC) preservation. Clinical parameters, tumour characteristics and oncological outcomes were analyzed.

Results: Primary breast cancers account for 95.9% of our indications for NSM. All were accompanied with immediate reconstruction. Abnormal pathology was shown in subareolar tissues of ten patients (11%), and seven of these NAC were excised due to tumour involvement detected by intraoperative frozen section. Six (6.2%) NSM were complicated with superficial epidermolysis. Yet there was no delayed NAC excision because of nipple necrosis. Overall NAC preservation rate reaches 92.8%. Local recurrence (skin flaps or regional nodes) occurred in four patients (4.4%) after a mean follow-up of 24 months; however, adjuvant therapy was not completed in two. No NAC recurrence was documented. Clinical characteristics and histopathology results of 97 NSM:

| Numb er (%) | Mean age of patients, years (range) | 44.6 (27-68) |
| Extent of tumour | | |
| Unifocal | 58 (59.8) |
| Multifocal / Multicentric | 39 (40.2) |
| Mean tumour-to-nipple distance, mm (range) | 32.7 (5-70) |
| Immediate reconstruction | |
| Autologous myocutaneous flaps | 53 (54.6) |
| Implant | 44 (45.4) |
| Mean pathological tumour size, mm (range) | |
| Invasive | 35.3 (5-84) |
| Carcinoma in-situ | 40.0 (2-95) |
| Stage (AJCC Grouping) | |
| 0 | 31 (32.0) |
| I | 29 (29.9) |
| II | 26 (26.8) |
| III | 8 (8.2) |
| IV | 3 (3.1) |

Conclusion: Our series support the oncological safety of NSM after exclusion of neoplastic NAC involvement intraoperatively. Its technical feasibility is well proven by the low nipple necrosis rate. Careful patient selection based on clinical and radiological assessment is crucial to the success of NAC preservation.

Disclosure of Interest: None declared
BIOLOGICAL AND GENOMIC PROFILE OF CONSECUTIVE SERIES TREATED FOR PRIMARY DIAGNOSIS OF BREAST CANCER
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Introduction: Recently the way to characterize and subtype from the histological and biological point of view breast cancer patients has been completely innovated. According to this concept we review a series of patients treated for a first diagnosis of primary breast cancer from 2007 to 2014, in order to check for any peculiarity of our Caucasian Southern Italian population.

Materials & Methods: A database collecting all the main clinical and biological information from 2002 patients treated was collected. Biological information concerning ER, PgR, MiB-1 and HER2/NEU status were reported. TNM and all main clinical information were also included.

Results: A preliminary conducted analysis showed comparable results with respect to what already reported in literature for what concerns the histological diagnosis and main biological characteristics of the tumors, in specific: 1525 (76,17%) of tumors were IDC, 262 (13,08%) were IDC + DCIS; 28 (1,39%) DCIS, 144 (7,19%) ILC, 43 (2,14%) ILC + LCIS.

About biological information, 85% of our patients resulted ER positive, 65% PgR positive, 47% had high MiB-1 value and Neu classified as positive in 11%

Moving to genetic profile classification of our patients, we were able to demonstrate for the first time in Southern Italy series of patients, the distribution of primary breast cancer as follows: Luminal A: 1046 (52.24 %), Luminal B/HER2 negative: 341 (17.03 %), Luminal B/HER2 positive: 225 (11.23 %), HER2 positive (not luminal): 178 (8.89 %), triple negative: 212 (10.59 %).

These percentages significantly distance from data already reported by Yanagawa (2012).

At the end, the last parameter we analyzed was the lymphocytic infiltration of the tumor that we all know implies prognostic and predictive information for each patient. Only 18,58% of out tumors showed clearly represented lymphocytic infiltration, but interestingly 122 out of 372 cases were in triple negative subgroups. This evidence strongly differs by what already reported by Ohtani (2015).

Conclusion: These data have they own great value, as they constitute the first – both in terms of time and size - descriptive breast cancer database in Southern Italy and as we can consider it a point of start for further researches, as we already did.

Disclosure of Interest: None declared
THE IMPACT OF NEOADJUVANT CHEMOTHERAPY ON MARGIN RE-EXCISION IN BREAST CONSERVING SURGERY.
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Introduction: Breast conserving surgery (BCS) aims to achieve clear excision margins while optimising breast cosmesis. Re-excision of margins compromises cosmesis. Neoadjuvant chemotherapy (NAC) has potential to improve cosmetic outcome by reducing resection volume. Data regarding margin re-excision after NAC is limited and conflicting. This study aims to look at the rate and determinants of margin re-excision in patients undergoing BCS following NAC over a 5 year period in our institution.

Materials & Methods: From 2011 – 2015, all patients treated with NAC prior to BCS were identified from a prospectively maintained database. Mann-Whitney and Fisher’s exact test tests were used to compare variables in patients who did and did not require re-excision. Patients undergoing primary surgical treatment in 2015 were used as an unmatched comparison group.

Results: During the 5 year study period 211 patients were treated with NAC. Of these, 69 initially underwent BCS. The pathologic complete response rate was 22% (n=15). The re-excision rate was 32% (n=22) compared to 17% in the primary operable group (38 of 221, p=0.02). A comparison between patients who did and did not require re-excision is shown in the table below. Triple negative and HER2 positive patients had the lowest rates of re-excision (0% and 10% respectively). Invasive lobular carcinoma and ER positive tumours had a significantly higher rate of re-excision. Of the 22 undergoing re-excision, 9 had further BCS and 13 had a mastectomy.

<table>
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Conclusion: The re-excision rate following NAC is almost twice that of patients who had BCS as the primary treatment. Her2 positive and triple negative tumours have lower rates of re-excision and therefore these may represent a selected cohort most suitable for BCS. Patients with invasive lobular carcinoma or ER positive disease may benefit from a cavity shave at the time of primary surgery.

Disclosure of Interest: None declared
SURGICAL MEASURES TO DECREASE LYMPHORRHEA AFTER RADICAL BREAST SURGERY

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Introduction: Standard surgical treatment of breast cancer is breastconserving surgery and mastectomy(with biopsy of the sentinel lymph node or a standard 3-level axillary lymphadenectomy). Lymph node dissection is accompanied by lymphorrhea and requires a longer medical care of patients. We studied the impact of preservation of the vascular net of the muscle area axillary lymph node dissection at radical surgery for breast reduction of lymphorrhea in postoperative period.

Materials & Methods: The analysis of length of stay in hospital, duration and volume of lymphorrhea, frequency of outpatient manipulation on patients with a 3-level lymph node dissection in breast cancer. Initially, in the course of performing radical surgery on the breast with standard lymphdissection in an effort to preserve the branches of the sensitive nerve, and having perfected the technique of lymph node dissection with careful attitude, we began to highlight and to preserve the vessels of the muscles axillary region. Lymph node dissection was made with maximum preservation of blood vessels. Reduction of axillary tissue zones to be removed is not performed.

Results: For a research 103 patients of the vessels (1 group) which underwent operation without conservation and 114 with conservation were taken (2 group). At the first group the average period of lymphorrhea is 18 days. The lymphorrhea more than 100 ml remained at 71.5% of patients more than 14 days. Extraction of drainage system was carried out on average for 8-12 day. Out-patient puncture evacuations of a lymph were required – more than 10 procedures – at 48.6% of patients. At the second group of patients of drainage system extraction was made for 4-6 day, out-patient puncture evacuation of a lymph was required in 3.6% of cases – more than for 5 visits, from 96.3%> less than for 5 office procedures. The average duration of a lymphorrhea is 9 days. Its volume more than 100 ml for more than 7 days – it wasn’t observed at no one of patients.

Conclusion: the maximum preservation of blood vessels from the muscles axillary region with a lymph node dissection can significantly reduce the amount and duration of lymphorrhea. The postoperative period in these patients differed significantly shorter time spent in hospital. Patients after such operations rarely required outpatient support for puncture evacuation of the lymph and this period was significantly shorter. The approach we recommend as surgical method to reduce lymphorrhea in patients with breast cancer subjected to the 3-level lymphdissection.

Disclosure of Interest: None declared
A COMPARISON OF OUTCOMES OF PRIMARY VERSUS POST NEO-ADJUVANT CHEMOTHERAPY BREAST CONSERVATIVE SURGERY: EXPERIENCE FROM A TERTIARY CARE CENTER FROM A DEVELOPING COUNTRY

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Introduction: In India and other developing countries, breast conservation surgery (BCS) rates in breast cancer patients (pts) are low due to socio-economic reasons and due to a large proportion of pts presenting with advanced disease. Many pts are treated with neoadjuvant chemotherapy (NACT) following which, safety of BCS is not very well established. This retrospective study compared the pathological and outcome parameters of primary and post-NACT BCS.

Materials & Methods: All non-metastatic breast cancer pts undergoing BCS from 2011-2015 with a minimum 1 year follow-up were included. Outcome parameters in terms of margin infiltration, ipsilateral breast tumor recurrence (IBTR) and local recurrence free survival were compared between groups of pts undergoing primary and Post-NACT BCS.

Results: Of 712 primary breast cancer pts treated with curative surgery during the study period, 169(23.7%) underwent BCS. Mean age of pts was 51.8±12.2y. Inclusion criteria were met by 129 patients; 95 underwent primary and 34 post-NACT BCS. Pts in both groups underwent similar multi-modality treatment as appropriate per institutional protocols. There were no significant differences in age, menopausal status, hormone receptor or HER2neu status between the groups. 69% pts had cT2/cT3 disease; amongst these, post-NACT group had significantly higher cT stage (p=.000) & stage III disease (including cT4a-c,cN2-3, p=.000). Post-NACT pts more frequently required oncoplastic volume displacement or replacement surgery (p=.002). Re-excision of infiltrated margins was needed more frequently, though not significantly, in primary BCS c.w. Post-NACT BCS group (14.4% vs 9.6%; p=0.40). In mean follow up of 30.6 months (31.6 mo in primary BCS vs 27.8 in Post-NACT group), IBTR was seen in 9.6% post-NACT pts, c.w. 2.1% primary BCS (p=.114). Recurrence rates didn’t vary significantly with menopausal status, cT, cN, hormone receptor & HER2neu status or re-excision of margins in either group; or with ycT, ycN or ypT size in post-NACT pts. The local recurrence-free survival didn’t differ significantly between the groups.

Conclusion: Outcomes are similar in suitable pts undergoing primary or post-NACT BCS. Post-NACT BCS is safe even in large and T4 tumors, though many require oncoplastic procedures for satisfactory cosmesis. In a developing country where many pts present with advance stage disease, the benefits of BCS can be offered to a majority with the help of NACT, without compromising the chances of cure.

Disclosure of Interest: None declared
Introduction: Hirschsprung disease is a congenital disorder characterized by the absence of ganglion cells in the colonic segments, believed to be due to failure of migration and development of neural crest cells. It most commonly presents early in life, and patients are seen with signs of constipation and worse, obstruction. The gold standard in diagnosis of this disease is via rectal biopsy. However, false negative results and misdiagnoses occur in several situations.

It has been shown that the absence of Calretinin expression correlates with aganglionosis and was first reported on resected specimens in 2004 and subsequently on rectal mucosal biopsies.

The objective of this study is to review relevant literature regarding the accuracy of Calretinin in detecting ganglionic segment (GS) and ganglionic segments (AS) of bowel.

Materials & Methods: Studies included were retrospective and prospective studies. Inclusion was not restricted by study size. We excluded case reports, and commentaries. The PubMed, Embase, and Cochrane Library were searched for prospective or retrospective studies with the keywords “Calretinin” “Hirschsprung” and “diagnosis”. A total of 35 research papers were found. A total of 11 studies were included in this study for analysis.

After study identification, two evaluators appraised the articles to assure the quality of the studies, using the appraisal guide for article on diagnostic test provided by the Centre for Evidence-Based Medicine. (http://www.cebm.net).

Sensitivity, specificity, and likelihood ratios were computed based on the data given by each article. Data extracted were based on rectal biopsies taken, and did not take into account if such biopsies came from a single case, as long as comparison with a control and Calretinin staining were done.

Results: All studies have shown that Calretinin staining can be used as a tool in diagnosing Hirschsprung disease, with sensitivity ranging from 96.5% to 100%, and specificity of 100%. Calretinin staining was able to decipher between true aganglionosis and ganglionic segments, and attributed the difficulty to the fact that specimens taken were either inadequate or in the transition zone.

Conclusion: Calretinin staining can detect absence of ganglion cells in rectal biopsy specimens with better sensitivity and specificity than the control group. Therefore, this diagnostic test definitely aids in diagnosing hirschsprung disease more accurately, especially in slides which are initially nondiagnostic.

Hiradfar, Mehran et al. 2011.
Volpe, Andrea et al. 2013.
Yang, Woo Ick and Oh, Jung-Tak. 2013.
Yadav, Lokendra et al. 2014.
Anbardar, Mohammad et al. 2015.
Chisholm, Karen and Longacre, Teri. 2015.

Disclosure of Interest: None declared
OUTCOME OF CHILDREN WITH ANORECTAL MALFORMATION – CLINICAL EXAMINATION WITH ULTRASOUND
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Introduction: Incidence of anorectal malformation was 1 of 5000 livebirth new-borns. After surgical reconstruction in early childhood (2-4 month) two major complications incontinence and constipation affected the long-term outcome. Aim of our study was to evaluate the cosmetic and anatomical results after surgical reconstruction of an anorectal malformation. We hypothesized that wound healing and neo- anus with minimal scars appear after adequate pediatric surgical treatment with correct anatomical reconstruction.

Materials & Methods: Between 2004 and 2014 forty-four children with anorectal malformation were treated at the university hospital. Used surgical technique was posterior sagittal anorectal plasty. We analyzed pre- and postsurgical development and recorded quality of life and clinical outcome with questionnaires. During postsurgical clinical examination inspection of neo-anus, digital rectal examination and an ultrasound of rectum and anus was performed.

Results: Skin status was good in 86,2%, perianal skin was irritated in 13.8%. Circular skin plication could be found in 75,9% of surgically treated patients. An anal prolapse could be found in 20,7%; 79,3% showed none. Digital rectal examination showed circular anal sphincter in 82,8% with good muscle contractions in 79,3% of patients. Lower muscle contraction could be found in 13,8% and 3,5% showed very little anal sphincter tonus. In 13.8% we could found no circular anal sphincter muscle and 10,3% of our patients had an anal stenosis. Via ultrasound dilatation of sigma bowel could be found in 3,3% and dilatation of rectum in 10,0%.

Conclusion: Postsurgical outcome showed good cosmetic result with strong anal sphincter muscle in nearly 80% of our patients. Few had a rectal stenosis with arising bowel dilatation. To prevent such complications postsurgical early recognition and adequate treatment is necessary.

Disclosure of Interest: None declared
ROLE OF MAGNETIC RESONANCE IMAGING TO DETECT OCCULT SPINAL ANOMALIES IN ANORECTAL MALFORMATIONS
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Introduction: Anorectal malformations (ARM) are relatively frequently encountered anomalies that represent an important component of pediatric surgical practice. They are a complex group of malformations diagnosed at the time of birth, because of either the absence or an ectopic location of anus. The objective of the study is to determine the incidence of spinal anomalies in all types of anorectal malformations excluding cloaca in this part of country.

Materials & Methods: All anorectal malformation patients attending surgery OPD and admitted to Surgery Department of UP RIMS & R who were completely investigated for associated anomalies during March 2015-Feb 2016 were completely investigated for associated anomalies during the above mentioned period were included in the study.

Results: In our study we found that the incidence of spinal cord anomalies was 3 of 11 (27.2%) cases with low lesions and 12 of 39 (30.7%) cases with high lesions had spinal cord anomalies.

Conclusion: MRI evaluation of spine should be performed in all patients of ARM irrespective of type of lesion.

Disclosure of Interest: None declared
QUALITY OF LIFE OF CHILDREN WITH ANORECTAL AND OTHER ASSOCIATED MALFORMATIONS
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Introduction: Incidence of anorectal malformation was 1 of 5000 livebirth new-borns, 64% of these children suffered of associated malformations. Surgical reconstruction was performed in early childhood and complications like incontinence and constipation affected long term outcome. Aim of our study was to evaluate the quality of life and complications after surgical reconstruction in these special subgroup. We hypothesized that these children had disadvantages in daily life and worthier quality of life in spite of adequate pediatric surgical treatment with correct anatomical reconstruction.

Materials & Methods: Between 2004 and 2014 forty-four children with anorectal malformation were treated at university hospital. 65,8% had associated malformations. Used surgical technique was posterior sagittal anorectal plasty. We analyzed pre- and postsurgical development, recorded quality of life and clinical outcome with questionnaires.

Results: Parents specified the common quality of life averages with 83,2%, their children with 90,1% of 100% via questionnaires. Parents of children with associated cardio vascular disease estimated with 81,7%, in children with associated urological diseases 82,7% and with associated genital diseases 83,2%. In case of vertebral or spinal associated malformation parents evaluated an average of quality of life with 84,6%. In children with a caudal regression syndrome parents specified 82,8%, the children themselves with 93,1%. Physical well-being in children with associated malformations was estimated with 83,7% by parents, in children with isolated anorectal malformation we found 77,7%. Psychological well-being was scored with 90,2% in children with associated malformations, and with 84,4% in children with isolated anorectal malformation. The results for self-esteem was higher without associated malformations (84,7%), than in children with associated malformations (74,6%).

Conclusion: Postsurgical outcome of anorectal malformations was good independently of associated malformations. None of these patients had a significant limitation for quality of life. The sub score of self-esteem was lower in those patients and because of these findings psychological support should be added to pediatric standard examinations. Sensitization of parents and surgeons is necessary.

Disclosure of Interest: None declared
Introduction: Currently, specialist pediatric surgical care provision in Vanuatu depends largely on visiting teams from the Australasian region. Our aim was to retrospectively review volume, types of cases, and outcomes of pediatric surgical provision in Vanuatu.

Materials & Methods: We retrospectively reviewed case logs of pediatric surgical procedures performed by visiting teams to Vanuatu. We reviewed demographic characteristics, diagnoses and procedures, and immediate postoperative outcomes. We calculated proportions for categorical variables and means for continuous variables.

Results: Between 2001 and 2016, a total of 91 patients were captured in the retrospective review. A total of 92 procedures were performed. 40% of patients were girls, 60% were boys. Mean age was 40 months (range 1-192 months). Time spent by visiting team on site ranged from 3 days to 1 week. The most common diagnoses were inguinal hernia, anorectal malformation, and Hirschsprung's disease. In the immediate postoperative period, 1 complication and 1 death out of the 92 procedures were recorded.

Conclusion: The number of cases performed at each visit was limited given the short period of time spent on site by the visiting team. To increase volume and to increase access to pediatric surgical care, investments are needed to build local capacity for pediatric surgical care provision in Vanuatu.

Disclosure of Interest: None declared
COMPARATIVE ANALYSIS OF THE OPEN AND LAPAROSCOPIC APPROACH FOR THE TREATMENT OF THE INTUSSUSCEPTION

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Introduction: Intussusception is one of the most of causes of intestinal obstruction in children that required timely treatment. Despite the high efficacy of therapeutic methods of intussusception reduction, some patients need the surgery. The question of choosing of the method of surgery – conventional laparotomy or laparoscopy – still under debate. The aim of the study to compare the results of conventional laparotomy and laparoscopy in the treatment of intussusception.

Materials & Methods: The study was based on the results of laparoscopic treatment of 31 children at the Lviv regional children’s clinical hospital «OHMATDYT» during 2008-2016 years. The comparative group consisted of 46 patients that operated at the Odessa regional children’s clinical hospital with the open approach.

Results: Mean age, weight, and sex were comparable for both groups and differences were not statistically significant. Success rate of laparoscopic reduction of intussusception was 74.2%, by that in 16.1% patients were done conversion from laparoscopy to laparotomy, and in 9.7% patients laparoscopic-assisted intestine resection was applied. The main reasons for the conversion were the necrosis of intestinal loop needing resection, presence of the complex intussusception, and the presence of lead point (polyp) clear to the ileocecal valve. Mean operative time was 36.2±4.2 min in laparoscopic group and 64.6±8.7 min – in laparoscopic-assisted group. Complications during laparoscopic reduction and in postoperative period did not observed. The postoperative length of stay was 4.3±2.2 days in laparoscopic group and 6.3±2.9 days – in laparoscopic-assisted group. In the laparoscopic group one (4.3%) patient had recurrence that requiring re-laparoscopy. The mean operative time in laparotomy group was 60.4±6.8 min. The longer operative time in this group may connected with the need for intestine resection that more frequently (in 15.2% of patients). The postoperative length of stay was 6.8±2.8 days in open surgery group. During follow-up 3 (6.5%) patients had recurrences and all of them required open operative intervention.

Conclusion: Laparoscopic reduction of intussusception is as technically feasible, safe, and efficacious as the open approach and may even be beneficial in shortening operative time and length of stay.

References: Laparoscopic reduction of intussusception is as technically feasible, safe, and efficacious as the open approach and may even be beneficial in shortening operative time and length of stay.

Disclosure of Interest: None declared
LAPAROSCOPIC TREATMENT OF CHILDREN WITH SMALL BOWEL OBSTRUCTION

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Introduction: Obstruction of the small bowel is a common problem for the adult and pediatric surgeons around the world. In children, the acute small bowel obstruction (SBO) is a quite common cause of hospital admission, which required the emergent or the urgent surgery. Laparotomy remains the main method of treatment of children with the SBO. The applying of mini-invasive methods for the treatment of SBO is still controversial and widely does not accepted among the pediatric surgeons.

The goal of the study was to summarize the own experience of the laparoscopy in the management children with SBO.

Materials & Methods: The study was based on the results of management of 93 children during 2007-2016 years. The laparoscopy was used in 82 (88.2%) of patients and laparoscopic-assisted procedure in 11 (11.8%) of them. Adhesiolysis performed by applying the scissors, mono- or bipolar cautery, and in some cases by LigaSure or ultrasonic scalpel.

Indications for the laparoscopic adhesiolysis were the signs of acute adhesive bowel obstruction, absence of signs of obstruction decompensating and shock. The absolute contraindication for the laparoscopic approach in children with the SBO was the hemodynamic instability and respiratory insufficiency.

Results: Single obstructive band, often in the area of ileocecal valve, was revealed in 58.1% patients, the diffuse dense bands – in 29.0% children, and in 12.9% children the volvulus of intestinal loop around Meckel’s diverticulum was noted. It was no cases of iatrogenic bowel injury in our study. The laparoscopic adhesiolysis was completed in all children with diffuse adhesions that permit in 92.6% of patients to avoid the necessity of re-operations.

The laparoscopic-assisted procedures were applied in children that required the bowel resection. In such cases, the diagnostic stage, adhesiolysis, and bowel mobilization performed laparoscopically, and the resection of necrotic bowel and anastomosis fulfilled extraperitonealy. The wound infection was noted in 6.5% of patient and re-laparoscopy due to the recurrent SBO performed in 4 (4.3%) patients.

Conclusion: By the presence of appropriate skills, the laparoscopic adhesiolysis can be the real alternative to the laparotomy for the treatment of children with SBO. The laparoscopic adhesiolysis associated with the fewer incidences of severe postoperative complications compared with the open approach.

Disclosure of Interest: None declared
ROBOTIC SINGLE SITE CHOLECYSTECTOMY WITH ICG FLUORESCENT CHOLANGIOGRAPHY

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Introduction: The technique of a single-port laparoscopy was developed over the last years as an attempt to lower surgical aggression and improve the aesthetic results of the minimally invasive surgery. Literature demonstrates a conversion rate of 2.6 to 10%, due to anatomical doubt adhesions, bleeding and primary bile duct injury is rare but severe, and is the major cause of morbidity in laparoscopic cholecystectomies. Robotic single site cholecystectomy has been reported feasible and safe for selected cases. While an intra-operative cholangiography can be performed, data is scarce with respect to its use. Indocyanin green (ICG) has been shown to be a viable option to visualize biliary anatomy.

Materials & Methods: Female patient, 38 years old, with symptomatic cholelithiasis was submitted to a robotic single site cholecystectomy with use of the ICG for better visualization of the common bile duct. The contrast is injected in a peripheral vein, by the anesthesiologist before the opening of the Calot triangle, to identify the bile ducts. Ligature and section of the cystic duct and cystic artery were respectively performed and the gallbladder was detached from its hepatic bed.

The procedure occurred with no intercurrence. Patient was discharged on the first post operative day.

Results: Results: The video demonstrates the feasibility of using fluorescent imaging with ICG for robotic single incision cholecystectomy for imaging the biliary system. Common hepatic duct, cystic duct and common bile duct were visualized using fluorescence before they were visible in conventional white light.

Conclusion: Single-port robotic surgery is feasible and safe when performed by surgeons with prior experience in robotic surgery. The ICG is a new and safe therapy to identify the bile ducts in real time. Its use neither increases the surgical time nor exposes the patient and multiprofessional team to radiation.

Disclosure of Interest: None declared
ROBOTIC CYSTOOGASTROSTOMY DUE TO PANCREATIC PSEUDOCYST
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Introduction: Pseudocyst of pancreas is collection of fluid in the lesser sac due to pancreatic inflammation and is rich in pancreatic enzymes, necrotic material and serosangigious fluid. Many of the pseudocysts are asymptomatic but they commonly presents as pain and heaviness in upper abdomen, feeling of indigestion and belching. Pancreatic pseudocysts are generally treated by endoscopic cystogastrostomy. However, difficult cases often require surgical intervention. Use of the da Vinci Surgical System allowed us to create a widely patent anastomosis between the pseudocyst and the stomach.

Materials & Methods: DSMO, 24 years old, male, with no comorbidity, came up with abdominal pain in the epigastric region, vomiting and asthenia. Laboratory tests with no changes. Abdominal ultrasound showed a pancreatic cystic mass. A magnetic resonance was performed and revealed liquid next to the portocaval space and previously to the cephalic portion and neck of the pancreas, which extend to the epiplon retrocavity, associated with a pathway that communicates the fluid in the neck of the pancreas with the secondary pancreatic duct, that may represent a pancreatic fistula. An endoscopy confirmed a 20x10mm cystic lesion on the pancreatic neck. This cyst communicates with a pseudocyst (about 7 cm), with anechoic content, without septations.

Results: After three months, patient maintained symptomatology. ERCP was performed for pancreatic fistula occlusion with plastic prosthesis. This procedure was unsuccessful. In view of the findings, surgical treatment was chosen for the robotic cystogastrostomy. Patient improved with no intercurrences and was discharged on the fifth post operative day.

Conclusion: The treatment of choice is endoscopic drainage because of its high success rate and low complications index. In this case, due to endoscopic treatment failure, surgery was indicated. Robotic surgery is feasible and secure, when performed by experienced surgeons, for pancreas anastomosis.

Disclosure of Interest: None declared
MINIMALLY INVASIVE EN-BLOC STAPLING OF THE THORACIC DUCT FOR PREVENTION AND TREATMENT OF CHYLE LEAK AFTER ESOPHAGECTOMY.
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Introduction: The aim of this video is to show the surgical technique of supra-diaphragmatic thoracic duct stapling for prevention and treatment of chylothorax.

Materials & Methods: The first patient is a 49 year-old male with an adenocarcinoma of the cardia who underwent a totally minimally invasive Ivor-Lewis esophagectomy. During the thoracoscopic procedure, performed with 4 trocars in the semi-prone position, the space between the vertebral bodies and the aorta right above the diaphragm was identified and the tissue including the azygos vein and the thoracic duct was encircled en-bloc with a Penrose drain. A 45 mm linear endostapler with vascular cartridge was then applied and fired.

The second patient is a 62 year-old patient on postoperative day 7 after a hybrid Ivor-Lewis esophagectomy. The output from the chest tube progressively increased and reached 2500 ml on postoperative day 7; the aspect of the fluid was milky and the dosage of triglycerides was 3 times greater than in the serum. A right thoracoscopic access with 3 trocars was planned for ligation of the thoracic duct. Four hours before the operation, 250 ml of cream were given through the nasogastric tube. The patient was set in semi-prone position. Careful dissection of the adhesions between the lung and the chest wall was carried out with an electrocautery hook. A chylous leak was evident from the site where metallic clips had been placed during the previous open esophagectomy. The right side of the aorta was dissected and a right-angled instrument was used to encircle en-bloc the periaortic tissue including the thoracic duct. A 45 mm endostapler with vascular cartridge was applied and fired.

Results: The procedures were successful and led to complete sealing of the thoracic duct. The postoperative course was uneventful.

Conclusion: Videothoracoscopic stapling is safe and allows quick and effective sealing of the thoracic duct. By avoiding the trauma of a redo thoracotomy, thoracoscopic stapling may encourage earlier intervention in patients with chyle leakage who are refractory to conservative treatment.

Disclosure of Interest: None declared
Introduction: We developed an integrated surgical navigation system of patient-based immersive virtual reality, holographic augmented reality, and mixed reality surgical navigation for gastrointestinal, hepato-biliary-pancreatic and urologic surgery.

Materials & Methods: The patient-specific 3D surface models of each organ out of the patient’s MDCT images were reconstructed using OsiriX application. We developed immersive VR navigation system using holographic augmented reality technology by sensing the user’s movement using a motion sensor and 3D glasses. We developed new spatial imaging system by interactive superimposing 3D hologram and 3D printing technology by tracking the user's head and hand/arm position. It allowed the user to manipulate the spatial attributes of the virtual and real printed organs, which can enhance spatial reasoning and augmented tangibility.

Results: We also integrated Google Tango technology that used computer vision to enable mobile devices to detect their position relative to the world around them without using GPS or other external signals. This allowed application developers to create user experiences that include indoor navigation, 3D mapping, physical space measurement, environmental recognition, augmented reality, and windows into a virtual world.

Conclusion: We report illustrative benefits of the immersive VR/AR/MR devices (VR-HMD, 3D holographic tablet, VIVE, Oculus, Google Tango, zSpace, HoloLens, and 3D printing organ replication) in surgical planning, simulation, and image-guided navigation. It allowed the user to manipulate the spatial attributes of the virtual and real printed organs, which can enhance spatial reasoning and augmented tangibility.

Disclosure of Interest: None declared
CDK9 IS A PROGNOSTIC MARKER AND THERAPEUTIC TARGET IN PANCREATIC CANCER
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Introduction: Despite recent advances in diagnosis and therapy, prognosis of pancreatic cancer remains very poor. Consequently, novel therapeutic approaches are urgently needed. The family of cyclin-dependent kinases (CDKs) comprises 20 kinases which contribute to malignancy by promoting proliferation, migration, invasion, and apoptosis resistance of cancer cells. In this work we investigated the role of CDK9 in pancreatic cancer. Furthermore the therapeutic potential of selective CDK9-inhibition was evaluated in pancreatic cancer cells.

Materials & Methods: Tumor and normal tissue of pancreatic cancer patients was immunohistochemically analyzed for CDK9 expression and correlated with patients' survival. Moreover, the therapeutic potential of a selective CDK9-inhibitor on pancreatic cancer cells was evaluated by analysis of cell viability, long-term survival and apoptosis and characterized using western blotting and flow cytometry.

Results: CDK9 is overexpressed in pancreatic cancer tissue. In addition high CDK9 expression in tumor tissue is associated with significantly shortened survival, especially in highly differentiated tumors. Pharmacological CDK9-inhibition drastically reduced cell viability in pancreatic cancer cells and potently suppressed long-term survival. Analyzing the molecular mechanism revealed that CDK9-inhibition induced apoptosis and cell cycle arrest in a time-dependent manner. Moreover, CDK9-inhibition is capable of intensifying the therapeutic effect of chemotherapeutics and apoptotic-inducing agents in pancreatic cancer cells.

Conclusion: CDK9 is a negative prognostic marker in pancreatic cancer. Furthermore, pharmacological CDK9-inhibition is a novel and promising therapeutic approach for pancreatic cancer.

Disclosure of Interest: None declared
CLINICAL IMPACT OF TR1 AND FOXP3+REGULATORY T CELL AS PRECISE IMMUNOLOGICAL BIOMARKERS FOR REFLECTING CANCER STATUS

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Introduction: We have already reported that regulatory T cells (Foxp3+Treg) reflects the aggressiveness of pancreatic neoplasms (Ikemoto T, et al. *Pancreas* 2006, Ikemoto T, et al. *Pancreas* 2013), however, it is strongly required to establish more precise biomarkers for clinical application. Recently it is reported that IL-10 driven CD4+CD49b+LAG3+regulatory T cells (Tr1) show strong regulatory activities even though the cell number is small. Thus this study aimed to evaluate whether Foxp3+Treg and Tr1 cells can be more precise immunological biomarkers for reflecting cancer status.

Materials & Methods: 2mL peripheral blood was withdrawn from hepato-biliary-pancreatic disease patients (n=112), and healthy volunteer (n=34) under fully I.C. The isolated PBMCs were analyzed by FACScan. Patients’ clinicopathological factors are compared to these data and immunohistochemistry of resected specimens.

Results: Tr1 population in patients with malignancy increased significantly (P<0.05). On the other hand, Foxp3+Treg population did not show the significance. Among R0 patients, those with early recurrence had a higher pre-/post-operative Tr1 ratio than those without (P<0.05). Together, median pre-/post-operative ratios of Foxp3+Tregs and Tr1s predicted early recurrence with 100% sensitivity and 81.2% specificity. DFS was lower in patients with high IL-10 expression than in those with low expression(P<0.05).

Conclusion: The set of Tr1 population may predict the risk of the recurrence in short period after R0 resection, and the accuracy of this prediction increased when Foxp3+Treg ratio combined.

References:

Disclosure of Interest: None declared
THE EFFECTS OF PLATELET-RICH PLASMA ON WOUND HEALING IN RATS

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Introduction: Wound healing follows a predictable course of overlapping phases, which involve cellular and biochemical events: (a) hemostasis and inflammation, (b) proliferation and (c) maturation and remodeling. Platelet Rich Plasma (PRP) is obtained by the blood from the patient being concentrated using different techniques. In the light of this basic information, platelet rich plasma (PRP) is used in many areas, especially orthopedic, oral and maxillofacial, dental, ophthalmic, plastic and reconstructive surgeries. In this experimental study performed on rats, the effects of PRP in wound healing were investigated.

Materials & Methods: The study included 24 male Wistar Albino rats. The animals were divided into three groups, each consisting of 8 animals. Any treatment was not given for defects created in Group 1 and it formed the control group. PRP was applied topically on lesion in Group 2. PRP was injected on the lesion in Group 3.

Results: Angiogenesis increased with the topical application, and the tissue durability increased with the intralesional injection (Table 1).

| Table 1. Histopathological examinations and mechanical tensile test results |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|                            | Group 1 | Group 2 | Group 3 |
| Reepithelialization         | Day     | Ort.    | SD    | Med   | Day     | Ort.    | SD    | Med   | Day     | Ort.    | SD    | Med   | p∞   |
| 7                           | 0.00    | 0.00    | 0     | 0.00  | 0.00    | 0       | 0     | 0     | 0.00    | 0       | 0     | 0     | 1.000 |
| 14                          | 0.50    | 0.53    | 0.5   | 0.63  | 0.74    | 0.5     | 0.88  | 0.64  | 1.00    | 0.64    | 1     | 0.490 |
| 21                          | 1.38    | 0.52    | 1     | 1.63  | 0.74    | 1.5     | 1.88  | 0.64  | 2       | 1.88    | 0.64  | 2     | 0.298 |
| Granulation tissue Deposition| 7       | 1.00    | 0.00  | 1     | 0.88    | 0.35    | 1     | 0.88  | 0.35    | 1       | 0.563 |
| 14                          | 2.00    | 0.00    | 2     | 1.88  | 0.35    | 2       | 1.88  | 0.35  | 2       | 2       | 0.593 |
| 21                          | 3.00    | 0.00    | 3     | 3.00  | 0.00    | 3       | 3.00  | 0.00  | 3       | 3       | 1.000 |
| Collagen                    | 7       | 0.00    | 0.00  | 0     | 0.00    | 0       | 0     | 0.00  | 0       | 0.00    | 0     | 1.000 |
| 14                          | 1.00    | 0.53    | 1     | 1.00  | 0.00    | 1       | 1.00  | 0.00  | 1       | 1.00    | 1     | 1.000 |
| 21                          | 1.38    | 0.52    | 1     | 1.25  | 0.46    | 1       | 1.50  | 0.53  | 1.5     | 1       | 1.000 |
| Inflammatory cell Deposition| 7       | 2.38    | 0.52  | 2     | 2.25    | 0.46    | 2     | 2.38  | 0.52    | 2       | 0.836 |
| 14                          | 1.50    | 0.76    | 1     | 1.38  | 0.52    | 1       | 1.38  | 0.52  | 1       | 1.00    | 0.977 |
| 21                          | 0.50    | 0.76    | 0     | 0.38  | 0.52    | 0       | 0.38  | 0.52  | 0       | 0.38    | 0.52  |
| Angiogenesis                | 7       | 1.25    | 0.46  | 1     | 2.38    | 0.52    | 2     | 1.25  | 0.46    | 1       | 0.001 |
| 14                          | 2.38    | 0.52    | 2     | 2.63  | 0.52    | 3       | 1.88  | 0.35  | 2       | 2       | 0.022 |
| 21                          | 2.75    | 0.46    | 3     | 2.75  | 0.46    | 3       | 2.75  | 0.46  | 3       | 2       | 0.134 |
| Mechanical Tensile Test E-mod | 0.79   | 0.23    | 0.8   | 1.02  | 0.24    | 0.9     | 1.38  | 0.30  | 1.3     | 1.3       | 0.001 |

∞ Independent group analysis ~ Dependent group analysis

Conclusion: We can state that PRP had positive effects on the wound healing, the angiogenesis increased with the topical application, and the tissue durability increased with the intralesional injection. We believe that there is a need for new publications on this subject.

Disclosure of Interest: None declared
155.04
EFFECTS OF BARIATRIC SURGERIES ON WEIGHT LOSS IN MORBIDLY OBESE PATIENTS: A 12-MONTH FOLLOW-UP
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Introduction: Concern about obesity is increasing all over the world. Bariatric surgery can act well to help some people to lose weight, but some aspects to follow-up of Bariatric surgery are not known. The aim of this study was to evaluate the BMI loss over a 12-month period following bariatric surgery in Iranian morbidly obese patients.

Materials & Methods: A retrospective cohort study was performed on the data extracted from National Obesity Surgery Database of morbid obese patients who referred to the obesity clinic in Rasoul-e-Akram hospital, Iran University of Medical Sciences, Tehran Iran, between 2009 and 2015. We reviewed the data on Body Mass Index (BMI), comorbidities, type of surgeries and the percentage of excess BMI loss (%EBMIL). Statistical significance was assumed if p < 0.05. All reported p values are two-sided. Statistical analyses were performed using SPSS (Version 15.0, SPSS Inc.) and pair t test.

Results: A total of 8035 morbid obese patients referred to Rasoul-e-Akram obesity clinic with the mean age ± SD of 38.34 ± 1.3 yr and 6381 (79.5%) were female. The mean ± SD of weight and BMI were 113.58±26.16 and 42.11±8.52, respectively. The frequency (%) of the patient’s reported comorbidities at first visit were as follows: 741(41.8%) dyslipidemia, 278(15.7%) diabetes mellitus type II, 231(13%) obstructive sleep apnea, and 306 (17.3%) hypertension. Among 1773(22%) patients who underwent bariatric Surgery; 963 (54.5%) underwent Mini-Gastric Bypass (MGB), 637(36%) underwent Roux-en-y (LRYGB), 144(8%) underwent Sleeve gastrostomy (SG) and 29(1.5%) underwent other types of surgeries. The patients who underwent surgery had the mean ± SD age, BMI, and weight of 37.87±10.33 yr, 123.97±21.13 kg and 45.94±6.02 kg/m². At 12-month postoperatively, the reduction in %EBMIL was significant between MGB (78.13 ± 14), RLYGB (72.24 ± 15.9), and SG (65.9 ± 21.4), respectively (P<0.001). In addition, significant decrease in %EBMIL was achieved over the time within each type of surgery (P<0.001). The follow-up rates were 94.1%, 92.4%, 90.6%, 89.1%, 85.6% and 89.5%, respectively at 10 days, 1, 3, 6, 9, and 12 months postoperatively.

Conclusion: This study found a significant decrease in %EBMIL during a 12-month follow-up after bariatric surgery, especially after MGB.

Disclosure of Interest: None declared
INTRODUCTION: Elderly patients undergoing emergency surgery have worse short and long term outcomes in comparison to younger counterparts. We describe our experience with emergent laparotomy (EL) in patients older than 65 years at a tertiary university teaching hospital and evaluate the risk factors for in hospital mortality, postoperative functional dependence and five-year mortality.

MATERIALS & METHODS: We retrospectively reviewed the charts of all patients older than 65 years that underwent EL between 2006 and 2011. The indication for surgery was divided into five categories: perforation, obstruction, hernia, mesenteric ischemia, and other. Patients undergoing emergent laparoscopy, open appendectomy, emergent repair of aortic aneurism and trauma related laparotomy were excluded. Data collection ended in 2011 to allow for a 5-year follow up. Recorded data included patients’ demographics, comorbidities, symptoms, and admission blood tests. Discharge to an assisted living facility (ALF) served as a marker of functional dependence.

RESULTS: 333 patients were included. 148 were older than 80 years. Mean age was 78±7.8 years. 192 patients were female (58%). 86 patients died during their hospitalization (26%). 57 patients (23% of those who survived) were discharged to an ALF. A total of 224 patients (67%) died within five years from surgery. Predictors of in hospital mortality, functional dependence and 5-year mortality can be seen in table 1:

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>In Hospital Mortality Odds Ratio</th>
<th>Discharge to ALF Odds Ratio</th>
<th>5-Year Mortality Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age&gt;80 years</td>
<td>1.75</td>
<td>3.40</td>
<td>3.12</td>
</tr>
<tr>
<td>CRF</td>
<td>2.49</td>
<td>2.80</td>
<td>8.70</td>
</tr>
<tr>
<td>CHF</td>
<td>2.28</td>
<td>NS</td>
<td>2.70</td>
</tr>
<tr>
<td>IHD</td>
<td>NS</td>
<td>2.18</td>
<td>NS</td>
</tr>
<tr>
<td>DM</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>HTN</td>
<td>2.34</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Oncological Status</td>
<td>NS</td>
<td>NS</td>
<td>2.32</td>
</tr>
<tr>
<td>LDH&gt;780</td>
<td>3.44</td>
<td>10.6</td>
<td>3.32</td>
</tr>
<tr>
<td>Alk.Phos.&gt;130</td>
<td>1.78</td>
<td>2.48</td>
<td>2.50</td>
</tr>
<tr>
<td>Alb&lt; 30</td>
<td>6.67</td>
<td>4.42</td>
<td>3.57</td>
</tr>
<tr>
<td>Hgb&lt;10</td>
<td>3.04</td>
<td>2.30</td>
<td>2.12</td>
</tr>
<tr>
<td>Abnormal WBC</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Mesenteric Ischemia</td>
<td>3.28</td>
<td>3.39</td>
<td>3.84</td>
</tr>
<tr>
<td>Discharge to ALF</td>
<td>NA</td>
<td>NA</td>
<td>9.54</td>
</tr>
</tbody>
</table>

NA not applicable, NS non significant
Conclusion: EL in the elderly population is associated with significant mortality. Predictors of short and long term mortality include age above 80 years, organ failure and mesenteric ischemic as an indication for EL. Low hemoglobin, albumin and elevated alkaline phosphatase and lactate dehydrogenase are markers of poor functional status and are predictors of both mortality and post-operative functional dependence. Active oncological status is a predictor of five-year mortality but not in hospital mortality or postoperative functional dependence. Discharge to ALF is a strong predictor of 5-year mortality.

Disclosure of Interest: None declared
EPIDEMIOLOGY AND THERAPEUTICS ASPECTS OF PRESSURE ULCERS IN TWO SUB-SAHARA AFRICAN UNIVERSITY TEACHING HOSPITALS

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Introduction: Pressure ulcers are frequent complications of bedridden patients, with an in-hospital prevalence varying between 6 to 20% depending on the level of care of the health facility. At Cameroonian tertiary levels of care, pressure ulcers have longed been a concern of prolonged hospital stay and poor healing performances. We aimed to determine the cumulative incidence of pressures ulcers, investigate external factors that could be optimized to improve case management of pressure ulcers, established the interest of surgery in the management of pressure ulcers in our resource-constraint environment.

Materials & Methods: In this prospective cohort study, all consenting consecutive patients admitted in some units in two tertiary centers in Yaoundé (Yaoundé University Teaching Hospital and Yaoundé Central Hospital) over a three-month period, were assessed for pressure sores risk using the Braden score scale, an international validated scale. Those at risk (Braden score < 16) were screened during their hospital stay for the pressure sores. Patients with length of hospital stay less than three days or with pre-existing pressure sores on admission were excluded. We studied socio-demographic parameters, co-morbidities and findings of clinical examinations. All patients were regularly examined every three days till hospital discharge.

Results: We enrolled a total of 946 patients; 426 from Yaoundé University Teaching Hospital and 520 from Yaoundé Central Hospital. The mean participants’ age was 53.5 years with extremes of 4 to 90 years; 53% patients were males and 47% were females. There were 385 patients at risk of pressure ulcers (Braden score < 16). The cumulative incidence of pressure ulcers was 20% in general and 50% in the population at risk. Prevalent pressure ulcers stages were stage 2 (57.4 %), stage one (30.9%), stage 3 and 4 (~ 10%). Surgical management was done in one case of sacral pressure sore.

Conclusion: Our findings suggest that pressure ulcers as well as their risk are frequent in our hospital settings. Their actual incidence is overestimated considering stage I sores, which are often poorly defined and confusing in the black race. Despite this high incidence, few patients are eligible for surgical management. With the advent of vacuum assisted closure of wounds, there is a possible alternative to surgery in speeding the healing of such wounds and sparing surrounding healthy tissues, generally considered the main surgical challenge in adverting recurrent pressure ulcers.

Disclosure of Interest: None declared
A RANDOMISED CASE CONTROL COMPARATIVE STUDY BETWEEN USE OF ANTIBIOTIC COATED SUTURES VERSUS NON-ANTIBIOTIC COATED SUTURES FOR PREVENTION OF ABDOMINAL SURGICAL WOUND INFECTION.

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Introduction: Infections that occur in the wound created by an invasive surgical procedure are referred to as surgical site infections (SSI). The presence of suture material in wounds increases the susceptibility of the tissue to infection. To prevent microbial colonization of suture materials, triclosan-coated polyglactin sutures were developed. A system of classification for surgical wounds that is based on the degree of microbial contamination was developed by the US National Research Council group in 1964. Four wound classes with an increasing risk of SSI were described:
- Clean surgical wound
- Clean-contaminated
- Contaminated
- Dirty.

In this study, SSIs were researched based on each of the wound classes.

Materials & Methods: This prospective randomised control study was done at dept of surgery, KJ Somaiya hospital, Mumbai. A sample size of 200 was chosen for statistical purpose. Ethical clearance was taken. All open abdominal elective/emergency surgeries were considered for the study. Any procedures involving glue/staplers were not included in the study. On-going sepsis, antibiotic treatment, allergy to triclosan were other factors for exclusion. Wound class was classified according to the National Research Council/ CDC Classification.

Superficial SSI was defined to have: purulent drainage; positive culture and Signs of inflammation. A deep SSI had to involve fascia or muscle layers. Predefined secondary endpoints were (i) culture-proven SSI according to CDC’s definition (ii) antibiotic-treated SSI which resulted in wound dehiscence both occurring within 60 days of surgery.

Results: All patient data will be entered as per the study proforma. This will include all details of clinical, laboratory, radiology, treatment modalities used, post-operative recovery and follow up of the patient. The data will be tabulated and analysed in Microsoft excel.

Conclusion: Most of the previous studies that have been done so far have been on a regional level in a non randomised manner over a limited surgical patients in a limited geo-graphical area. More such researches are need to be done on a wider scale involving multiple nations with use of varing variables like use of different type of antibacterial agents not only restricted to triclosan, with varying suture techniques to precisely conclude the type of suture and antibacterial agent that may best suit to prevent further surgical site infections in hospitals.

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Disclosure of Interest: None declared
MALIGNANT CAROTID BODY TUMOUR

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Introduction: A case report of a 31-year-old gentleman came with complaints of swelling in the left side of neck noticed since 1 month. Swelling was gradually increasing in size, with no associated pain or difficulty in swallowing and breathing, with no history of fever, cold or sore throat in the recent past. Physical examination revealed a swelling in the left carotid triangle which was immobile and had transmitted pulsations present. He was evaluated with an USG of the neck and a MRI followed by it. The investigations revealed a mass lesion in the distal common carotid artery with findings suggestive of carotid body tumour

Materials & Methods: Case Study from Surgical database of Amrita Institute of Medical Sciences

Procedure: Carotid body tumour excision with reconstruction of Internal carotid Artery.

Results: Carotid body tumour excision was done. Intra-operatively the tumour was encasing the common, internal and external carotid arteries and hence excision of the tumour along with vascular reconstruction was done. On histopathological examination with immunohistochemistry, it was found to be Malignant Carotid body tumour with lymph node metastases.

Conclusion: Carotid body tumours are rare neoplasms arising from the carotid body situated at the bifurcation of the common carotid artery. About 5-10% of these carotid body tumors are malignant. The histological pattern of the primary lesion is not an indicator of malignancy.

The hallmark of diagnosis of malignant carotid body tumour is the presence of lymph node involvement or distant metastases.

Extensive resection should be undertaken early. Radiotherapy is effective, whereas chemotherapy is uncertain. In view of the rarity of the presentation, we are interested to bring it to the notice of our fellow surgeons.

References:
2. Carotid Body Tumors 09/05/ 2016Author: Mohamad R Chaaban, MD, MBA, MSCR, FACS, FAANO; Medscape

Disclosure of Interest: None declared
A COMPARATIVE STUDY ON QUALITY OF LIFE, PHYSICAL AND MENTAL COMPONENT SUMMARY SCORE IN POSTERIOR INGUINAL HERNIoplastY TECHNIQUES I.E. STOPPA VERSUS ENDOSCOPIC TOTALLY EXTRAPERITONEAL REPAIR

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Introduction: During inguinal hernia surgery, surgeon should be concerned about quality of life (QOL) of patients. Various studies have compared QOL between endoscopic (posterior hernioplasty) and Lichtenstein hernioplasty (anterior hernioplasty). Therefore this trial was designed to compare QOL, physical and mental component score (PCS and MCS) between two posterior hernioplasty repair techniques i.e stoppa and endoscopic totally extraperitoneal repair.

Materials & Methods: Patients admitted for primary inguinal hernia surgery (November 2014 to October 2015) were randomly allocated in Group I for open (Stoppa) and Group 2 for TEP. Results of 20 patients in each group were analyzed postoperatively at baseline, 1, 3 and 6 months by SF 36 questionnaire (version 1) for 8 domains i.e vitality, physical function, bodily pain, general health, physical role, emotional role, social function, mental health. The answers were categorized in the form of scores from 0 to 100. Where score 100 was for optimal health. Questionnaire data were aggregated in two components: PCS and MCS scores.

Results: Score of vitality was significantly higher (p<0.05) in TEP at 3, 6 month. Physical functioning, mental health, bodily pain and general health, emotional role was significantly higher at 1 month only. Duration of surgery was longer in TEP (P<0.001). There was significant (p=0.01) difference in MCS score at baseline between Open (45.58±3.74) and Endoscopy (48.12±2.36) with no significant difference at 1, 3 and 6 month between the groups. There was insignificant (p>0.05) difference in PCS at baseline between Open (49.93±9.29) and Endoscopy (54.50±3.03). Scores for PCS were higher in TEP at 1, 3 and 6 month but not statistically significant.

Conclusion: MCS and PCS score was higher in TEP, but it was only significant for MCS at baseline (0 day) after surgery. Despite having longer duration of surgery and a higher cost, patients with TEP have slightly better QOL in early postoperative period.
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Disclosure of Interest: None declared
NEUTROPHIL SUBSETS AND ACTIVATION MARKERS ARE SENSITIVE DIAGNOSTIC INDICATORS OF THE ABDOMINAL AORTIC ANEURYSM

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Introduction: Neutrophils and monocytes are prominent cells in the intraluminal thrombus (ILT) associated with abdominal aortic aneurysm (AAA). Their recruitment and subsequent secretion of proteolytic enzymes may substantially contribute to the overall pathological role of the ILT in aortic wall weakening, thus increasing aneurysm growth and the risk of rupture. Recently, neutrophil subsets have been identified with distinct inflammatory activity. We hypothesised that the distribution of the quiescent (CD66b bright CD62L bright CD16 bright), activated (CD66b bright CD62L dim CD16 bright) and newly released (CD66b bright CD62L bright CD16 dim) neutrophil populations as well as the level of neutrophil activation markers in plasma is altered in AAA patients compared to healthy controls. Comparably, the frequency of monocyte subsets (based on CD14 and CD16 surface expression) was investigated.

Materials & Methods: 22 AAA patients with advanced disease (prior to surgical intervention) and 21 age, sex, BMI and smoker status-matched healthy individuals were assessed. Monocytes and neutrophils were stained in hirudinised, fixed whole blood with fluorescent antibodies and quantified by flow cytometry. Patient plasma was analysed for neutrophil elastase, NGAL and MPO by ELISA. SDF-1α, RANTES, MIP-1α, MIP-1β, MCP-1, IL-8, IP-10, GRO-α, and eotaxin were quantified by Procarta Multiplex Immunoassay.

Results: Among the secreted factors only MPO (mean+-SD 16.1+-11.2 vs. 7.3+-3.0 ng/ml, p<0.001) and MCP-1 (95.8+-29.4 vs. 62.7+-24.3 pg/ml, p=0.002) were significantly increased in AAA patients compared to healthy individuals. Correspondingly, a significant increase in the frequency of activated as well as newly released neutrophils was identified in AAA patient blood (2.95+-0.66 vs. 1.92+-0.36 and 3.20+-0.87 vs. 1.67+-0.39%, p<0.001). A significant correlation was identified between MPO level and the proportion of activated neutrophils (r=0.407, p<0.001). The distribution of monocyte subsets did not differ significantly between AAA patients and the control group.

Conclusion: An increased frequency of newly released and activated neutrophil subsets is significantly associated with AAA, as further reflected in a higher plasma level of MPO which is secreted by activated neutrophils. The potential of neutrophil subsets and activation markers to predict AAA progression is currently under investigation.

Disclosure of Interest: None declared
Introduction: The measurement of a single abdominal image on computed tomography (CT) can provide an estimate of total body skeletal muscle. We evaluate the change of the area of the psoas major muscle (PMMA) in a CT which was performed routinely after gastrectomy in gastric cancer.

Materials & Methods: The subjects of the study were 119 gastric cancer patients who underwent gastrectomy. An CT image at the level of the top of the iliac crest was obtained at the following times: 3 postoperative months (POM), 6 POM, 1 postoperative year (POY), 2 POY, 3 POY and 5 POY. We analyzed the change rate of PMMA after gastrectomy and before or after recurrence.

Results: PMMA change after gastrectomy was approximately between −8% and −10% over the 5-year observation period. PMMA in the R2 (macroscopic residual tumor)/recurrence group was lower than that in the no recurrence group, and a significant difference was observed at 2 POY (−21.7±3.6% vs. −7.9±2.3%, P<0.01). And, PMMA after freshly diagnosed recurrence had decreased significantly by 14.1±1.8% (P<0.01).

Conclusion: To evaluate PMMA change by CT after gastrectomy could assist in diagnosis of the progression of cancer state in gastric cancer patients.

Disclosure of Interest: None declared
Introduction: OBJECTIVE: To identify which is a better predictor for post-operative morbidity of major gastrointestinal surgery for malignancy in Filipino patients.

Materials & Methods: A prospective descriptive single-center study conducted in patients who underwent major gastrointestinal surgery for malignancy from September 2014 to September 2015. The body mass index (BMI) was derived from height and weight of the patient taken on admission, waist to hip circumference ratio (WHR) was derived from hip and waist circumferences measured pre-operatively, and waist to height ratio (WHtR) was derived from waist circumference and height measured pre-operatively.

Results: A total of 27 patients were included in the study comprising mostly of male (59.3%). Majority of the patients underwent elective surgery for colorectal malignancy (59.3%). For every increase unit of BMI, WHR and WHtR, there is an increased risk for surgical site infection and hospital acquired infection but did not reach significance for the outcomes, and with no noted predictive value for length of hospital stay, anastomotic leak, re-operation nor readmission for Filipino patients.

Conclusion: CONCLUSION

This study demonstrated that body mass index (BMI), Waist to hip circumference ratio (WHR) and Waist to height ratio (WHtR) are poor predictors for post-operative morbidity in elective major gastrointestinal surgery for malignancy for Filipino patients.

Disclosure of Interest: None declared
Introduction: Immunonutrition is broadly reported to have advantages in the postoperative course by decreasing complications and length of hospital stay (LOS). The aim of this systematic review was to summarize evidence for the potential benefits of immunonutrition in major abdominal surgery with special regard to different patient populations.

Materials & Methods: A systematic literature search from 1985 to July 2015 was performed in MEDLINE, EMBASE, and CENTRAL without language restrictions. Randomized controlled trials (RCT) investigating immunonutrition after major abdominal surgery were included. Two reviewers independently identified the relevant trials and extracted data on mortality, overall complications, infectious complications, length of hospital stay (LOS) and trial quality.

Results: A total of 83 RCTs with 7,116 patients were included. Mortality was not altered by immunonutrition. Compared to control groups, immunonutrition reduced overall complications (OR 0.79; 95% CI: 0.66 to 0.94; p=0.01) and infectious complications (OR 0.58; 95% CI: 0.51 to 0.66; p<0.001), and shortened LOS (MD -1.79 days; 95% CI: -2.39 to -1.19; p<0.001). However, after excluding trials mainly at high risk of selective reporting, all significant treatment effects vanished. Moreover, the funnel plot for infectious complications indicated publication bias (p=0.002). Non-industry funded trials reported no positive effects (overall complications OR 1.13; 95% CI: 0.88 to 1.46; p=0.34) whereas industry funded trials reported large treatment effects (overall complications OR 0.66; 95% CI: 0.48 to 0.91; p=0.01).

Conclusion: For major abdominal surgery, no high-quality evidence (according to GRADE) justifies an unrestricted recommendation in favor of the use of immunonutrition. A major part of the measured effect of immunonutrition seems to be based on selective reporting, publication bias and industry bias. Even though many RCTs exist high-quality trials are still lacking and are urgently needed.

Disclosure of Interest: None declared
ACERTO MULTIMODAL PERIOPERATIVE CARE IN BARIATRIC SURGERY. ANALYSIS OF 200 PATIENTS
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Introduction: The Acerto project (accelerating the total recovery of patients in the postoperative period) is an educational program that aims at enhancing the postoperative recovery of patients, and it was implemented in Brazil since 2005. We aim to assess the level of knowledge among bariatric surgeons, about the recommendations of the ACERTO Project, correlating the “imaginary” of the surgeons on their perioperative prescriptions and the “reality” that happened according to the patients files.

Materials & Methods: We performed a prospective longitudinal observational study comparing the "Imaginary" of bariatric surgeons obtained through their responses on a specific questionnaire about perioperative care in bariatric surgery and the “reality” found in clinical data from the hospital records. We analyzed the following variables: lenght of preoperative fasting, early postoperative feeding, intravenous hydration, perioperative antibiotic prophylaxis, use of abdominal drains, type of analgesia, and prophylaxis of nausea and vomiting. The data of seven bariatric surgeons were confronted with data from 200 records of patients underwent gastroplasty due to morbid obesity.

Results: There were no postoperative deaths. Discharge to home was obtained in 187 pacientes (93.5%) on the 1st PO day, ie , the next day of the procedure. Twelve (6%) were discharges on the 2nd PO day and one patients stayed for seven days due to pneumonia.

The Acerto project was well known by all interviewed surgeons. Five (72%) responded that they followed the protocol thoroughly. The median time of preoperative fasting found in the records was higher than the reported by the surgeons (p <0.05). Early postoperative feeding was prescribed for 96.5% of cases. The median volume of intravenous fluids prescribed intraoperatively was 1000 (500-4000)mL. Only 13 (6.5%) patients received intravenous fluids on 1st PO day in a median of 1500 (500-3000)mL, which was consistent with that reported in the interview. Only one patient received intravenous fluids on the 2nd PO day. There were no cases of readmissions on the following 30 days.

Conclusion: The ACERTO project was well known and practiced among the surveyed surgeons. There was a good correlation between the "imaginary and the "reality" in perioperative care in patients undergoing bariatric surgery. The use of this multimodal perioperative care was safe and associated with a reduced length of postoperative stay and postoperative complications.


Disclosure of Interest: None declared
COMPARISON OF ENERGY EXPENDITURE USING INDIRECT CALORIMETRY AND PREDICTIVE EQUATIONS IN TRAUMA PATIENTS
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Introduction: The purpose of this study is to compare resting energy expenditure (REE) calculated by prediction equations to the measured REE by indirect calorimetry (IC) in trauma patients.

Materials & Methods: From January to December 2015, it was enrolled patients who maintained mechanical ventilation among trauma patients admitted in TICU of Gachon University Gil Medical Center. REE was measured by indirect calorimetry (CCM express®, Medgraphics) and calculated by predictive equations, Harris-benedicts, Fleish and Robertson and Reid, Ireton-Jones and The maximum values (25 kcal/kg/day) of European Society for Clinical Nutrition and Metabolism (ESPEN). All patient was ventilated below 60% of FiO2.

Results: Thirty-one patients were included in the study. Male patients were 24 (77.4%) and female were 7 (22.6%). The mean age of patients was 49.7 ± 13.2 years. The mean weight was 68.1 ± 9.6. The mean of ISS was 26.1 ± 11.3. The mean Respiratory quotient was 0.93 ± 0.19 in IC. The mean of FiO2 was 38.72 ± 6.97. The mean of measured REE by IC was 2146 ± 444.36 and the mean of calculated REE by predictive equations was 1509.39 ± 205.34 in Harris and Benedict, 1509.39 ± 154.33 in Fleish, and 1443.39 ± 159.61 in Robertson and Reid. These 3 PEs were significantly lower compared to measured REE by IC (p=0.006, p=0.003, P<0.001 respectively). In Ireton-Jones (2278.90 ± 202.35) was slightly higher but was not significant. (p=0.53). Also, ESPEN maximum values (1704.03 ± 449.36) was slightly lower but was not significant (p=0.127)

Conclusion: The measured REE by IC was relatively higher than calculated by predictive equations. Further study is needed to determine the proper nutritional support for trauma patients.

Disclosure of Interest: None declared
POST HOC ANALYSIS OF SHORT BOWEL SYNDROME DUE TO VASCULAR CATASTROPHES: DIFFERENTIAL BASELINE CHARACTERISTICS ARE ASSOCIATED WITH VARYING RESPONSE TO TEDUGLUTIDE TREATMENT


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Introduction: Vascular catastrophes are an underlying condition for massive intestinal resection and failure associated with short bowel syndrome (SBS–IF).

Materials & Methods: This post hoc analysis compared baseline characteristics and clinical response to teduglutide (TED) in patients (pts) with SBS–IF due to vascular catastrophes (SBS–Vasc [ie, intestinal ischaemia or mesenteric vessel thromb/emboli]) vs pts with nonvascular causes of SBS–IF (SBS–non-Vasc) in STEPS (NCT00798967; EudraCT2008-006193-15), a 24-wk, placebo (PBO)-controlled study of TED 0.05 mg/kg/day. Response was defined as ≥20% parenteral support (PS) volume reduction at Wks 20-24. Descriptive summary statistics are presented (SDs or 95% CIs).

Results: The majority of intestinal resections were for mesenteric vessel thromb/emboli (SBS–Vasc; n=23/32) or Crohn’s disease (SBS–non-Vasc; n=18/53; Table). At baseline, SBS–Vasc pts had shorter bowel length (55 vs 92 cm), were more likely to have colon-in-continuity (78% vs 43%), and were less likely to have a stoma (19% vs 61%) vs SBS–non-Vasc pts. SBS–Vasc pts had lower baseline PS volume vs SBS–non-Vasc pts (11.2 vs 14.3 L/wk). At Wk 24, 53% (CI, 27%–79%) of SBS–Vasc pts and 70% (CI, 50%–86%) of SBS–non-Vasc pts were TED responders. With PBO, 35% (CI, 14%–62%) of SBS–Vasc pts and 27% (CI, 11%–48%) of SBS–non-Vasc pts met response criteria. With TED, 53% of SBS–Vasc pts (n=8/15) and 54% SBS–non-Vasc pts (n=13/24) obtained ≥1 additional day per wk off PS; with PBO, 31% of SBS–Vasc pts (n=5/16) and 17% of SBS–non-Vasc pts (n=4/23). In the TED pts, mean PS volume (change and percentage change) reduction took longer in SBS–Vasc pts (Wk 12, 1.9 [CI, 0.3–3.5]; 12% [CI, 3%–20%]; Wk 24, 3.6 [CI, 1.5–5.7]; 25% [CI, 15%–35%]) vs the SBS–non-Vasc pts (Wk 12, 2.0 [CI, 0.0–4.0]; 14% [CI, 16%–33%]; Wk 24, 5.5 [CI, 3.4–7.6]; 36% [CI, 29%–43%]). SBS–Vasc pts (>15%) reported abdominal pain, dyspnoea, fatigue, nausea, and peripheral oedema, whereas SBS–non-Vasc pts (≥15%) reported nausea, abdominal distension, abdominal pain, stoma complication, and peripheral oedema. TEAEs leading to TED discontinuation occurred in 0% (n=0/15) and 7% (n=2/27) of SBS–Vasc vs SBS–non-Vasc pts.

Table: Demographic and Baseline Characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>SBS–Vasc (n=17)</th>
<th>SBS–non-Vasc (n=53)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y</td>
<td>56.7 (13.8)</td>
<td>52.3 (15.8)</td>
</tr>
<tr>
<td>Male sex, %</td>
<td>9 (47)</td>
<td>9 (40)</td>
</tr>
<tr>
<td>Body weight, kg</td>
<td>83.6 (12.8)</td>
<td>63.9 (11.2)</td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td>23.3 (3.4)</td>
<td>22.6 (3.4)</td>
</tr>
<tr>
<td>SBS history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular catastrophe categories, %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intestinal ischaemia</td>
<td>3 (18)</td>
<td>5 (33)</td>
</tr>
<tr>
<td>Mesenteric vessel thromb/emboli</td>
<td>14 (82)</td>
<td>9 (60)</td>
</tr>
<tr>
<td>Unknown vascular cause</td>
<td>0 (0)</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Nonvascular causes of SBS–IF, %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crohn’s disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injury</td>
<td>4 (24)</td>
<td>4 (15)</td>
</tr>
<tr>
<td>Venous</td>
<td>6 (36)</td>
<td>3 (11)</td>
</tr>
<tr>
<td>Cancer</td>
<td>2 (12)</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Other</td>
<td>6 (35)</td>
<td>9 (33)</td>
</tr>
<tr>
<td>Colon-in-continuity, %</td>
<td>13 (76)</td>
<td>12 (58)</td>
</tr>
<tr>
<td>Stoma presence, %</td>
<td>2 (12)</td>
<td>6 (15)</td>
</tr>
<tr>
<td>Jejunostomy</td>
<td>1 (6)</td>
<td>2 (5)</td>
</tr>
<tr>
<td>Ileostomy</td>
<td>0 (0)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Colostomy</td>
<td>0 (0)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (5)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>N-Vascular valve present, %</td>
<td>2 (12)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Estimated remaining small bowel length, cm</td>
<td>40.2 (39.9*70.9 (57.6)</td>
<td>67.6 (73.6) (67.5</td>
</tr>
<tr>
<td>Antiproteolytic agents, n (%)</td>
<td>3 (18)</td>
<td>9 (30)</td>
</tr>
<tr>
<td>Protein pump inhibitors, n (%)</td>
<td>9 (53)</td>
<td>9 (30)</td>
</tr>
<tr>
<td>PS duration at baseline, y</td>
<td>6 (1.2)</td>
<td>5.5 (4.7)</td>
</tr>
<tr>
<td>PS /week at baseline</td>
<td>10.2 (5.4)</td>
<td>12.4 (5.6)</td>
</tr>
</tbody>
</table>

Conclusion: SBS–Vasc pts were more likely to have colon-in-continuity, less likely to have a stoma, and had less baseline PS volume than SBS–non-Vasc pts. In the light of these cofactors, SBS–IF pts with vascular catastrophes took longer to respond to TED with measurable PS volume reductions compared to pts with nonvascular causes of SBS–IF.

Introduction: Short term medical service trips (MSTs) in low- and middle-income countries (LMICs) have gained popularity during the past few years. The effectiveness of these missions is discussed controversially. Although it is known that significant amounts of surgical care can be delivered by MSTs, there is a lack of data considering the role of educational programs performed in this setting as well as the impact these interventions have on the populations served. The purpose of this study was to determine the efficiency of teaching a standardised open mesh repair technique for inguinal hernias and to evaluate Disability-Adjusted Life Years (DALYs) averted by regular short missions in rural Nigeria.

Materials & Methods: This retrospective study included 13 humanitarian missions carried out by the Swiss Surgical Teams in rural Nigeria between 2011 and 2016. These missions aimed to improve the surgical capacity of the local staff by teaching inguinal hernia repair using mosquito mesh. Primary outcome was the number of treated inguinal hernias, the proportion of procedures performed by the local staff and averted DALYs due to the performed interventions. Hernias were classified according to the modified Kingsnorth Classification.

Results: We performed 1447 hernia repairs in 1280 patients. The male to female ratio was 1147 to 300 (79.3% to 20.7%).
Hernia repair was performed for 412 H1 (28.5%), 364 H2 (25.2%), 337 H3 (23.3%), 206 H4 (17.5%) and 28 Hped (8.8%).
The overall percentage of hernia repairs performed by nigerian surgery staff was 32.2% of which one third was carried out independently. Focussing on the last three missions, we recorded a increased rate with more than 50% of the surgeries performed by nigerian staff. A total of 8652.8 DALYs were averted, accounting for 7.2 DALYs per patient.

Conclusion: We assessed the value of MSTs focussing on training in inguinal hernia repair in rural Nigeria. Our results confirm that a significant amount of surgical care can be delivered during short term humanitarian missions. An increasing number of surgeries were performed by nigerian staff autonomously. Our data confirms the capability of such a training program in capacity building and promoting independence among local doctors. With 7.2 DALYs averted per patient we contribute to an improvement in quality of life in the region.

Disclosure of Interest: None declared
APPENDICITIS: RURAL PATIENT STATUS IS ASSOCIATED WITH INCREASED DURATION OF PREHOSPITAL SYMPTOMS AND WORSE OUTCOMES IN HIGH AND LOW-MIDDLE INCOME COUNTRIES

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Introduction: Appendicitis is a significant economic and healthcare burden in low, middle, and high income countries. We aimed to determine whether urban and rural patient status would affect outcomes in appendicitis in a combined population regardless of country or economic status. We hypothesize that patients from rural areas in both high and low-middle income countries would have disproportionate outcomes and duration of symptoms compared to their urban counterparts.

Materials & Methods: Adults (≥18) with appendicitis during 2010-2016 in South Africa and the USA were reviewed using multi-institutional data. Baseline demographics, operative details, durations of stay, and complications (Clavien-Dindo class) were collected. AAST grades were assigned by two independent reviewers based on operative findings. Summary, univariate, and multivariable analyses of rural and urban patient in both countries were performed.

Results: There were 2476 patients with a median [IQR] age of 27 [19-41] years, 46% female. Initial management included: McBurney incision (n=416, 16.8%), laparotomy (n=832, 33.6%), laparoscopy (n=1188, 48%), and laparoscopy converted to laparotomy (n=40, 1.6%). Comparing rural versus urban status, there were increased median [IQR] AAST grade (3 [1-5] vs 2 [1-3] p<0.001), prehospital duration of symptoms (2 [1-5] vs 2 [1-3], p<0.001), complication incidence (44.3% versus 23%, p<0.001) and need for temporary abdominal closure (20.3% vs 6.9%, p<0.001). Comparison of Clavien-Dindo class and hospital duration of stay is outlined in Figure.

Conclusion: Despite socioeconomic status and country of origin, patients from more rural environments have worse outcomes notwithstanding anatomic disease. AAST grading may serve as a potential benchmark for recognition of areas with disparate disease burden. This information could be used for strategic improvements for surgeon placement and availability.

References:
Hernandez et al. Increased anatomic severity predicts outcomes: validation of the American Association for the Surgery of Trauma's emergency general surgery grade in Appendicitis. J Trauma Acute Care Surg. 2017. 82 (1); 73-79
Kong et al. Quantifying the disparity in outcome between urban and rural patients with acute appendicitis in South Africa. SAMJ. 2013 103(10):742-745

Disclosure of Interest: None declared
**Introduction:** Severe data shortages have prompted the WHO to call for global surgery research. Obtaining follow-up data abroad has proven challenging. However, even in impoverished regions, most patients have mobile phones. These phones may be used for remote follow-up. The objective of this study was to evaluate a remote follow-up strategy and analyze outcomes of a surgical mission.

**Materials & Methods:** A prospective study of care delivered by US surgeons during a humanitarian mission to Guatemala. Data was collected in Guatemala as well as remotely via phone. The operations took place at the Hospital Nacional de Amatitlan. Initial data was collected during the mission in Guatemala. The second phase of data collection occurred remotely by calling each patient from the US one month after completion of the mission. The main outcome measure was the follow-up rate. Post-operative complication rates was another key outcome measure.

**Results:** 54 (52 patients) operations were analyzed. 69.2% of patients were female. Mean age was 42.2 years (1.6-78). Most underwent general (55.7%) or spinal (42.3%) anesthesia. The operations included: 14 (25.9%) inguinal hernia repairs, 8 (14.8%) open cholecystectomies, 7 (13.0%) abdominal hysterectomies, 5 (9.3%) vaginal hysterectomies, 4 (7.4%) face/neck scar revisions, 4 (7.4%) ventral hernia repairs, 3 (5.6%) umbilical hernia repairs, 2 (3.7%) lipoma excisions, 1 (1.9%) abdominal hysterecmy/salpingoopherectomy, 1 (1.9%) cleft lip repair, 1 (1.9%) cleft palate repair, 1 (1.9%) forehead lesion excision, 1 (1.9%) neck contracture release, 1 (1.9%) subtotal thyroidectomy, and 1 (1.9%) scrotal cyst excision.

38.4% of patients had in-person follow-up and 70% were followed-up remotely. Peri-operative complications included (n=52): 1 (1.9%) hemorrhage requiring blood transfusion, 1 (1.9%) episode of transient hyperpyrexia and tachycardia after thyroid surgery, and 1 (1.9%) incidence of laryngospasm. One month post-operative complications included 3 (8.1%) wound infections (n=36).
Conclusion:
In resource-poor settings abroad, follow-up data can be obtained via mobile phones. Phone encounters can identify patients with more pressing requirements for in-person care. Short-term missions provide effective surgical care with acceptable complication rates.

References:

Disclosure of Interest: None declared
A COMPARISON OF SPINAL AND EPIDURAL ANESTHESIA IN PILONIDAL SINUS SURGERY

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Introduction: Regional anesthesia techniques may be preferred to general anesthesia for pilonidal sinus surgery due to difficulties related to prone position under general anesthesia. We aimed to compare spinal anesthesia and epidural anesthesia in respect to the peroperative and postoperative side effects and postoperative pain level.

Materials & Methods: One hundred American Society of Anesthesiologist (ASA) I-II adult patients underwent pilonidal sinus surgery. The patients were randomly divided to two groups of spinal anesthesia (SAG, n=50) versus epidural anesthesia (EAG, n=50). Perioperative and postoperative side effects related to anesthesia and, postoperative pain level were compared between the groups.

Results: All anesthesia procedures were achieved at the first attempt. There was significant difference in respect to the maximal sensorial height of block (L₁-L₃ for EAG and T₇-T₁₁ for SAG, p<0.001). Duration of sensorial block was significantly longer in EAG (290±23 min) compared to SAG (215±6 min). There was no patient who developed motor block with epidural anesthesia. Duration of motor block was 156 ± 6 min in the SAG. There were no significant differences in respect to the side effects between the groups. Bradycardia and postoperative nausea/vomiting were not observed in any patients of both groups. Urinary retention was the most common side effect related to regional anesthesia after the surgery (four patients in EAG and 7 patients in SAG, p=0.525). Although there was no patient developed headache in EAG, four patients suffered from headache in SAG (p=0.117). Hypotension was observed in two patients an one patient in EAG and SAG respectively (p > 0.999). Postoperative pain levels were evaluated with visual analogue scale (VAS) at postoperative recovery room and 6, 12 and 24 hours after the surgery (table 1).

None of the patients in both of groups required analgesic treatment for first 6 hour after the surgery. Postoperative surgical pain were significantly less in EAG compared to SAG exept 6th hour. But there was a clinically small difference.

Table 1. Postoperative pain evaluateion.

<table>
<thead>
<tr>
<th>VAS</th>
<th>EAG (n=50)</th>
<th>SAG (n=50)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAS 0</td>
<td>0-1</td>
<td>0-3</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>VAS 6th hour</td>
<td>5-8</td>
<td>3-8</td>
<td>0.091</td>
</tr>
<tr>
<td>VAS 12th hour</td>
<td>2-5</td>
<td>2-6</td>
<td>0.043</td>
</tr>
<tr>
<td>VAS 24th hour</td>
<td>1-4</td>
<td>1-5</td>
<td>0.016</td>
</tr>
</tbody>
</table>

Data are given min-max. EAG: epidural anesthesia group, SAG: spinal anesthesia group, VAS: visual analogue score.

Conclusion: Epidural anesthesia may be preferred to spinal anesthesia due to better postoperative pain control and absence of motor block.

Disclosure of Interest: None declared
SURGICAL AND WOUND CARE ROUNDS AT POST-ACUTE CARE FACILITIES MAY REDUCE HOSPITAL READMISSION RATES PARTICULARLY IN THE SURGICAL PATIENT POPULATION

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Introduction: Post acute care facilities play an integral role in caring for surgical patients upon hospital discharge. With an ever increasing number and complexity of patients entering post acute care facilities -- the challenges faced today are very different than complexities faced just a decade ago. This is compounded with hospitals looking to reduce length of stay while avoiding readmissions. Faced with these increasingly complex surgical patients, some post acute care facilities have surgeons complete regular surgical and wound rounds.

Materials & Methods: A retrospective chart review was completed on surgical and wound care consults completed at rurally located post-acute care facilities over a six month period. Variables collected included: patient demographics, reason for consult, any procedural interventions and if patient required hospital readmission or unplanned visit to outpatient surgical or wound clinic.

Results: A total of 748 surgical and wound care consults were reviewed, 383 of which were new consults not previously followed. Of new first time surgical and wound care consults 40% (279/383) required procedural interventions which otherwise would have required transfer to acute care facility or outpatient surgical clinic.

Conclusion: While this is a very limited sample size and not representative of possible regional differences, it highlights trends observed in post acute care facilities. Our review of the records show weekly surgical and wound care rounds with a surgeon may reduce hospital readmission particularly in the surgical patient population. These results are encouraging but more research is needed to better quantify impact surgical and wound rounds can have at post-acute care facilities.

Disclosure of Interest: None declared
NEUTROPHIL–LYMPHOCYTE RATIO (NLR) AND PLATELET-LYMPHOCYTE RATIO (PLR) VERSUS LABORATORY RISK INDICATOR FOR NECROTIZING FASCIITIS (LRINEC) AS PREDICTORS OF OUTCOME IN NECROTISING FASCIITIS

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Introduction: Necrotizing fasciitis (NF) is a fatal, aggressive infectious disease involving the subcutaneous tissue, fascia and fat associated with substantial morbidity and mortality. To date, the Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) is the most appropriate tool for diagnosis and discrimination of NF. We aimed to assess the ability of Neutrophil–Lymphocyte ratio (NLR) and Platelet-Lymphocyte ratio (PLR) vs. LRINEC at admission to predict outcomes.

Materials & Methods: 122 patients with biopsy proven NF were retrospectively analysed at our institution between October 2014 and December 2016. Clinico-pathological features, LRINEC, NLR & PLR at admission were analysed and co-related with morbidity and mortality of NF. The correlations between variables were studied by means of the Spearman coefficient of correlation and the Mann-Whitney U-test. Chi square test, continuity correction & Fisher exact test were used to find the significance of study parameters on categorical scale between the groups. The differences regarded as statistically significant are those whose P<0.05

Results: The mean age of the study group was 59.9±14.0 years, with 81 males. Out of the 122 patients studied, 53 required Intensive Care Unit (ICU) stay with 9 mortalities. Among the non-survivors, Diabetes mellitus (p = 0.02), hypertension (p = 0.01), and coronary artery disease (p = 0.04) were more prevalent. The most commonly isolated organism was β-haemolytic streptococci (n=40, 32.8%) followed by E.coli (n=39, 30%). The median LRINEC score was 7 (IQR=4), the median NLR was 5.165 (IQR = 6.9) and the median PLR was 146 (IQR -125.75). Non-survivors had greater LRINEC (p<0.001) and NLR scores (p<0.001), however PLR scores were not significant (p = 0.721). Patients with diabetes (p=0.04) and Ischemic Heart Disease (p=0.004) were more disposed for repeat surgery. NLR (p = 0.005) and LRINEC (p<0.001) were sensitive indicators to predict mortality. LRINEC (p<0.001), age (p=0.03) and NLR (p<0.001) were also sensitive predictors of repeat surgery. The significant predictors of ICU admission were Age (p=0.01), PLR (p=0.05), NLR (p<0.001) and LRINEC (p<0.001).

Conclusion: The ability of NLR to predict mortality, need for repeat surgery and need for ICU admission was comparable with the LRINEC score. The preoperative NLR, but not PLR, may be used as a potential and easy biomarker for survival prognosis in patients with NF. NLR may be useful as a simpler, cost-effective, and rapid surrogate marker for LRINEC, especially useful in a resource-limited setting.

Disclosure of Interest: None declared
ROLE OF TECHNOLOGY IN BREAST CANCER SCREENING IN TRIBAL RURAL WOMEN
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Introduction: The Lifeline Express or Jeevan Rekha Express is World's first hospital train run by the Impact India Foundation. It was developed in collaboration with the Indian Railways and Health Ministry and has been funded by Impact UK, international charitable sources, Indian corporate houses and individuals. It started on 16 July 1991; as of 2016 the service had completed almost 200 projects, benefiting over 900,000 rural Indians. This study aimed to study the role of Superspeciality doctor (Endocrine and Breast Surgeon) in this setting.

Materials & Methods: The specialist Surgeon was assigned a task to screen and teach the importance of Breast self examination in the rural setting. The women were divided into batches of 50 and were shown a powerpoint presentation with a video on breast self examination. The screening was done by 2 female general surgeons and any kind of abnormal finding was consulted to the endocrine and breast surgeon. At the end of 15 minutes lecture on screening and breast self examination, the ladies were provided a pamphlet on breast self examination in their native language and also advised and requested to teach another 5 women in the community.

Results: 1000 ladies were screened and taught them the importance of Breast Self Examination. Each Lady was requested to teach another 5 women in the community. Patients with breast cancer (6 ladies) were appropriately referred and treated in a tertiary referral hospital. 120 patients had mastalgia, treated with dietary measures and first line drugs evening primrose oil and vitamin e. 1 month telephonic follow up revealed 60% ladies taught an average 4 other ladies and was complaint. 2 patients who had abscesses was aspirated. Out of 6 patients with breast cancer 5 were locally advanced breast cancer (1 fungating breast cancer). The average duration of tumour was 34±12 weeks.

Conclusion: Technology with the intent to serve the rural community should be the motto to provide improved health care to the neglected rural women.

Disclosure of Interest: None declared
NEED OF ACCREDITATION AND STANDARDIZATION OF GLOBAL CURRICULUM AND SYLLABUS FOR ENDOCRINE SURGERY TRAINING PROGRAMMES
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Introduction: Since the year 2000, there has been a gradual increase in the number of endocrine surgery training positions offered worldwide; from 23 in the year 2000 to approximately 75 in 2016. However, endocrine surgery training programmes offered by various institutions in the form of fellowships and courses adhere to the accreditation process relevant to the country for example professional vs regulatory bodies. This study aims at finding out information relevant to certification of trainees in this specialty- duration of training, entry/exit criteria, curriculum and syllabus and accreditation agency.

Materials & Methods: Information relating to endocrine surgery training programmes was archived from electronic resources such as publications, web portals of official endocrine surgery professional bodies and institutions offering such courses worldwide. Analysis of the information so obtained led to the data on endocrine surgery fellowship positions available, entry and exit criteria, length of fellowship, funding, curriculum and the agency involved in accreditation of such fellowship/courses.

Results: Globally 75 trainee positions were identified at 58 institutions- 28 in North America, 5 in Latin America, 17 in Australia and New Zealand, 10 in Asia, 25 in Europe and none in Africa. The average length of residency leading to award of fellowship/Diploma/Degree ranged from 1 to 3 years. The curriculum of majority (n=58) of such programmes consist of thyroid, parathyroid, adrenal and NETs but many others also include breast (n= 25, 43%), diabetic foot (n=12, 21%), thymus (n=17, 30%) and salivary gland (n=4, 7%) suggesting variations worldwide. The assessment of trainees at the end of courses also differs as most of the programmes (88%) are only for one year. Selection process and exit criteria are not uniform, even differ within the same country. Globally 55 centres have their fellowships accredited by either Association or respective Institutions, three centres in India have MCh degree recognized by the Medical Council of India, regulatory body for medical education.

Conclusion: This study has brought out a significant issue relating to variations in endocrine surgery training programmes worldwide. There is a need to develop uniform guidelines across the world for training programmes e.g. curriculum and syllabus, entry and exit criteria, duration of fellowship/course, accreditation body etc. as has been standardized for other specialities of surgery.

Disclosure of Interest: None declared
Introduction: With the advancement of medical science in last two decades, super specialized disciplines are emerging and have shown improved quality and safety in health care leading to better outcome. Though the industry has developed enough to meet the demand of diagnostics and therapeutic needs, there is scarcity of trained human resources in such advanced specialities to cater the services, in particular in low and middle income countries. There is a need to develop innovative methods to educate and train such human resource adopting collaborative technologies and network which are universally available and robust enough to support remote training and skill development.

Materials & Methods: We have been collaborating with the Department of Experimental Surgery, S.C.B. Medical College, Cuttack located 1200 kms away from SGPGIMS Lucknow, India adopting Tele-surgical mentoring technologies to develop Endocrine Surgery expertise in the background of General Surgery. First part of the project (Phase I: 2001 to 2005) has been completed and the result was published [1]. The objective of this study is to review the outcome of next 11 years (Phase II 2006-2016) of this collaboration which includes clinical case discussion, decision support, treatment planning using interactive videoconference system over high speed internet network.

Results: The number of total endocrine surgical cases has increased significantly during phase II (n=1172) compared to phase I (n=890) (p=0.06) highest in thyroid surgery but the number of parathyroid and adrenal surgeries have also increased in phase II (n=56) which were very less in phase I (n=14) (p <0.001). The rates of temporary and permanent vocal cord palsy (1.7% & 0%), temporary and permanent hypocalcaemia (5.91% & 1.07%) are comparable to high volume centres. Log Book record showed that all two faculty members regularly participated and have been benefited with this exercise. Based on the quantum of work done in the field of endocrine surgery with safe and quality outcome the Government of Odisha has changed the department name from Experimental to Endocrine Surgery in the year 2016.

Conclusion: The study has established the fact that sustained engagement using tele-medicine based tele-mentoring approach can transfer surgical skill to needy surgeons and benefit them to match the expertise of mentors. This model can be replicated in number of locations and other specialities as well in cost effective way to develop specialized human resources.

References:

Disclosure of Interest: None declared
Introduction: The "older surgical patient" continues to represent an ever increasing proportion of the spectrum of general surgery. Hence, it is crucial to address factors uniquely impacting their surgical outcomes. Consistent with this effort, best practice guidelines such as, "Optimal Preoperative Assessment of the Geriatric Surgical Patient," were developed. These guidelines reflect a comprehensive preoperative assessment of the geriatric patient addressing pertinent domains such as cognitive, functional, social support, and frailty.

Materials & Methods: The Center for Geriatric Surgery aims to complete a comprehensive preoperative assessment on older patient’s (≥ 75 years) undergoing elective procedures. Assessments completed include: timed-up-and-go, mini-Cog test, gait speed, Fried’s frailty phenotype, activities of daily living, and Charleston Co-morbidity Index. Issues identified by this screening may lead to further perioperative interventions. Patients were prospectively evaluated between October 2012 and August 2016 and entered into a database consisting of perioperative variables and NSQIP post-surgical outcomes.

Results: A total of 1,088 patients were evaluated, with 387 males (36%) and 701 females (64%). Age ranged from 75 to 100 years of age. Minor procedures were excluded (such as ophthalmic surgery, arthroscopy). Major surgeries included were cardiothoracic, orthopedic, surgical oncology, general surgery, and vascular surgery.

Conclusion: It may be difficult to implement thorough, in-depth, geriatric assessments recommended by well established best practice guidelines particularly in small practices or rurally based clinics. However, a curtailed "geriatrically tailored" preoperative assessment is still highly recommended. When geriatric domains (like nutritional status, cognition and social support) are addressed pre-operatively rather than post-operatively, "prophylactic" perioperative interventions may help optimize post-surgical outcomes.


Disclosure of Interest: None declared
THE EPIDEMIOLOGY OF EMERGENCY DEPARTMENT THORACOTOMY: DOES CENTER VOLUME MATTER?
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Introduction: The relationship between high volume and improved outcomes has been described for a host of elective high-impact, low-frequency procedures. Such a relationship would support the need to adopt methods such as simulation to maintain a skillset. Using Emergency Department Thoracotomy (EDT) as a model, we sought to examine the relationship between institutional EDT volume and survival.

Materials & Methods: We queried the Pennsylvania Trauma Outcomes Study (PTOS) registry from 2007-2015 for all EDTs performed at level I and II centers identified by IDC-9 procedure code 34.02 and a location stamp indicating the ED. We calculated center-level descriptive statistics and divided centers into tertiles of EDT volume. After stratifying for injury mechanism, differences in mortality by tertile of annual EDT volume were analyzed using Fischer’s exact test.

Results: 1,174 EDTs were performed at 30 trauma centers (217 (18%) for blunt trauma and 957 (82%) for penetrating trauma). The median annual volume was 130 (IQR 97-131), while each individual center saw a median annual volume of 1 (IQR 0-4). Only 2 centers had a mean annual volume of >10 Figure 1. In penetrating trauma, there were no differences in survival between patients at low, middle, and high volume centers (7.1% vs. 5.7% vs 5.8%, p =0.81), but for blunt trauma survival was greater at high-volume centers (0% vs. 0% vs. 12.5%, p= 0.014). After restricting the analysis to patients with measurable vital signs on presentation (defined as GCS>3 or HR>0), blunt EDT patients at centers in the highest tertile of volume still demonstrated improved survival relative to those in the middle and lowest tertile (17.8% vs. 0% vs. 0%, p = 0.49). Overall survival following EDT was 6.5%.

Conclusion: Even at centers in the highest tertile of volume, EDT is a relatively rare event. Higher volume is associated with improved survival for EDT performed for blunt trauma but not for penetrating trauma. This association persists even when restricting analyses by patient physiology suggesting that factors other than patient selection may be driving this difference. Further research is required to understand provider and institutional factors associated with this finding.

Disclosure of Interest: None declared
PUT A FORK IN IT – THE CROSSROADS OF PTSD AND PHYSICIAN BURNOUT: A NATIONAL REVIEW OF U.S. TRAUMA & NON-TRAUMA SURGEONS

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Introduction: Rising physician burnout (PBO) is an international dilemma with social and economic impacts. Posttraumatic Stress Disorder (PTSD) among trauma surgeons has been cited at nearly double the general population incidence. Given similar manifestations of PBO and PTSD, we aim to evaluate the incidence and risk factors for PTSD and PBO among trauma and non-trauma surgeons.

Materials & Methods: A cross-sectional survey of U.S. surgeons was conducted in September and October 2016. Respondents were screened for PTSD and PBO using the Primary Care PTSD Screen (PC-PTSD) and a previously validated abbreviated burnout tool. Twenty demographic, occupational and work satisfaction risk factors were assessed. The most proximate cause of PTSD was identified. Three analyses were performed. Analysis 1 compared the incidence and risk factors for PTSD/PBO between trauma and non-trauma surgeons. Analysis 2 and 3 compared risk factors for the development of PTSD/PBO among trauma and non-trauma surgeons respectively.

Results: Of the 633 respondents, 263 were trauma and 370 non-trauma surgeons. Between trauma and non-trauma surgeons, there was no statistical difference in incidence of PTSD (15% vs 14%) or PBO (27% vs 23%). Differences were found in demographic, occupational and work satisfaction risk factors (p<0.05). PTSD+ surgeons were more likely to be PBO+ (p<0.01).

In the trauma and non-trauma cohorts, differences between demographic, occupational and work satisfaction risk factors were found for PTSD+ and PTSD- respondents (p<0.05). The two most proximate causes of PTSD were overwhelming work responsibility and discord between work-life balance. The least common cause for PTSD was exposure to trauma. PBO+ and PBO- respondents for trauma and non-trauma cohorts revealed differences in demographic, occupational and work satisfaction risk factors as well (p<0.05). The only consistent risk factor among all cohorts was career choice dissatisfaction within the work satisfaction category (p<.05).

Conclusion: An increased focus on physician wellness has underscored the need to understand PTSD and PBO in surgeons. Our data revealed equivalent incidences of PTSD and PBO among trauma and non-trauma surgeons. Multiple risk factors were found to contribute to the development of PTSD and PBO. The only consistent risk factor among all cohorts was career choice dissatisfaction. With rising physician burnout, physician retention is a concern. Efforts to mitigate burnout should be considered. We are at a crossroads.

Disclosure of Interest: None declared
DEVELOPMENT AND INTERNAL VALIDATION OF A PREDICTION MODEL AS BASIS FOR PREHOSPITAL TRIAGE OF TRAUMA PATIENTS IN THE NETHERLANDS

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Introduction: Prehospital trauma triage is essential in providing appropriate care for patients at risk for severe injury, to improve chance of survival and avert disabilities.1,2 Incorrect triage results in undertriage and overtriage.3 The American College of Surgeons Committee on Trauma recommends an undertriage rate below 5% and an overtriage rate below 50%.4 The aim of this study is to develop and internally validate a prehospital trauma triage prediction model to lower especially the undertriage rate.

Materials & Methods: Prehospital and in-hospital data of all adult trauma patients transported by the Regional Ambulance Services Utrecht between 2012 and 2014 were analysed. Ten hospitals were included in the study. Using univariate and multivariate logistic regression analysis, 43 variables were tested for their value to predict severe injury (Injury Severity Score (ISS) > 15). Using a Receiver Operating Characteristic curve, the optimal cut-off point was chosen as to achieve the lowest possible undertriage rate, with an overtriage rate of ≤ 50%. For internal validation, a bootstrapping technique with 1000 resamples was used. Calibration, discrimination and clinical usefulness were determined.

Results: In total, 4,950 adult trauma patients were included, 436 (9%) had an ISS > 15. The final prediction model included 10 independent prehospital predictors: age, oxygen saturation, Glasgow Coma Scale, mechanism criteria, penetrating injury, burning wounds, pelvic fracture, expected injury to head, neck, thorax, or multiple regions. The prediction model had an undertriage and overtriage rate of 8.5% and 49.9%, respectively. Internal validation of the model showed strong calibration, discrimination (c-statistic: 0.83) and clinical usefulness (sensitivity: 93.0%, specificity 52.1% and accuracy 0.89).

Conclusion: This newly developed and internally validated prehospital prediction model results in a relatively low undertriage rate, with an acceptable overtriage rate.


Disclosure of Interest: None declared
EMERGENCY TO ELECTIVE SURGERY RATIO: A VITAL MEASURE OF ACCESS TO SURGICAL CARE
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Introduction: Surgical care is an essential component of healthcare systems but remains a challenge for many nations, particularly low- and middle-income countries (LMIC). Current metrics for surgical care focus on the structural components of surgery, and are not applicable to all care settings or are biased towards particular patient populations. We hypothesize that the emergent to elective surgery ratio (E/e ratio) is more globally applicable and reflects both infrastructure for surgery and patient access to care.

Materials & Methods: A systematic search of PubMed and Medline was conducted for manuscripts or reports of published in the past ten years, according to PRISMA guidelines. Manuscripts with hospital-, regional-, or national-level data on emergency and elective surgery volume were included, and the E/e ratio for each country was calculated. The per capita health care spending and the physician workforce of each country were obtained from the World Bank and the World Health Organization, respectively. A linear regression analysis was performed to compared the E/e ratio with the per capita national healthcare expenditure and physician workforce.

Results: A total of 27 citations from the five continents met inclusion criteria and were analyzed. The median E/e ratio was 14.6 (Interquartile Range, IQR, 5.1-55.3) with a range from 2.8 (Korea) to 557.4 (Democratic Republic of the Congo, Central African Republic, and South Sudan). The E/e ratio was inversely proportional to the per capita national healthcare expenditure and physician workforce.

Conclusion: The E/e ratio is a useful metric to assess both surgical access and capacity in healthcare systems, which can be applied to all populations and reflective of national health care investment.

Disclosure of Interest: None declared
**Introduction**: Acute appendicitis is one of the most common diseases in daily surgical practice. Traditionally, diagnosis and decision-making are based on history and clinical examination, leading to high (up to 25%) negative appendectomy rate. Use computed tomography has improved diagnostic quality, but its routine use is questioned because of high costs and long-term effects of radiation exposure. Limited use of CT makes ultrasound first line imaging modality in patients with RLQ pain. The role of surgeon-performed ultrasound (SPUS) in endocrine and vascular surgery has been well documented and showed good results. Increasing role of bedside ultrasonography led us to study the role of SPUS in the diagnosis of appendicitis.

**Materials & Methods**: During 10-year period 1866 patients with RLQ pain underwent surgeon-performed ultrasonography by certified in US surgeon after taking history and physical examination. We used 2.5-5.5 MHz curved, 5-13 MHz linear transducer and graded compression technique for US. Primary signs of appendicitis included noncompressible blind-ending tubular structure with a diameter greater than 6 mm, thick (>2mm) wall. Secondary US signs included periappendiceal fluid, noncompressible fat and presence of fecalith in RLQ. Decision to perform an open or laparoscopic appendectomy was based on the complete clinical evaluation, which included clinical presentation and US results. Final diagnosis of appendicitis was confirmed by operative findings and histologic examination of removed appendix.

**Results**: Surgeon-performed ultrasonography alone was true positive in 734 (39.3%) cases, true-negative in 951 (50.9%). In 23 patients noncompressible tubular structure was detected in RLQ, but no inflammation was found during histologic examination of removed appendix (negative appendectomy rate was 3%). In 156 (8.3%) cases SPUS was false negative and decision about surgery was based on history and physical examination. The sensitivity of SPUS for diagnosing of acute appendicitis was 82.5%, specificity 97.6%, overall accuracy 94.4, positive and negative predictive value were 97% and 85.9% respectively.

**Conclusion**: Surgeon-performed ultrasonography is a valuable, safe and readily available adjunct to clinical impression in patients with RLQ pain. Negative result of ultrasonography does not rule out appendicitis, surgeon decision-making about appendectomy/laparoscopy should be based on complete clinical evaluation.

**Disclosure of Interest**: None declared
Introduction: Organ transplantation is the only curable therapy for organ failure. However, donor shortage limits the number of patients who benefit these therapy. Although very recently regenerative therapy has been accelerated by iPS/ES technology which has a big advantage to treat those patient, several limitations such as a demand of huge number of cells or heterogeneity of these cells have delayed its clinical application. In this study, we propose a novel concept of regenerative therapy, for which we just applied organ derived acellular scaffold without operating any cells. The results supported that this novel biomaterial has a capacity for organ repair and reconstruction after surgery with simple approach and methodology.

Materials & Methods: Porcine livers and kidneys were partially resected and acellular porcine liver and kidney scaffold were sutured onto each resection plane, that were prepared by our standardized decellularization method. One and four weeks after the surgery, angiography as well as histological analysis was performed to see their morphological, biological and functional repair of each organ.

Results: Four weeks after the surgery, the acellular scaffold kept their framework especially in kidney. Endothelial cells infiltrated into the vessel construction of the scaffold and red blood cells were observed in those vessel lumen of both organs. In addition, small duct like structures which were underlined by CK19 positive bile duct epithelial cells were observed in the liver scaffold with other different type of parenchymal cells, while AQP1 positive cells were observed at glomerular structures in the kidney scaffold and a large number of parenchymal cells also integrated into the parenchymal space of the kidney. Angiography at four weeks showed that the blood perfusion was efficiently observed through into the scaffold which was filled with organ derived cells.

Conclusion: In this study, organ repair and reconstruction was promoted by organ specific acellular scaffold simply suturing onto the resection plane, even after partial resection of the kidney. These results supported a big potential of this novel biomaterial for an attractive and practical organ regenerative therapy.

Disclosure of Interest: None declared
IMPACT OF MINIATURIZED EXTRACORPOREAL CIRCULATION VERSUS CONVENTIONAL METHOD ON THE NEED OF RED BLOOD CELL TRANSFUSION DURING CARDIAC SURGERY: PROPENSITY SCORE MATCHING STUDY

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Introduction: Miniaturized extracorporeal circulation (MECC) during cardiac surgery may decrease the need of packed red blood cells (pRBC) transfusions and reduce haemodilution during cardiopulmonary bypass (CPB) for coronary artery bypass surgery (CABG) and aortic valve replacement, but the data is currently sparse. Especially, more data is needed on the possible benefits of MECC and conventional extracorporeal circulation (CECC) methods of CPB.

Materials & Methods: In this prospective study 424 patients in the MECC group and 844 patients in the CECC group undergoing CABG and more complex cardiac surgery procedures such as mitral valvuloplasty (MVP), mitral valve replacement (MVR), CABG plus valve surgery, double valve surgery, triple valve surgery, and normothermic aortic root reconstruction were evaluated. Age, sex, type of surgery and duration of perfusion were used as matching criteria. Hemoglobin <80 g/l was considered as pRBC transfusion trigger. The primary endpoint was the use of pRBC during the day of operation and during the 5 postoperative days. Secondary endpoints were the degree of haemodilution measured as hemoglobin (HCB) drop after the onset of perfusion and postoperative bleeding from the chest tubes during the first 12 hours after the operation.

Results: The number of patients needing pRBC transfusion was lower in the MECC group compared to the CECC group (26.5 % vs. 33.4%, p=0.011). Haemoglobin drop after onset of perfusion was also lower in the MECC group than in the CECC group (23±8% vs. 32±11%, p=<0.001). Postoperative bleeding from the chest tube did not differ between the groups.

Conclusion: MECC reduced the need of pRBC transfusions and haemoglobin drop when compared to the CECC group. This result may have implications when choosing the perfusion method in cardiac surgery.

Disclosure of Interest: None declared
THORACOSCOPIC LEFT ATRIAL APPENDECTOMY AND POSTOPERATIVE ANTICOAGULATION MANAGEMENT AS A NEW APPROACH FOR STROKE PROPHYLAXIS IN ATRIAL FIBRILLATION PATIENTS

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Introduction: Although anticoagulation therapy is the conventional method of prophylaxis for cardiogenic thromboembolism in patients with atrial fibrillation (AF), we suggest thoracoscopic left atrial appendectomy (TLAA) as a new and more effective method of preventing cardiogenic thromboembolism in patients with AF. We herein report the effectiveness and postoperative anticoagulant usage with this technique.

Materials & Methods: Sixty consecutive patients (mean age, 70±7 years; 46 males; mean CHA2DS2-VASc score, 2.9±1.6 points) with a high risk of thromboembolism and/or bleeding were selected for TLAA. Fifty-seven of these patients had been treated with anticoagulants preoperatively (three had stopped anticoagulation therapy due to the negative side effect of bleeding). Seventeen patients had suffered a stroke/transient ischemic attack (TIA), and two patients had a history of thromboembolism before undergoing surgery. In addition, cerebral hemorrhaging had also developed in five patients preoperatively. The left atrial appendage was excised thoracoscopically with an endoscopic linear cutter in the right lateral recumbent position with differential lung ventilation. Four endoscopic ports were made, as routine, under monitoring using transesophageal echocardiography. Postoperative cardiac computed tomography (CT) was performed to check the stump thrombus.

Results: TLAA (mean operation time, 37±9 min) resulted in no mortality and no major complications. All of the patients were discharged while maintaining their preoperative activities of daily living at a mean 4.3±1.8 days after surgery. Anticoagulants were stopped postoperatively, and no cardiogenic thromboembolism events occurred; the mean follow-up duration was 16±7 months. The rates of freedom from cardiogenic thromboembolism were significantly different between the preoperative and postoperative periods in the same patient groups (those receiving anticoagulants preoperatively) (p<0.01 log-rank test, Figure). A small (maximum, 5 mm) postoperative stump thrombus was detected on cardiac CT in 17 patients (28%). These patients continued to take anticoagulants until the next CT session, which showed that the thrombus had completely disappeared in all cases.

Conclusion: TLAA is considered an effective approach for the prophylaxis of cardiogenic thromboembolism, and its safety is also deemed to be adequate. Combined with temporary postoperative anticoagulants, this operation may be the optimum therapeutic option for preventing cardiogenic thromboembolism.

Disclosure of Interest: None declared
OUTCOMES FOLLOWING APPENDECTOMY IN LOW AND MIDDLE INCOME COUNTRIES; A MULTICENTRE, PROSPECTIVE COHORT STUDY.

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Introduction: Appendicitis is the most common abdominal surgical emergency worldwide. Differences between high- and low-income settings in availability of laparoscopic appendectomy, use of other management choices, and outcomes are poorly described. The aim of this study was to identify variation in surgical management and outcomes of appendicitis across low, middle and high Human Development Index country groups.

Materials & Methods: Multi-center, prospective cohort study. Consecutive patients undergoing emergency appendectomy over a 6-month period in any hospital world-wide were eligible for inclusion. Outcomes were compared across human Development Index (HDI), laparoscopic or open appendectomy. The primary outcome measure was overall complication rate at 30 days.

Results: 4546 patients from 52 countries underwent appendectomy (2499 high, 1540 middle and 507 low HDI groups). Complications were more frequent in low-HDI (OR 3.81, 95% CI 2.78 to 5.19, p<0.001) and middle-HDI countries (OR 2.99, 95% CI 2.34-3.84, p<0.001) compared with high-HDI countries, but differences were adjusted out by case-mix and hospital structural factors. Surgical site infection (SSI) rates were higher in low-HDI (OR 2.57, 95% CI 1.33 to 4.99, p=0.005) but not middle-HDI (OR 1.38, 95% CI 0.76 to 2.52, p=0.291) compared with high-HDI countries after adjustment. A laparoscopic approach was common in high-HDI countries (1693/2499, 67.7%), but infrequent in low- (41/507, 8.1%) and middle-HDI (132/1540, 8.6%) groups. After accounting for case-mix, laparoscopy was still associated with fewer complications (OR 0.55, 95% CI 0.42 to 0.71, p<0.001) and SSIs (OR 0.22, 95% CI 0.14 to 0.33, p=0.001). The number-needed-to-treat with laparoscopic surgery to save an SSI was lower in low-HDI countries (NNT=6, 95% CI 4 to 9) than in high-HDI countries (NNT=9, 95% CI 6 to 16). In propensity-score matched groups within low-/middle-HDI countries, laparoscopy was still associated with fewer overall complications (OR 0.23 95% CI 0.11 to 0.44) and SSIs (OR 0.21 95% CI 0.09 to 0.45).

Conclusion: Outcomes from appendectomy vary worldwide. A laparoscopic approach is associated with better outcomes and availability appears to differ by country HDI. There are profound clinical, operational and financial barriers to the introduction of laparoscopy that if overcome, could result in significantly improved outcomes for patients in low-resource environments, with potential for wider health-system benefits.

Disclosure of Interest: None declared
Introduction: Biologic mesh is preferred for repair of complex abdominal wall hernias (CAWHs) in patients at high risk of wound infection. This retrospective study identified predictors of 6 adverse outcomes among 140 patients receiving biologic mesh placement for repair of CAWHs.

Materials & Methods: Patients received biologic meshes at least 50 cm² in size for CAWHs at the University of Arizona Medical Center between 2010 and 2015. Statistical techniques included univariable and multivariable logistic and linear regression. Multivariable models were constructed using the backward elimination method, keeping a variable in the final model if p≤0.05. Two sets of multivariable logistic regressions were run depending on whether key continuous variables were kept continuous (set A) or transformed into categorical variables (set B).

Results: Cardiac disease and urgent/emergent surgeries versus elective were significant univariable predictors of total wound complications. COPD was the sole significant univariable predictor of mesh removal. For both of these outcomes, we could produce no multivariable models. Significant independent (multivariable) predictors of recurrence were porcine mesh and urgent or elective surgery, versus emergent. Recurrence risk was 25% for porcine mesh versus 0% for human mesh. Emergent surgeries had a recurrence risk of 5.7%, compared with 21.1% for elective and 35.3% for urgent. Independent predictors of reoperation were mesh size (100-299 cm² OR 5.384, 95% CI 1.092-26.550, ≥300 cm² OR 6.387, 95% CI 1.343-30.379), porcine mesh (OR 9.124, 95% CI 1.163-71.593), and urgent surgery (OR 4.428, 95% CI 1.363-14.385). Independent predictors of ICU admission were bowel resection (OR 3.640, 95% CI 1.222-10.846), number of previous surgeries (OR 0.288, 95% CI 0.103-0.808) and urgent surgery (OR 4.533, 95% CI 1.324-15.520). Multiple linear regression showed that independent predictors of hospital length of stay were emergent surgery (coefficient 8.675, 95% CI 1.670-15.680), cardiac disease (coefficient 8.903, 95% CI 1.268-16.538) and history of transplant (coefficient 9.253, 95% CI 1.370-17.136). Each of these variables conferred an average additional 9 days in-hospital.
Table 7: Comparison of Univariable and Multivariable Results

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Significant univariable results</th>
<th>Multivariable A results</th>
<th>Multivariable B results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total wound complications</td>
<td>Cardiac disease Urgent/emergent</td>
<td>No multivariable model resulted</td>
<td>No multivariable model resulted</td>
</tr>
<tr>
<td>Recurrence</td>
<td>Age (years, contingency table)</td>
<td>Porcine</td>
<td>Porcine</td>
</tr>
<tr>
<td></td>
<td>COPD</td>
<td>Porcine</td>
<td>Porcine</td>
</tr>
<tr>
<td></td>
<td>Urgent, elective</td>
<td>Urgent, elective</td>
<td>Urgent, elective</td>
</tr>
<tr>
<td>Mesh removed</td>
<td>COPD</td>
<td>No multivariable model resulted</td>
<td>No multivariable model resulted</td>
</tr>
<tr>
<td>Reoperation</td>
<td>Mesh size (cm², table, category)</td>
<td>Mesh size (cm², category)</td>
<td>Porcine</td>
</tr>
<tr>
<td></td>
<td>Porcine</td>
<td>Porcine</td>
<td>Urgent</td>
</tr>
<tr>
<td></td>
<td>Urgent</td>
<td>Urgent</td>
<td>Urgent</td>
</tr>
<tr>
<td>ICU admission</td>
<td>Bowel resection</td>
<td>Bowel resection</td>
<td>Bowel resection</td>
</tr>
<tr>
<td></td>
<td>Cardiac disease</td>
<td>Cardiac disease</td>
<td>Cardiac disease</td>
</tr>
<tr>
<td></td>
<td>Previous surgeries (continuous, 2+, binary)</td>
<td>Previous surgeries</td>
<td>Urgent</td>
</tr>
<tr>
<td></td>
<td>Urgent</td>
<td>Urgent</td>
<td>Urgent</td>
</tr>
<tr>
<td>Hospital length of stay</td>
<td>Bowel resection</td>
<td>Bowel resection</td>
<td>Bowel resection</td>
</tr>
<tr>
<td></td>
<td>Emergent</td>
<td>Emergent</td>
<td>Emergent</td>
</tr>
<tr>
<td></td>
<td>Cardiac disease</td>
<td>Cardiac disease</td>
<td>Cardiac disease</td>
</tr>
</tbody>
</table>

Conclusion: Cardiac disease, urgent or emergent surgery, mesh size more than 100 cm², use of porcine mesh, bowel resection, number of previous surgeries and history of transplant are independent predictors of outcomes in patients undergoing CAWH repair with biologic mesh.


Disclosure of Interest: None declared
LONG TERM FOLLOW UP OF THE DIABETIC FOOT PATIENT SALVAGED WITH PERCUTANEOUS TRANSLUMINAL ANGIOPLASTY AND FREE FLAP RECONSTRUCTION

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Introduction: Percutaneous transluminal angioplasty as a means of revascularization has gained increasing acceptance as the first line treatment for diabetic ischemic limbs. As a result reconstructive surgeons increasingly have to perform free flap reconstruction onto these revascularized native vessels. But the efficacy and success of the combination of treatment for diabetic limb salvage has so far not been well documented. We reviewed our patients who had undergone such a treatment at our institution to evaluate the long-term efficacy of this combination of treatment.

Materials & Methods: A retrospective review of all diabetic patients who had undergone percutaneous transluminal angioplasty for revascularization followed by reconstruction with a free flap for limb salvage at our hospitals between April 2008 and April 2015 were included in this study

Results: A total of 58 legs underwent limb salvage in 56 patients. There were 10 male and 14 female patients. Their average age was 71.4 years old. The average time interval between endovascular intervention till free tissue transfer was 8 days (range 4-14 days). All patients had TASC C and D lesions. There was 100% flap survival but partial flap necrosis was seen in 3 patients. A high rate of wound infection was seen in 8 patients all requiring further debridement. The immediate limb salvage rate was 100 percent. In one patient further limb amputation was required 6 months later due to acute thrombosis of her lower leg vessels. One patient underwent below knee amputation, 21 months later due to deep-seated foot infection. The 1-year, 2-year and 5-year limb salvage rate was 98%, 95% and 88% respectively. The 1-year, 2-year and 5-year patient survival rate was 93%, 91% and 67%

Conclusion: The success rate of diabetic limb salvage using a combination of percutaneous transluminal angioplasty together with free flap reconstruction is associated with a high flap success rate and a high limb salvage rate. It provides physicians with yet a further option in the management of diabetic limb salvage.

References:

Disclosure of Interest: None declared
Introduction: Since the use of robot system in the thyroid surgery was first introduced by Professor Chung in 2007, we have advanced a novel method of robotic thyroidectomy using a gasless transaxillary approach (TAA) and herein report our experience with this new technique and detail the surgical outcome of 5000 patients.

Materials & Methods: From October 2007 to May 2016, 5000 patients with thyroid tumor underwent robotic thyroidectomy using a gasless transaxillary approach (TAA) at Yonsei University Health System. Of all patients, 4804 patients (96%) had thyroid cancer and the remaining 196 patients (4%) had benign thyroid tumor.

Results: Among thyroid cancer patients, the most common subtype was papillary cancer (98%). In the 196 benign tumor patients, robotic thyroidectomy was performed for adenomatous hyperplasia (52%), follicular adenoma (21%), and Graves' disease (15%). The mean operation time was 113.9 ± 29.7 minutes in LTT and 142.9 ± 33.9 minutes in TT respectively. In robotic MRND, the mean operation time was 284.2 ± 52.6 minutes, and the mean number of retrieved central and lateral node were 6.1 ± 5.0 and 31.1 ± 12.1 respectively. Regarding TNM staging, Staging I was found in 85.4% patients, stage II 0.2%, stage III 12.9%, and stage IV 1.5%. The most common surgical complication was symptomatic hypocalcemia, of which 45.2% cases were transient and 1.4% permanent. The technique-related complications, which were never seen in conventional open thyroidectomy, were axillary skin flap perforation (0.2%), and traction injury of the arm on the side the lesion was located (0.08%). There was no disease-specific mortality during the follow-up period. Locoregional recurrence was observed in sixteen patients (0.3%), 12 in the LTT group and 4 in the TT group.

Conclusion: During last 9 years we have tried to improve robotic thyroid surgery by the rapid evolution of robotic surgical techniques and training program to assess our oncological outcomes, safety and functional outcomes including patient satisfaction. Now, our efforts make the technique of robot-assisted endoscopic thyroid surgery using a gasless transaxillary approach prove to be a feasible, safe, and effective method for selected patients with thyroid cancer. The ultimate goals of robotic thyroid surgery are to achieve the best possible oncologic outcomes and to enhance patient quality of life after surgery.

Disclosure of Interest: None declared
Introduction: The demographic and clinical factors predictive of central lymph node metastases (CNM) in patients with clinically node negative (cN0) papillary thyroid carcinoma (PTC) remain uncertain. Despite tumor size (microPTC ≤10mm-Vs macroPTC >10mm) has been advocated as possible risk factors for occult CNM in PTC patients, the studies available report discordant results. We aimed to prospectively evaluate factors that could identify clinically unifocal and cN0 PTC patients at higher risk of occult CNM especially comparing microPTC and macroPTC.

Materials & Methods: One hundred and eighty-six consecutive patients with clinically unifocal, cN0 PTC who underwent total thyroidectomy plus prophylactic bilateral central neck dissection between March 2008 and July 2012 were prospectively recruited. Risk factors for occult CNM in patients with microPTC and macroPTC were assessed.

Results: Overall 82 patients (44.1%) showed occult CNM. The rate of CNM did not significantly differ among different sizes cut off (≤5mm: 8/104 pN0 Vs 4/82 pN1a, respectively, P=NS; ≤10 mm: 46/104 pN0 Vs 31/82 pN1a, P=NS; ≤20 mm: 83/104 pN0 Vs 69/82 pN1a, respectively, P=NS). Significantly more pN1a than pN0 patients had pT3 tumors (35/82Vs26/104) (P<0.05), extracapsular invasion (35/82Vs22/104) (P<0.01) and microscopic multifocal disease (50/82Vs47/104) (P<0.05). At multivariate analysis independent risk factor for CNM were extracapsular invasion and microscopic multifocal disease. The mean number of removed and occult metastatic nodes did not significantly differ between micro- and macro-PTC pN1 patients (11.5±6.4 and 2.3±1.7, 13.2±5.9 and 2.7±1.6, respectively, P=NS). Among 77 microPTC risk factors for CNM were extracapsular invasion (10/46 pN0 Vs 16/31 pN1, P<0.05) and microscopic multifocal disease (10/46Vs47/104) (P<0.05). Among 109 macroPTC risk factors for CNM were presence of angioinvasion at final histology (7/58 pN0 Vs 15/51 pN1, P<0.05) and histology showing classic PTC (Vs follicular variant PTC Vs tall cell variant PTC) (P<0.05).

Conclusion: Independent risk factors for CNM differ between micro- and macroPTC (extracapsular invasion and microscopic multifocal disease Vs angioinvasion and histological subtypes, respectively) but no preoperatively available clinical parameter is predictor of CNM in clinically unifocal cN0 PTC.

Disclosure of Interest: None declared
DNA MISMATCH REPAIR DEFICIENCY PROMOTES GENOMIC INSTABILITY IN A SUBSET OF PAPILLARY THYROID CANCERS

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Introduction: Oxidative stress-promoted genetic damage and epigenetic dysregulation is implicated in papillary thyroid carcinogenesis. Efficient DNA damage repair by MutL-homolog DNA mismatch repair (MMR) enzymes, MLH1, MLH3, PMS1 and PMS2 are required to maintain thyrocyte genomic integrity. We hypothesized that the persistent oxidative stress and consequent transcriptional dysregulation observed in thyroid follicles will lead to MMR deficiency and potentiate papillary thyroid tumorigenesis.

Materials & Methods: Eighteen papillary thyroid cancer (PTC), nine paracarcinoma normal thyroid (PCNT) and 10 normal thyroid (NT) tissue samples were analyzed in a DNA repair gene expression microarray to evaluate MMR gene expression. The findings were validated in 27 PTCs, 18 PCNTs and 10 NTs using qRT-PCR. Eight follicular thyroid cancers (FTC) and 12 follicular adenomas (FA) were assayed for comparison. Protein expression was assessed by immunohistochemistry. Expression of the oxidative damage-responsive FOXO transcription factor was analyzed in representative PCT, PCNT and NT samples. Genomic integrity was evaluated by whole exome sequencing-derived read-depth analysis and Mann-Whitney U test. Clinical correlations were assessed using Fisher’s exact and t-tests.

Results: Expression array revealed reduced expression of all four MutL genes in PTC compared with PCNT. Expression levels by qRT-PCR showed downregulation of all four MutL genes in PTC compared with PCNT, and PMS1 and PMS2 compared with NT. FTC and FA showed upregulation in MLH1, MLH3 and PMS2 compared with NT. PMS2 protein expression correlated with the mRNA expression pattern (see Figure). Among the ubiquitously expressed FOXO transcription factors, FOXO1 showed significantly lower expression in PMS2-deficient PTCs (log2-fold change -1.72 vs -0.55, p<0.05). Rate of loss of heterozygosity, a measure of genomic instability, was found to be significantly higher in PTCs with deficient PMS2 expression (median 3 and 1, respectively; p<0.05). No statistically significant correlation was noted between MutL deficiency and BRAF status, age, gender, pathological type, extrathyroidal extension, lymphovascular invasion or lymph-node metastases of the study cohort.

Image:
Conclusion: MMR deficiency, potentially promoted by FOXO1 suppression, may explain the etiology for the development of PTC in a subset of patients. FTC and FA retain MMR activity and are likely caused by a different tumorigenic pathway.

Disclosure of Interest: None declared
LONG-TERM OUTCOME AFTER SURGERY FOR MEDULLARY THYROID CARCINOMA: A SINGLE CENTER EXPERIENCE.
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Introduction: Medullary thyroid carcinoma (MTC) is a neuroendocrine tumor that may occur both as sporadic and hereditary variant. Total thyroidectomy and neck lymph nodes dissection may achieve the cure in early stages, but persistence, recurrences and disease-related death may occur. Most experiences include only few cases or include heterogeneous multicentric series. Thus, long-term survival is difficult predictable. This study was aimed to evaluate the main predictive factors of persistent/recurrent disease and MTC-related deaths in a single center series.

Materials & Methods: A retrospective analysis of the long-term outcome was performed in a series of 262 consecutive MTC patients undergoing surgery in a single tertiary referral academic center between 1980 and 2015. Cure, persistent and recurrent disease and MTC-related mortality were assessed.

Results: Sporadic MTC occurred in 174 (66.4%) and hereditary MTC in 88 patients (33.6%). At initial diagnosis, 109 patients were at stage I, 54 at stage II, 20 at stage III, 79 at stage IV (64 stage IV a+b, 15 stage IV c). At a mean follow-up of 135 months (range 7-587), 153 patients (58.4%) were disease-free, 75 (28.6%) had persistent/recurrent disease, 34 (13%) died because of MTC. Patients who died because of MTC had a mean age of 51 years (range 10-76); they had distant metastases at initial diagnosis in 44.1% and suffered from sporadic MTC in 76.5%. Disease-related mortality occurred in 25 patients with sporadic MTC (14.3%), in 5 patients with MEN2A/FMTC (6%) and 4 with MEN2B (66.7%) (p<0.0001). All patients who died because of MTC were at stage III-IV at initial diagnosis. The 5 and 10-years survival was 85.8% and 75.3% in stage III, and 82% and 67% in stage IV a+b, and 58% and 47% in stage IV c (p<0.0001). None of the patients at stage I-II died because of the disease, but 17.1% had persistent or recurrent disease.

Conclusion: Stage, nodal metastases and hereditary variants (MEN2B) are important predictive factors for death in MTC. Persistent and recurrent disease may occur also after surgery performed at early stage of the disease.

Disclosure of Interest: None declared
Introduction: Recently dynamic risk stratification has been found to be more valuable than static anatomic staging system in non-medullary thyroid cancer and this strategy has also been accepted in medullary thyroid cancer (MTC). The present study was designed to compare the clinical usefulness of response to initial therapy stratification with a traditional anatomic staging system.

Materials & Methods: From August 1982 to December 2012, a total of 144 MTC patients underwent thyroidectomy in Yonsei University Hospital. Among them, 117 (82.2%) patients with complete clinical data and sustained follow-up were enrolled in this study. Clinicopathological features and surgical outcomes were analyzed by retrospective medical chart review. Mean follow up duration was 85.78±62.51 months.

Results: In this study, mean tumor size was 1.94±1.40 cm and 22 (18.9%) patients had hereditary MTC, 95 (81.1%) patients had sporadic MTC. Stage I patients had highest probability of excellent response to initial therapy (92.1%). Stage IV patients had highest probability of biochemical and structural incomplete response to initial therapy (57.5% and 30.3%) and lowest probability of excellent response to initial therapy (12.1%). Response to initial therapy stratification and TNM staging system were significantly different in statistically (p<0.001). The TNM staging system provided risk stratification regarding to disease free survival (DFS), disease specific survival (DSS) and the probability of having no evidence of disease at final outcome, but did not provide risk stratification regarding to the probability of having biochemical persistent/recurrence disease at final outcome. However response to initial therapy stratification provided risk stratification regarding to not only DFS, DSS and the probability of having no evidence of disease at final outcome but also the probability of having biochemical persistent/recurrence disease at final outcome.

Conclusion: In this study, we demonstrated that dynamic risk stratification with adjusted response to initial therapy system can offer more useful prognostic information than anatomic staging system in MTC.

Disclosure of Interest: None declared
REDUCTION OF THE RATE OF HYPOPARATHYROIDISM ON POST-OPERATIVE DAY 1 AFTER THE INTRODUCTION OF PARATHYROID GLAND ANGIOGRAPHY IN A CONSECUTIVE SERIES OF 773 TOTAL THYROIDECTOMIES.

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Introduction: New techniques to predict the viability of parathyroid glands (PG) during neck surgery have been recently introduced: autofluorescence to help localize the PG and indocyanine green angiography of PG to predict the perfusion and functional status of the glands. The aim of this study was to see whether the introduction of PG angiography has reduced the rate of post-thyroidectomy hypoparathyroidism in a consecutive series of total thyroidectomies.

Materials & Methods: Comparison of the rate of hypoparathyroidism at post-operative day 1 (POD1) in patients who had undergone total thyroidectomy (including those with neck dissection) before and after the introduction of PG angiography in October 2014. Patients with concomitant parathyroid pathology and patients with redo surgeries were excluded. Hypoparathyroidism was defined as PTH levels < 1.1 pmol/L.

Results: Between January 2012 and December 2016, 1862 neck surgeries have been performed in our center of whom 773 were total thyroidectomies corresponding to the inclusion criteria. Neck dissection was performed in 134 of those patients. ICG angiography was performed in 215 of the 334 patients (64.4%) operated after the introduction of ICG angiography.

Before the introduction of ICG angiography, 46 of 439 (9.3%) patients were hypoparathyroid at POD1 compared to 21 of 334 (6.3%) patients after the introduction of ICG angiography (p = 0.041, Chi-Square test). Moreover, the PTH level on POD 1 was significantly higher in patients after the introduction of ICG angiography as compared to patients before (3.18 +/- 1.75 versus 2.8 +/- 1.49, p = 0.005, two-sided T-test). Despite the fact that ICG angiography was not performed in all the patients, it lead to a significant increase in PTH value at POD1, suggesting that the surgical technique of PG preservation was modified.

Conclusion: The implementation of intraoperative ICG angiography of the PGs to evaluate the viability and function of parathyroid glands during thyroidectomy has significantly decreased the rate of immediate hypoparathyroidism. This reduction of post-thyroidectomy hypoparathyroidism is linked to both, new technology and modifications in surgical techniques.

Disclosure of Interest: None declared
**IMPORTANCE OF COPPER DEFICIENCY AFTER BARIATRIC SURGERY FOR MORBID OBESITY**
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**Introduction:** Bariatric surgery has been increasingly employed as the most effective treatment for morbid obesity. This weight loss surgery has many benefits for people who suffering from morbid obesity; despite all of these benefits, deficiency of micronutrients in this procedure is common. Some recent studies indicate that copper deficiency can be occurred in obese patients who have undergone bariatric surgery. The purpose of this study is to assessing the copper deficiency in patients after bariatric surgery.

**Materials & Methods: Search strategy:** An online search of PubMed, MEDLINE, Science Direct and Google Scholar which was using keywords like “Bariatric surgery”, “copper deficiency”, “morbid obesity” to identify all articles on copper deficiency in people who undergoing bariatric surgery.

**Main outcome:** It is reported that copper deficiency has been seen in patients with or without clinical symptoms after bariatric surgery.

**Results:** According to previous studies copper deficiency after bariatric surgery is not rare also, it has been estimated in some systemic review studies about 10%. Usually there are no clinical symptoms shown in patients who suffer this problem. Copper deficiency has various complications which the most conventional ones are Anemia, pancytopenia and neurological symptoms.

**Conclusion:** According to the high risk of copper deficiency in bariatric surgery it has been recommended to evaluate copper status, consume the supplements and rich food sources of copper, Furthermore, extensive studies are needed to assess the amount of copper intake of dietary pattern and blood levels of copper before and after bariatric surgery.

**Disclosure of Interest:** None declared
EARLY SPLENIC VESSEL LIGATURE IN PATIENTS WITH ITP UNDERGOING LAPAROSCOPIC SPLENECTOMY

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Introduction: Laparoscopic splenectomy is the procedure of choice in unresponsive ITP patients. After introducing the ports in left costal margin and exposing the spleen, it is advocated to ligate short gastric vessel first, then ligate splenic vessels. The problem is that during dissecting and ligating the short gastric vessels bleeding will obscure defining splenic vessels and tail of pancreas correctly. This will increase the damage of the tail of the pancreas and splenic vessels. In this pilot study first we dissected and ligated the splenic vessels, the start the platelet transfusion and finally ligate the short gastric vessels.

Materials & Methods: 6 male and 15 female patients with median age of 33.2 years old and diagnosis of refractory ITP candidate for laparoscopic splenectomy. In preoperative evaluation the size of spleen were normal. There weren’t any accessory spleen. All patients received stress dose corticosteroid. After introducing three 5-10 mm port in left costal margin the splenic hilum exposed. The serosal attachment of lower pole was dissected with monopolar cautery. Then the splenic vessels were dissected and exposed. Based on the size of the splenic vessels they ligated with ligasure or hemolock clips. Then the short gastric vessels were ligated with ligation. Eventually serosal ligaments were dissected with monopolar cautery and the spleen were removed with endobag. In postoperative period the output of drain checked. Hct and Platelet count was checked in all patient the day after operation.

Results: We didn’t transfused platelet before operation. The tail of the pancreas was detected and dissected correctly. The median platelet count was 22.4 ± 19 × 1000 and median HCT was 37.2 ± 2.2 before operation. We hadn’t significant bleeding necessitate blood transfusion. We didn’t need blood transfusion postoperatively. The output of drain was not significant. The median platelet count was 237 ± 86 and the median HCT was 37.6 ± 1.1 postoperative.

Conclusion: Bleeding is usual in thrombocytopenic patients undergoing operation. We usually transfuse platelet after ligating the splenic vessels. It usually makes bloody the field and may prevent good definition of anatomic landmarks. The longer lasting the surgery the more bleeding. So the timing is the most important part of surgery in coagulopathic patients. Early dissection of splenic vessels could help clear dissection and defining the normal anatomy, thus while prevent damage to splenic vessels and tail of pancreas, the conversion also may decrease.

Disclosure of Interest: None declared.
Impact of Early Tracheostomy on Outcome in Tetanus

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Introduction: Tetanus is a preventable neurologic disease caused by the toxin-producing bacterium Clostridium tetani, which infects via a cut in the skin or mucosa and causes rigidity and spasms of voluntary muscles all over the body. Definitive airway may prevent sudden death from spasm related respiratory failure and significantly reduce mortality rate from this disease. Tracheostomy occupies central role in patients of tetanus who are being managed in intensive care unit. It is very promising in mortality resulting from tetanus.

Materials & Methods: Study design

Randomized Clinical Trial

Place and duration of study

This study was carried out in Surgical Unit-5, DHQ hospital, Faisalabad, Pakistan from January 2014 to December 2015.

Materials and methods

60 patients of tetanus (grade-2) of any age and sex, diagnosed clinically were taken and divided into two groups: 30 patients in each. One group was given only medical treatment and second group was given medical and surgical treatment and both groups were studied for the impact of these treatment modalities on outcome.

Results:

Out of 30 patients who underwent medical treatment, 10 (33.3%) were cured and 20 (66.7%) were expired. Mortality was 66.7%. Among patients who underwent both medical and surgical treatment, 18 (60%) were cured and 12 (40%) expired. Mortality was 40%. 21 (70%) developed tracheostomy complications and 9 (30%) did not develop any complication. P-value came out to be less than 0.05.

Conclusion:

Tracheostomy in early stages of tetanus has mortality benefit and it is associated with less morbidity and mortality.

References:

- Fasunla AJ. Challenges of tracheostomy in patients managed for severe tetanus in a developing country. - Int J Prev Med - Summer 2010; 1(3); 176-81

Disclosure of Interest: None declared
AN ABDOMINAL STAPLED ALTMEIRES PROCEDURE FOR STOMAL PROLAPSE – A TECHNICAL TIP
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Introduction: Stomal prolapse is a complication associated with formation of both an end and loop stoma. Surgical correction involves a laparotomy or a local revision. An alternative simple technique similar to stapled Altemeier perineal proctectomy is described.

Materials & Methods: Surgical technique: Under general anaesthetic, the patient is placed in the supine position. The prolapsed end stoma or the afferent/efferent limb of the prolapsed loop stoma is pulled up using a pair of Babcocks forceps. Once the length to be resected is ascertained, mucosal marking with diathermy is made circumferentially. Using a linear stapler, the double bowel wall is transected vertically from the apex to the base, merging with the circumferential diathermy marking. On reaching the horizontal marking, a 2.0 PDS suture is prepared to follow the horizontal multiple firing of the linear stapler to complete the circle, again following the diathermy marking. Haemostasis is ensured and the procedure completed. A digital examination is done and the re-inforced staple line is felt below the muco-cutaneous junction.

Results: The perineal stapled Altemier repair technique can be easily adapted and translated to an abdominal stomal prolapse repair

Conclusion: The technique described is safe and easy to perform. It is a reasonable option for local treatment of full thickness stomal prolapse. It can be done both in an elective and emergency setting.

References: Perineal stapled prolapse resection for full-thickness external rectal prolapse: a multicentre prospective study.
Colorectal Dis. 2016

Disclosure of Interest: None declared
Introduction: Hepatic abscesses are uncommon in Australia compared to South East Asia. PLA carries a significant mortality and morbidity if not treated early. This study involves 16 patients seen over a 5-year period at a small University teaching hospital in Brisbane Australia. We adopted the current approach to treating these patients with antibiotics and prompt radiological drainage.

The aims of this study were to identify the source of the abscess and to evaluate the results of non-surgical treatment.

Materials & Methods: All patients with the diagnosis of PLA were identified over a 5-year period (Jan 2010 – Nov 2016) The diagnosis was confirmed in all patients on the CT findings and Drainage procedures. Sixteen patients were identified after a retrospective analysis of all charts with this diagnosis. There were 11 men and 6 females with a median age of 60 (range 26 - 82 years).

Twelve patients (75%) presented with RUQ pain and fever, 4 (25%) had malaise, and 1 had symptoms of cholangitis and gall stone induced pancreatitis. Ultra sound and CT scans were used for the diagnosis. 11 patients (68%) had an abscess located in the Right lobe of the liver (2 with multiple abscesses), 3 had left lobe abscesses and 2 had both lobes involved.

Culture of the aspirates and blood cultures revealed Klebsiella pneumoniae (11 cases), enterococcus faecalis (1), streptococcus milleri 1, and 3 had no culture grown from the aspirate.

Results: All patients with small abscesses were successfully treated with combination of antibiotics for 4 weeks and were followed up for 8 weeks with ultrasound.

Percutaneous drainage and antibiotics of the large abscesses were also successful. One patient required repeat drainage in a multi-loculated abscess. Two patients had concomitant pleural effusions but only 1 required drainage. Interval cholecystectomy was performed on the patient with gall stones and an abscess.

Progress of therapy was based on inflammatory markers and ultrasound.

Conclusion: Pyogenic liver abscesses can be effectively treated conservatively by either antibiotics alone if less than 5cm and antibiotics and percutaneous catheter drainage if greater than 5 cm on CT findings. There were no complications related to the drainage procedure.

Disclosure of Interest: None declared
CASE REPORT: COMBINED ENDOSCOPIC AND RADIOLOGICAL TECHNIQUE FOR REMOVAL OF A FRACTURED PERCUTANEOUS TRANS-HEPATIC CHOLANGIOGRAPHY CATHETER IN A PATIENT WITH RECURRENT PYOGENIC CHOLANGITIS
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Introduction: Recurrent pyogenic cholangitis (RPC) is a disease characterized by recurrent episodes of cholangitis with intra-biliary stones, strictures and resultant obstruction. It is primarily found in the South-east Asian population. The principles of management include treatment of sepsis, removal of existing intra-biliary stones, and continued surveillance of any future recurrences. This can involve surgical resection with biliary-enteric anastomosis if localized, or endoscopic / percutaneous methods. We are presenting a case report of a fractured percutaneous trans-hepatic cholangiographic (PTC) stent in a patient with recurrent pyogenic cholangitis which was removed using a combined endoscopic and radiological method.

Materials & Methods: We are presenting a case of a 76 year old female who is a hepatitis B carrier with known liver cirrhosis, with a past medical history of recurrent pyogenic cholangitis. She had previously undergone a laparoscopic cholecystectomy, as well as endoscopic retrograde cholangiopancreaticography (ERCP) with sphincterotomy, stenting and removal of stones. She subsequently had bilateral PTC drains placed with removal of intra-hepatic stones percutaneously.

Results: She now presents with pain over the right PTC drain exit site with reduction in drain output. A computed tomography scan was performed which showed a fractured right percutaneous biliary stent. Initial attempt for stent removal was via radiological technique where the proximal part of the catheter was cut and removed, and a 4F catheter was advanced over the strings of the existing 10F internal-external biliary drainage catheter and passed into the duodenum. The strings of the 10F catheter could not be pulled to retrieve the fractured fragments. The patient underwent an endoscopic removal of the remnant stent fragments. During the endoscopy, the fractured 10F catheter could be seen extruding from the major papilla. This was removed via an Alligator forceps and manipulated into the stomach and out per orally. Fluoroscopy was used to ensure all the fragments were removed. The 4F catheter was subsequently exchanged for a 12F internal-external biliary drain.

Conclusion: A combined endoscopic and radiological technique is a safe and effective method to remove fractured PTC stent fragments.

Disclosure of Interest: None declared
Introduction: Resection of advanced oral cancer may result in large complex defects. Reconstruction of such defects could be done by loco-regional flaps or their combination or alone by free flaps. We describe the technique of single stage composite PMMC –DP Flap for reconstruction of such defects.

Materials & Methods: The patients with locally advanced oral cavity cancer from the period of September 2015 to January 2016, who were operated and reconstructed using this technique. DP flaps were raised first with the standard technique after which PMMC flaps was raised. PMMC flaps were used for coverage on the mucosal side of the defect and the DP flap was used to cover the skin loss. Both flaps were sutured to each other at the skin mucosa junction. Postoperative course and final cosmesis were evaluated.

Results: Reconstruction with this technique was done in 15 patients. There were 14 males and one female. Most of patients were having disease in whole of buccal mucosa, lower alveolus and retromolar trigone (14), one patient was of central arch mandible. Skin involvement was in all patients. Major Flap necrosis occurred in one patient. Patient however recovered and reconstructed using the same flap. Two patients developed minor orocutaneous fistula which healed on conservative management. Final cosmetic outcome was satisfactory in all patients.

Conclusion: Large complex defects involving both oral cavity and skin poses a unique reconstructive challenge. Although a single free flap or combinations of free flap may represent a better solution, such facilities may not always be available. This technique represents an innovative solution in reconstruction of oral cavity defects with large skin loss. We have modified the technique of flap in such a way that the edge of flap is sutured to the neck dissection wound. This avoids the need for the subsequent flap division of defect. This shortens the recovery time and allows early initiation of adjuvant radiotherapy. We plan to refine this technique to improve outcome and cosmesis in patients requiring further large reconstructions.

Disclosure of Interest: None declared
VENO-VENOUS EXTRACORPORAL MEMBRANE OXYGENATION (VV ECMO) FOR ACUTE RESPIRATORY FAILURE FOLLOWING INJURY – OUTCOMES IN A HIGH VOLUME ADULT TRAUMA CENTER WITH A DEDICATED UNIT FOR VV ECMO

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Introduction: The use of VV ECMO in adults with acute respiratory failure/acute respiratory distress syndrome (ARF/ARDS) has increased over the past decade. Historically, trauma patients have comprised only 10% of all adult VV ECMO with approximately a 50% survival. The purpose of this study was to evaluate the outcomes of adult patients following injury requiring VV ECMO managed at a high volume trauma center with a dedicated unit for providing adult ECMO care.

Materials & Methods: Data were collected on all adult trauma patients admitted to the Lung Rescue Unit (LRU) between January 1st 2015 and November 1st 2016. Indication guidelines for VV ECMO included a PaO2/FiO2 (P/F) < 125 with plateau pressure > 30 cmH2O or P_{high} > 30 cmH2O using airway pressure release ventilation, inability to ventilate (CO2 mmHg > 60 and pH < 7.25) with plateau pressure > 30 cmH2O or P_{high} > 30 cmH2O using airway pressure release ventilation. Demographics, injury specific data, pre-ECMO data, ECMO duration, survival to discharge were recorded. Medians (interquartile range [IQR]) were reported. A p-value ≤ 0.05 was considered statistically significant.

Results: 17 patients were admitted to the LRU on VV ECMO during the study period. Four (23%) patients were transferred to the LRU from outside facilities already on ECMO. Overall, median age was 28 years [IQR 34-45], fourteen were male and twelve patients had a blunt mechanism of injury. Median injury severity score (ISS) was 27 [IQR 22-43]; Chest Abbreviated Injury Score (AIS) was 3 [IQR2-4]; Median PaO2/FiO2 (P/F) ratio prior to ECMO cannulation was 63 [IQR 49-70]. Median time from injury to cannulation was 3 days [IQR 0-6].Total median ventilator days were 32 [IQR 15-39]; intensive care unit (ICU) length of stay (LOS) was 37 days [IQR 16-64] and hospital LOS (HLOS) was 51 days [IQR 16-66]. Median duration of ECMO was 266 hours [IQR 154-375]. Six (35%) patients were placed in the prone position; nine (53%) patients required renal replacement therapy (RRT); two required Molecular Adsorbent Recycling System (MARS) therapy.

Twelve (71%) patients were discharged either to home or a rehabilitation center. Four (24%) patients died prior to ECMO de-cannulation. One patient remains on ECMO. Of the 4 patients that died, 2 had removal of life sustaining therapy due to multi-system organ failure, 1 had irreversible shock and 1 died by neurological criteria. When comparing those patients that survived to those that died prior to de-cannulation, survivors had a significantly higher ISS (33 vs 22, p=0.03), longer ICU LOS (52 vs 5 days, p < 0.0004, HLOS (61 vs 5 days, p < 0.000004), and time on the ventilator (36 vs 6 days, p < 0.0003). Median time of injury to cannulation was significantly longer in patients who survived to discharge (5 vs 0 days, p=0.01), although 23% of survivors were cannulated on the day of injury. There was no difference in P/F ratio prior to cannulation or duration of ECMO in the 2 groups.

Conclusion: We have demonstrated that a high volume adult trauma center with a dedicated ICU to provide ECMO care improves the outcome of patients requiring VV ECMO following injury compared to historical data. Although shorter time from injury to cannulation for VV ECMO was associated with death, select patients who meet criteria for VV ECMO early following injury should be referred/transferred to a tertiary care facility that specializes in trauma and ECMO care.

Disclosure of Interest: None declared
Introduction: Massive transfusion (MT) can be a life-saving therapy for trauma patients in hemorrhagic shock. A widely used trigger for MT initiation protocol is the Assessment of Blood Consumption (ABC) score, which is based on mechanism of injury, systolic blood pressure, tachycardia, and the FAST exam. The aim of our study was to improve the performance of ABC score by replacing hypotension and tachycardia with Shock Index (SI) >1.0 and including pelvic fractures.

Materials & Methods: We performed a 2-year (2014-2015) retrospective analysis of all patients who underwent highest level of trauma activation and required any blood transfusion. Patients dead on arrival and burn patients were excluded. Data points including emergency department (ED) systolic blood pressure (SBP) and heart rate (HR), mechanism of injury, FAST examination, and presence of pelvic fracture on pelvic x-ray were collected. The ABC score was calculated using the 4-point score which included blunt (0) vs. penetrating trauma (1), HR ≥ 120 (1), SBP ≤90 mmHg (1) and FAST positive (1). The Revised Assessment of Bleeding and Transfusion (RABT) score also included 4 points and was calculated by replacing the HR and SBP with SI >1.0 and including a point for pelvic fracture. Area under the receiver operating characteristic curves (AUROC) were used to compare the performance of two scores.

Results: A total of 380 patients were included in the study. The overall MT rate was 27.9%. Patients receiving MT had higher ABC scores (median 1[0.75-2] vs. 1[0-2] p=0.06) and higher RABT scores (median 2[1-2] vs. 1[0-1.25] p=0.001). The RABT score had better discriminative power (AUROC =0.828, 95% CI = 0.782- 0.873, p<0.001) as compared to ABC score (AUROC =0.617, 95% CI = 0.551- 0.68, p=0.001) for predicting the need for massive transfusion. Cutoff of ≥2 for RABT score had a sensitivity of 73.5% and specificity of 75.1% for predicting MT need compared to a sensitivity of 34.0% and specificity of 74.4% of ABC score.

Conclusion: Replacement of hypotension and tachycardia with a shock index>1.0 and the inclusion of pelvic fracture on an x-ray film results in enhanced discrimination of the ABC score for predicting the need for massive transfusion. The current ABC score would benefit from revision to allow for more appropriate identification of patients requiring massive transfusion.

Disclosure of Interest: None declared
178.03
AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA GRADING SYSTEM OUTPERFORMS THE TOKYO GUIDELINES IN ASSESSING CHOLECYSTITIS OUTCOMES
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Introduction: Acute cholecystitis presents with heterogeneous severity. The Tokyo Guidelines 2013 (TG) is a validated method to assess disease severity for cholecystitis but are dependent on physiologic, laboratory, and specific image based anatomic criteria. The American Association for the Surgery of Trauma (AAST) developed a simpler anatomic based severity grading system for surgical diseases, including cholecystitis. We aim to compare management and post procedural outcomes between the AAST and TG severity grades hypothesizing that the AAST system will have an enhanced ability to distinguish patient outcomes.

Materials & Methods: Adults (≥18) with acute cholecystitis during 2013 and 2016 were identified. Baseline demographics, comorbidity severity defined by Charlson Comorbidity Score, procedure types, AAST and TG grades were assigned based on defined criteria. Outcomes included length of stay, thirty day mortality, and complications. Comparison of the TG and AAST grading system was performed using receiver operating characteristic (AUROC) curve c-statistics.

Results: There were 443 patients with a mean (±SD) age of 64.8 (±18) years, 59% male. The median [IQR] Charlson Comorbidity score was 3 [0-6]. Management included: laparoscopic (n=307, 69.3%), open (n=26, 6%), laparoscopy converted to laparotomy (n=53, 12%), and cholecystostomy (n=47, 12.7%). Comparison of AAST to TG AUROC c-statistics are as follows (p<0.05): mortality (0.86 vs 0.73), complication (0.76 vs 0.63), and cholecystostomy tube utilization (0.80 vs 0.68).

Conclusion: Emergency general surgery grading systems improve disease severity assessment yet clinical simplicity and ease of use are desirable for generalized use. Discrimination of disease severity utilizing the AAST grading system outperforms the TG for key clinical outcomes and is easier to calculate. The AAST grading system requires prospective validation and further comparison.

Disclosure of Interest: None declared
SURGICAL SITE INFECTIONS: ASSESSING INSTRUMENT DECONTAMINATION AND STERILIZATION PROCESSES AT A TERTIARY HOSPITAL IN ETHIOPIA

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Introduction: Surgical site infections (SSIs) are a major cause of morbidity and mortality, disproportionately so in low and middle income countries (LMIC). Improper decontamination and sterilization of surgical equipment can act as a vector for SSIs. While sterile processing of surgical equipment is standardized and well-described in high income countries, there is a dearth of information on both the current standards and practices in LMIC. We evaluated the sterile processing techniques at a tertiary hospital in Ethiopia using process mapping, a structured analysis of sequential instrument decontamination and sterilization processes, to identify gaps and areas for improvement in compliance to both hospital and international standards.

Materials & Methods: This mixed methods health services research project involved piloting our infection prevention program at a major surgical hospital in southwestern Ethiopia. Central sterile processing was divided up into five categories for improved characterization: (i) decontamination, (ii) processing, (iii) sterilizing, (iv) sterile storage and (v) distribution. Literature review and qualitative interviews with experts were used to enumerate standard protocols for sterile processing at our pilot hospital and internationally. An on-site surgical fellow compiled the process maps to identify gaps and barriers to an efficient and robust decontamination and sterilization system. The generated process maps were presented to the local implementation team and options for improving the process explored.

Results: Process mapping identified barriers and limitations in resources, personnel management, and standardized protocols. Resource limitations included lack of appropriate detergent, running water, distilled water for autoclaves, and proper sterile indicators to confirm sterilization of instruments. Management limitations included inadequate communication between sterile processing and administration, lack of robust protocols, and inefficient sterile processing systems that use multiple departments for the same task. Practical options and interventions included developing locally sensitive protocols for instrument cleaning, sterilizing, and certification including discontinuing the use of caustic chlorine, establishing a logbook to document autoclave function, and the procuring sustainable sterile indicators.

Conclusion: An essential but frequently neglected component of surgical capacity building is improving the reliability and efficiency of instrument decontamination and sterilization. By understanding inherent limitations, we were able to develop local solutions at a single center to improve and codify the process of sterilization of instruments for use during surgery.

Disclosure of Interest: None declared
A NEW TRAUMA AND ACUTE CARE SURGERY SERVICE: IMPLEMENTING AN INNOVATIVE MODEL OF CARE IN A REGIONAL HOSPITAL IN LATIN AMERICA


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Introduction: Low- and Medium-Income Countries (LMIC) have less structured emergency and trauma care systems when compared to High Income Countries (HIC). This is largely due to limited resources, training, and disparities in healthcare. Furthermore, trauma is a major contributor to mortality and morbidity. Acute care surgery is a rapidly growing field with three essential components—trauma, critical care, and emergency surgery—and has been shown to improve cost, efficiency, and patient outcomes in HIC. However, data from LMIC is lacking. We evaluated the effect of implementing the first combined Trauma and Acute Care Surgery (TACS) service in Latin America on patient outcomes and cost at a regional trauma center in LMIC.

Materials & Methods: This is a single-center retrospective analysis of trauma patients admitted from November 2011 through April 2013. On November 1st, 2012, we implemented a TACS service consisting of two, alternating 12-hour shift coverage with face-to-face handoff by an on-site attending surgeon, a backup surgeon, and an operating room available 24 hours a day. We compared mortality, time spent in emergency department (EDtime), length of hospitalization (LOH), and cost before and after the implementation.

Results: EDtime and LOH were significantly lower in the post-intervention group (Table – Outcomes). There was a trend in decreased mortality in the post-intervention group (3.2% vs 9.7%). There was an overall decrease in cost at both the emergency department and inpatient levels between the two groups.

Table – Outcomes

<table>
<thead>
<tr>
<th></th>
<th>preTACS</th>
<th>postTACS</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>103</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>EDtime (hours)</td>
<td>5.82 ± 6.22</td>
<td>0.97 ± 1.00</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>LOH (days)</td>
<td>8.21 ± 5.80</td>
<td>6.42 ± 2.97</td>
<td>0.025</td>
</tr>
<tr>
<td>Mortality</td>
<td>9.7%</td>
<td>3.2%</td>
<td>0.12</td>
</tr>
</tbody>
</table>

N = number of patients in each group; EDtime (hours) – hours spent in the emergency department by a patient; LOH (days) – length of hospitalization in days; preTACS – patients in the pre-intervention group; postTACS – patients in the post-intervention group.

Conclusion: A well-structured team of dedicated surgeons providing 24-hour coverage for trauma and surgical emergencies translates into improved patient outcomes and cost even in the setting of limited resources and technology.

Disclosure of Interest: None declared
Introduction: In developed countries, with a decreasing incidence of trauma, there is concern regarding a lack of surgeons with experience and competence in the management of the patient with complex trauma, while in developing countries, the focus is often on the lack of physical resources. Surgeons are often subspecialized and accustomed to the specific practices within their subspecialties, which according to the respondents, may lead to a lack of understanding of the multifaceted nature of management of the complex trauma patient. The concerns are based on observations focusing on surgeons' lack of trauma experience, lack of field experience, and lack of confidence outside their specialty. This management mind-set requires the appreciation of the spectrum of injury, time pressure, a lack of appropriate equipment or resources, and the decisions and integration of the actions required. Experienced trauma surgeons state that they have a different mind-set in their work compared to trauma naive surgeons, but there is a lack of research on exactly what the difficulties and challenges of teaching and training in the management of the patient with complex surgical trauma actually are. The aim was to study what experienced trauma surgeons describe as the challenges specific to surgical decision-making, and their beliefs about the typical mistakes made, or problems that less experienced surgeons may encounter, in the management of such cases.

Materials & Methods: Video recordings of interviews and reviews of authentic cases of complex trauma were performed to examine how experienced trauma surgeons approach real cases. International experts with expertise in the management of complex surgical trauma from Canada, New Zealand, Norway, South Africa, Sweden and the United Kingdom participated. The participating experts were recruited from within the senior instructor faculty of an existing course, "Definitive Surgical Trauma Care" (DSTC™), which is a high-end international course offering education in the mind-set and techniques required for management of these patients. A think-aloud method was employed to lay bare the participants' reasoning. The findings were validated using video based observations of the management of actual trauma cases treated at a major trauma center.

Results: When reviewing authentic cases the participating experts expressed expectations about certain decisions to be made, and which were felt to be problematic for less experienced surgeons. The following educational challenges in were identified: (1) Different interpretations of priority of care, (2) Time-management, the understanding of when to wait and when not to wait, (3) Managing with limited equipment or resources, (4) Understanding the concept of damage control surgery, including the specific actions required, and interpreting characteristic of surgical trauma wounds, (5) Thinking "physiologically" rather than "anatomically-mechanically", (6) Taking into account the impact of environment for the patient and (7) Re-considering ethical issues in saving lives.

Conclusion: A number of specific challenges in the teaching and training of the decision-making required within complex surgical trauma were identified. These were related to the characteristics of the injuries and the specific conditions in which complex trauma surgery may be performed. The findings have implications for the design of educational approaches in the management of traumatic injury, especially in military medicine and pre-deployment training of military surgeons.

Disclosure of Interest: None declared
PROBLEMS OF MILITARY SURGEONS TRAINING: RUSSIAN EXPERIENCE
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Introduction: Training of Russian military doctors on surgery at the Military Medical Academy since its foundation (1798) was based on anatomical and physiological knowledge, practical training "at the patient's bed", an early "immersion to the profession" in the first years of study, the mandatory involvement of medical cadets to scientific work in student scientific societies. Surgery in Academy has consistently been studied on the basis of several surgical Departments and Clinics (Surgical anatomy department, General surgery department, Faculty surgery department, Hospital surgery department, Military surgery department). The subsequent Postgraduate training of military surgeons performed an Internship (1 year) and Residency (3 years). The periodic Advanced courses on surgery (every 5 years) then practiced.

Materials & Methods: It carried out a comparison of the historical traditions of the Russian military surgeons training with the recent experience of the innovative educational technologies using.

Results: Modern approaches to the Russian military surgeons training are based on accumulated historical experience, but also on the innovative educational technologies. Training of military surgeons now consist of the Postgraduate Residency (2-5 years), followed by a Continuing medical education (CME). Training of military surgeons includes the mandatory participation in regular field military medical exercises, the extensive use of simulation training on special robotic medical simulators, and the use of serious computer medical games. Optimal is "the targeted training" of each surgeon for the intended military post and follow-up control with the use of feedback. For military surgeons to be deployed in a war zone, the additional site training courses organized by special groups of teachers from the Military Medical Academy.

Conclusion: The modern innovative teaching surgery methods significantly intensify educational and cognitive activity of students. They make it easier to absorb the educational material and demonstrate better results in comparison with the traditional methods of teaching surgery. Using the innovative simulation strategies in surgical education increases the level of assimilation of the material by 32.3% and the mastery of practical skills of students by 20.0%.

Disclosure of Interest: None declared
Introduction: The objective of this study was to review the trauma workload and operative exposure in a major South African trauma centre and provide a comparison with contemporary experience from major military conflict.

Materials & Methods: All patients admitted to the PMTS following trauma were identified from the HEMR. Basic demographic data, including mechanism of injury and body region injured were reviewed. All operative procedures were categorized. The total operative volume was compared with those available from contemporary literature documenting experience from military conflict in Afghanistan. Operative volume was converted to number of cases per year for comparison.

Results: During the four-year study period, 11548 patients were admitted to our trauma centre. Eighty-four per cent were male and the mean age was 29 years. There were 4974 cases of penetrating trauma, of which 3820 (77%) were stab wounds (SWs), 1006 (20%) gunshot wounds (GSWs) and the remaining 148 (3%) were animal injuries. There were 6574 cases of blunt trauma. The mechanism of injuries were as follows: Assaults: 2956, road traffic accidents: 2674, falls: 664, hangings: 67, animal injuries: 42, sports injury: 29 and other injuries. A total of 4207 operations were performed. The volumes per year were equivalent to those reported from the military surgical literature.

Conclusion: South Africa has sufficient burden of trauma to train combat surgeons. Each index case as identified from the military surgery literature has a sufficient volume in our service. Based on our work load a six month rotation should be sufficient to provide exposure to almost all the major traumatic conditions likely to be encountered on the modern battlefield.

Disclosure of Interest: None declared
PREOPERATIVE COMPARISON OF HIGH RESOLUTION ULTRA-SONOGRAPHY AND DIRECT VIDEO LARYNGOSCOPIC VOCAL CORD MOVEMENT IN PATIENTS UNDERGOING THYROID SURGERY AT A TERTIARY CARE CENTER

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Introduction: Objectives: Preoperative evaluation of vocal cords is an integral part of assessment in thyroid surgery. Laryngoscopy either indirect or direct may cause discomfort in a significant proportion of these patients. The aim of this study is to assess the feasibility of high resolution surgeon performed ultrasonography (SPUS), as a screening tool for studying vocal cord movement and comparing with direct video laryngoscopy. (DVL)

Materials & Methods: This prospective observational study is conducted at a tertiary care referral center in South India, for a period of 1 year. All consecutive 350 patients presenting for Thyroid surgery were included in this study from June 2015 to May 2016. All the study cohorts underwent both SPUS and DVL as a preoperative work up for assessment of vocal cords. Procedures were performed by different Endocrine Surgery residents, who were blinded to each others report. Results of DVL and SPUS with respect to vocal cords were compared and analyzed.

Results: Vocal cord movement could be evaluated by USG in 308 (88%) of 350 patients. Results were identical on USG and DVL in 315 (90%) patients and discordant in 35 (10%). 24 (6.8%) patients with abnormal movement on USG were confirmed to have vocal cord palsy by (VL). In 18 (5.4%) patients, cord movement could not be seen by USG due to large goiters and calcification of larynx in old age. In 36 of 350 (10.2%) patients with voice change, normal vocal cord movement were demonstrated on USG and DVL.

Conclusion: USG assessment of vocal cord is simple, non-invasive tool to assess vocal cords mobility. This screening tool requires skills that can be easily obtained. SPUS appears to be a relatively accurate method for assessing vocal cord movement in the preoperative setting. SPUS can be used instead of routine DVL examination in patients before thyroidectomy.


Disclosure of Interest: None declared
MEDIAL APPROACH FOR THE RESECTION OF GOITERS WITH SUPRAHYOID, RETROPHARYNGEAL, OR SUBSTERNAL EXTENSION

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Introduction: Resection of massive goiters with suprahypoid, retropharyngeal, or substernal extension can be difficult, bloody, involve consideration of sternotomy, and not amenable to standard surgical approaches for thyroidectomy. Some guidelines recommend dissection of the goiter's substernal component before identification of the recurrent laryngeal nerve (RLN). This study evaluates a medial approach allowing earlier identification of the RLN and delivery of massive goiters with minimal substernal or suprahypoid dissection.

Materials & Methods: Cases of thyroidectomy for massive goiters with substernal, retropharyngeal, or suprahypoid extension at a single institution from 2005 to 2016 were retrospectively reviewed. The medial approach utilized initially released medial thyroid attachments to the trachea assisted by harmonic scalpel and EMG monitoring, allowing early identification of the RLN and complete mobilization of the thyroid excepting for vascular supply. The deep components are then delivered into the neck with minimal mediastinal or suprahypoid dissection.

Results: Twenty-six patients with substernal goiter and fourteen patients with suprahypoid or retropharyngeal goiter were included with a mean age of 55.8 years. Substernal goiters extended below the aortic arch in 44% of patients and to the carina in 12%. Mean extension below the thoracic inlet was 3.8 cm (range 1.5-7.5 cm). Suprahypoid goiters extended above the hyoid bone in 4 patients, submandibular gland in 3 patients, and the mandible in 1 patient. Retropharyngeal goiters contacted the prevertebral fascia along 3.4 vertebral bodies on average. Mean thyroid height was 8.8 cm. No patients required sternotomy or tracheotomy. Postoperative seroma or hematoma occurred in five patients (13%) with one requiring return to the OR. Transient RLN injury occurred in 4 patients (10%) which resolved within 6 weeks, and no patient had permanent vocal cord paralysis. Six patients (15%) had transient hypocalcemia, and two patients (5%) had persistent hypocalcemia requiring calcium supplementation after 6 months. Surgeries were frequently of 2 to 3 hour duration, as deep superior thyroid, retropharyngeal, and substernal dissections were not necessary.

Conclusion: A committed medial approach to large suprahypoid, retropharyngeal, and substernal goiters facilitates transcervical resection with low morbidity.

Disclosure of Interest: None declared
GENETIC PROFILE OF INDIAN PHEOCHROMOCYTOMA AND PARAGANGLIOMA PATIENTS

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Introduction: Pheochromocytomas (PCCs) & Paragangliomas (PGL) are rare catecholamine producing tumors that may present in sporadic or familial settings. Despite vast strides in understanding of PCC/PGL genetics in the last two decades, there is a relative dearth of information from Low and Middle Income Countries (LMICs), such as India. We studied a prospective cohort of patients to determine the prevalence of genetic mutations.

Materials & Methods: 50 histopathologically diagnosed PCC/PGL patients formed the study group. Clinical, biochemical and pathological attributes, and outcomes were documented, and the phenotype was compared to the genotype. SDH (Succinyl DeHydrogenase), RET (Re-Arranged during Transfection), VHL (Von-Hippel-Lindau) and NF1 (NeuroFibromatosis-1) mutations were studied. Additionally immunohistochemisty for SDHB (by using commercially available rabbit polyclonal antibody) was also done, and the results compared to mutational analysis of SDH by MLPA (Multiplex Ligation-dependent Probe Activation).

Results: The mean age was 34.3 years. Of the fifty patients, 27 were male and 23 female. The tumor was right sided in 28 patients and left-sided in 16, with 6 patients having bilateral disease. A total of ten patients (20%) were detected to have a genetic mutation. Six patients possessed a RET mutation, while two had VHL mutations. No patient presented with a NF1 mutation. Two patients had a SDH mutation, and Immunohistochemistry for SDHB correlated with mutational analysis for these patients.

Comparison: RET vs No mutation
Comparison: VHL vs No mutation
Comparison: SDH vs No mutation

<table>
<thead>
<tr>
<th>Attribute</th>
<th>RET (n=6)</th>
<th>No mutation (n=40)</th>
<th>p</th>
<th>VHL (n=2)</th>
<th>No mutation (n=40)</th>
<th>p</th>
<th>SDH (n=2)</th>
<th>No mutation (n=40)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Years, Mean+SD)</td>
<td>32.7±9.3</td>
<td>35.3±16.1</td>
<td>0.6</td>
<td>23.5±1</td>
<td>2.0</td>
<td>0.31</td>
<td>29±14.1</td>
<td>35.3±16.1</td>
<td>0.58</td>
</tr>
<tr>
<td>Size (cm, Mean+SD)</td>
<td>9.1±6.5</td>
<td>7.0±2.8</td>
<td>0.1</td>
<td>7.1±1.1</td>
<td>6.0</td>
<td>7.0±2.8</td>
<td>5.0±1.4</td>
<td>7.0±2.8</td>
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<tr>
<td>Weight (g, Mean+SEM)</td>
<td>331.0±23.2</td>
<td>156.5±29.5</td>
<td>0.1</td>
<td>38.5±4</td>
<td>3.5</td>
<td>156.5±29.5</td>
<td>50±6.0</td>
<td>156.5±29.5</td>
<td>0.43</td>
</tr>
<tr>
<td>Urine Metanephrines (mcg/24hr, Mean+SEM)</td>
<td>3310±14</td>
<td>803±210</td>
<td>0.0</td>
<td>92+14</td>
<td>0.02</td>
<td>803±210</td>
<td>0.46+5</td>
<td>1012+58</td>
<td>0.82</td>
</tr>
<tr>
<td>Urine Normetanephrines (mcg/24hr, Mean+SEM)</td>
<td>4945±21</td>
<td>4080±378</td>
<td>0.4</td>
<td>5250+450</td>
<td>0.49</td>
<td>4080±378</td>
<td>2983+1157</td>
<td>4080±378</td>
<td>0.52</td>
</tr>
</tbody>
</table>

Conclusion: The proportion of patients with a familial variant of PCC/PGL is more than the historic “Rule of Ten” suggests, with our study, one of the few from LMICs showing that one in five patients can have a genetic mutation. PCC/PGL patients with genetic mutations not only require more stringent follow-up, but also screening of family members.

Disclosure of Interest: None declared
Introduction: Management of pheochromocytoma is challenging as a result of catecholamine secretion predisposing patients to hemodynamic instability and life-threatening cardiovascular events. Currently, no consensus exists regarding optimal preoperative prophylactic medical blockade and whether preoperative alpha-blockade is essential. This study aims to evaluate preoperative regimens and perioperative hemodynamic parameters.

Materials & Methods: Retrospective review was performed of patients who underwent adrenalectomy for pheochromocytoma at a tertiary-care referral center between 01/01/2003 and 01/01/2016. Preoperative medications, catecholamine levels, tumor size and surgical approach were evaluated. Outcome measures included length of surgery, perioperative hemodynamic parameters, vasoactive agents and fluids.

Results: A total of 103 patients underwent adrenalectomy for pheochromocytoma. Median follow-up was 18.7 (range 0.1-155) months. Most patients were white (85%) and female (62%). Median age was 51 (range 20-88) years and mean BMI was 28.9±7.

The posterior retroperitoneoscopic approach was shorter (β -65.7; 95% CI:-107.2 to -24.2) and open surgery was longer (β 71.4; 95% CI:7.5 to135.3) compared with laparoscopic anterior adrenalectomy [median (range)=114 (54-242); 292(127-342); 197(112-269) minutes, respectively]. Tumor size and preoperative catecholamine levels did not consistently affect perioperative hemodynamic parameters.

Patients on preoperative alpha-blockade had a lower peak intraoperative heart rate (β -47.6; 95% CI:-84.8 to -10.5) and a lower systolic blood pressure (SBP) at, but not beyond, 7-12 hours postoperatively (β -43.7; 95% CI:-82.0 to -5.3) compared to those without preoperative alpha-blockade. The use of selective versus non-selective alpha-blockade did not affect perioperative hemodynamic parameters, including postoperative BP. Patients on a preoperative regimen of combined alpha-blockade and calcium-channel blocker (CCB) reached an intraoperative SBP of <80 mmHg more often (OR 0.07; 95% CI:0.01 to 0.62) and required more intraoperative intravenous fluids (β 1.6; 95% CI:0.4 to 2.8) than those on alpha-blockade alone. Addition of preoperative beta-blockade to alpha-blockade did not affect perioperative hemodynamic status.

Conclusion: Use of alpha-blockade appears to protect against severe intraoperative tachycardia. Addition of a CCB does not seem to confer any advantage. A larger multi-institutional systematic analysis may elucidate an optimal preoperative strategy.

Disclosure of Interest: None declared
185.05
CLASSIC PRIMARY HYPERPARATHYROIDISM VS NORMOCALCEMIC AND NORMOHORMONAL VARIANTS: DO THEY REALLY DIFFER?
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Introduction: Normocalcemic (NCpHPT) and Normohormonal (NHpHPT) variants have been well recognized primary hyperparathyroidism entities that pose serious diagnostic challenges. We sought to define the differences between NCpHPT, NHpHPT and classic pHPT (CpHPT) in a series of surgically treated patients.

Materials & Methods: Between 2011 and 2015, 149 patients were enrolled into three groups: CpHPT (Ca>10.2mg/dL, PTH>65pg/mL), NCpHPT (normal Ca, PTH>65pg/mL) and NHpHPT (Ca>10.2mg/dL, normal PTH). Descriptive statistics and inter-group differences were computed for various categorical variables. Fisher exact test, Kruskal-Wallis test, Mc Nemar test and multiple logistic regression/multiple linear regression tests were used for analysis

Results: 125 patients (83.9%) were female and 24 (16.1%) male, mean age 56.3yrs (range: 8-83). 115 (77.2%) patients presented with CpHPT, 23 (15.4%) with NCpHPT and 11 (7.4%) with NHpHPT. MGD was found in 25 (16.8%) patients and SGD in 124 (83.2%); multivariate analysis failed to reveal statistically significant association of MGD with any pHPT variant (CpHPT 16.5% vs NCpHPT 21.7% vs NHpHPT 9.1%, p=0.726). Conversely, statistically significant difference was identified for adenoma weight in NCpHPT patients who had smaller adenoma weight (median 0.4 vs 0.8 CpHPT and 0.6 NHpHPT, p=0.023). Moreover, U/S in NCpHPT patients exhibited smaller positive predictive value (61.9% vs 76.6% in CpHPT and 66.7% in NHpHPT, p=0.278), whereas concordance between U/S and MIBI was also lower in NCpHPT (57.1% vs 70% in CpHPT and 75% in NHpHPT, p=0.669); however these differences did not reach statistical significance. The utility of MIBI and U/S differed significantly (p<0.001); more frequent use of U/S was observed for all groups. However, their predictive values did not differ significantly (U/S 70.1% vs MIBI 68%, p=0.832). Multivariate analysis revealed higher probability of U/S and MIBI concordance the higher the adenoma size (p=0.028, OR=3.708, LB=1.153, UB=11.925) and lower concordance for MGD patients (p=0.022, OR=0.157, LB=0.032, UB=0.766)

Conclusion: NCpHPT and NHpHPT were identified in 15.4 % and 7.4% of pHPT patients. NCpHPT constitutes the most challenging entity: it is associated with smaller adenoma weight, whereas U/S exhibited lower positive predictive value and lower concordance rate with MIBI. Even though a trend for higher MGD presence in NCpHPT was observed, this never reached statistical significance compared to the CpHPT

Disclosure of Interest: None declared
INTERVENTIONAL TREATMENT OF EARLY BILE LEAKAGE FOLLOWING ORTHOTOPIC LIVER TRANSPLANTATION – A WORD OF CAUTION?

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Introduction: Biliary complications remain common following orthotopic liver transplantation (OLT) and are known to limit graft survival. They can be managed either non-operatively or by surgical treatment. Herein, we analysed our experience with patients suffering from early bile leakage.

Materials & Methods: We performed a retrospective analysis of all 1035 OLTs performed between January 1st, 2000 and October 1st, 2016. Paediatric and adult OLTs with biliodigestive reconstruction were excluded from the analysis. Early bile leakage was defined as leakage occurring within 30 days following OLT.

Results: In the analysed period, we identified 80 patients experiencing an early bile leakage. 63 recipients were males (78.7%) and 17 were females (21.3%). Median recipient age at transplantation was 59 years (range 25 – 73) and the median MELD score (excluding exceptional MELD) was 16 (range 6 – 40). There were 49 (61.2%) male and 30 (37.5%) female donors (1 unknown) with a median age of 50 years (range 14 – 80). Cerebrovascular accidents were the cause of death in 44 (55%), trauma in 22 (27.5%), anoxia in 5 (6.3%) donors. The median donor GGT was 51 IU/l (range 4 – 853 IU/l). Median cold ischemia time was 8.8 hours (range 3.9 – 18.2). 31 patients (38.3%) underwent interventional treatment, 49 patients (61.2%) surgical treatment. 5-year patient and graft survival rates following OLT in this cohort were 72.8% and 57.4%, respectively. While cox regression of these factors showed no influence on patient survival, GGT (p=0.008) was identified as a risk factor for worse graft survival. Interestingly, also interventional treatment tended to be associated with worse graft survival (p=0.094).

Conclusion: Early bile leakage is associated with worse 5-year graft survival following OLT. The observed tendency for worse graft survival in patients receiving endoscopic treatment should be further analysed.

Disclosure of Interest: None declared
THE RELATIONSHIP BETWEEN NUTRITIONAL STATUS AND CARDIOPULMONARY EXERCISE PERFORMANCE IN LIVER TRANSPLANT ASSESSMENT PATIENTS.

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Introduction: Cardiopulmonary exercise testing (CPET) and nutritional assessment have long been core investigations in the assessment of potential liver transplant patients, however the relationship between these two tests have seldom been investigated in this population.

The aim was to determine the relationship between CPET variables and anthropometric variables of nutritional assessment in a liver transplant assessment population.

Materials & Methods: A retrospective, observational study of 542 patients who received liver transplant assessment within the Scottish Liver Transplant Unit, Royal Infirmary of Edinburgh between January 2013 and June 2016. Patient anthropometric data including body mass index (BMI), subcostal girth, triceps skinfold thickness (TSF), mid-arm circumference (MAC) and mid-arm muscle circumference (MAMC) were collected. These were compared with patient CPET data including anaerobic threshold (AT), VO₂(peak), %VO₂(peak), Vₑ/VCO₂, metabolic equivalent (MET), peak work, resting heart rate (HR), peak HR, % predicted HR and respiratory exchange ratio (RER).

Simple linear regression statistical analysis was used to assess the relationship between two individual variables (for example, BMI with HR).

Results: TSF, MAC and MAMC had significant relationships with %VO₂(peak) and Vₑ/VCO₂ (p<0.0001, r²=0.04-0.07), but no significance with peak HR, % predicted HR and RER. BMI and subcostal girth had significant relationships with AT and VO₂(peak) even when corrected for weight, and MET (p<0.0001, r²=0.04-0.05). MAC and MAMC had significant relationships with peak work and resting HR (p<0.0001, r²=0.03-0.12).

Conclusion: The results suggest significant relationships between many individual variables of nutritional status and cardiopulmonary exercise performance. However, the substantial variation, indicated by low regression coefficients suggests little predictive value in these relationships.

Given the already known effect of cardiopulmonary exercise performance on liver transplant patient survival, perhaps improvements in nutritional status may provide subtle improvements in patient outcomes in liver transplantation.

Disclosure of Interest: None declared
Neutrophils are known to play an essential role in the formation of abdominal aortic aneurysms (AAAs) since neutrophil depletion leads to inhibition of experimental AAA development in rodents. Furthermore, markers of neutrophil activation are elevated in patients with AAA. The formation of so-called neutrophil extracellular traps (NETs) is a process of extreme neutrophil activation and death involving histone modification (citrullination) and DNA expulsion to entrap pathogens. Recently, NETs have been implicated in thrombotic processes. We hypothesized that NETs may be associated with AAA development and NET markers are increased in circulation of AAA patients. We further investigated whether NET parameters are more sensitive than regular neutrophil activation markers in AAA detection.

Materials & Methods: Aortic tissue and peripheral venous blood were collected from 20 AAA patients scheduled for surgical repair. 21 age and sex matched healthy individuals served as controls. Markers of neutrophil activation like elastase, myeloperoxidase (MPO) and neutrophil gelatinase associated lipocalin (NGAL) were measured in plasma by ELISA. In comparison, parameters of NET formation, free DNA-histone complexes and citrullinated histone H3, were evaluated. Differences between groups were calculated by Mann-Whitney-U-test and diagnostic marker potential was assessed by ROC analysis (AUC=area under the curve). Furthermore, neutrophils and NETs were detected in AAA tissue and associated intraluminal thrombus (ILT) by immunofluorescence microscopy.

Results: AAA patients had significantly elevated plasma MPO levels of median 13.0 vs. 6.7 ng/ml (P<0.001; ROC AUC=0.828). In contrast, NGAL and elastase showed no significant difference between AAA patients and healthy controls. Free DNA/histone complexes were significantly higher in AAA patients with 45.8 vs. 28.9 relative units (P=0.036; ROC AUC=0.689). Neutrophils with citrullinated histones were readily detectable in the ILT associated with AAA.

Conclusion: This is the one of the first reports on the association of NET markers with AAA. While free DNA/histone complexes in plasma seem to be less sensitive as diagnostic tool than the standard neutrophil activation marker MPO, NET parameters like circulating citrullinated histones are currently under investigation and may be of particular interest in the prediction of AAA progression and rupture.

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AAA RUPTURE PREDICTION IN WOMEN AND AORTIC SIZE INDEX
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Introduction: Rupture of an abdominal aortic aneurysm (AAA) is a life-threatening event with high mortality for
patients undergoing Open Repair (OR) or Endovascular Aneurysm Repair (EVAR). The literature reports significantly
higher mortality in women undergoing surgery for AAA rupture compared to men. The prognosis of rupture can be
improved using the Aortic Size Index (ASI, described by Lo et al, JVS 2014). Aim of this study was to evaluate
operative results of elective and urgent AAA repair in female patients (pts) in comparison to calculated ASI.

Materials & Methods: Prospectively collected data of all consecutive patients (pts) undergoing AAA repair between
January 2006 and December 2015 in our institution were analyzed retrospectively. Data presented are expressed as
mean values plus Standard Deviation. Statistical analysis was performed using SPSS software.

Results: During the study period a total of 520 AAA pts were treated by OR (413/520 pts =79.4%) or EVAR (107/520
pts=20.6%). In our institution EVAR was performed strictly in an elective situation due to logistic reasons.
413 patients (50 women, 363 men) underwent open AAA surgery. 284 pts. were operated electively and 129 urgently
because of symptomatic aneurysms (46 pts.) or AAA rupture (83 pts.). OR for AAA rupture was performed in 11
female pts. (11/50=22%) and 83 male pts (72/363=19,8%).
Mortality was for OR in AAA rupture was 21.9% in male (16/73 pts) and 45% in female pts (5/11 pts). Female AAA
rupture pts. were significantly older with a mean age of 81.2±4.6 years compared to male pts. with 73.6±8.4 years.
The mean aneurysm diameters did not differ significantly (women 7.4±1.6 cm, men 7.8±1.6 cm).
The mean ASI in women undergoing elective surgery was 3.2±0.7cm/m², in symptomatic AAA 3.6±0.8 cm/m² and in
ruptured AAA 4.4±1.1 cm/m²

Conclusion: The mortality in women undergoing Open Repair for ruptured AAA was significantly higher than in men,
although the female patients were significantly older.
All operated women showed values for ASI higher than the recommended threshold for repair of 2.5 cm/m². The
relatively large mean diameter of the ruptured aneurysms as well as the high ASI values support an indication for AAA
treatment in women at lower maximum diameters as 5.0 cm. Also the results raise the question of a nationwide AAA
screening program for AAA. Screening is currently not instituted in Austria, but should be considered for male and
female patients to prevent emergency surgery due to AAA rupture.

Disclosure of Interest: None declared
Hypertension secondary to renal artery stenosis (RAS) is treated either pharmacologically or in combination with surgical management. Before embarking on any surgical option, it is vital to understand the indications, contraindications, and post-procedure complications. More importantly, it is essential to understand whether surgery is significantly beneficial to a patient over pharmacological treatment; the less invasive the method, the lower the stress on the patient. This review aims to discuss both aforementioned options and determine whether surgical intervention is overall beneficial in comparison to medical management alone.

Materials & Methods: A literature review was done using various recent studies exploring management options for hypertension in patients with RAS. Existing data was analyzed to determine significant changes in systolic pressures post both surgical and/or medical management options. This allowed for the determination of whether surgical intervention produced significantly better results.

Results: There was no significant difference in the mortality of RAS patients undergoing renal artery stenting alongside medical therapy, when compared to the group treated only pharmacologically. Balloon angioplasty was significantly more effective in patients with moderate-severe atherosclerotic RAS and poorly controlled hypertension after a follow-up period of at least 3 months. When comparing surgical with endovascular management and stenting in patients with greater than 70% RAS, there were no significant differences in patency or hypertension; both surgical and endovascular treatment options were equally effective in showing improvement.

Conclusion: Currently, the management of hypertension secondary to RAS remains quite challenging especially due to there being major study limitations. It's necessary to screen for RAS in patients with risk factors, and its discovery warrants the initiation of pharmacological management with anti-hypertensives, statins, and antiplatelet agents. It's important to understand both the physiological impacts along with any co-existing conditions before embarking on either type of treatment regimes. Revascularization using transluminal angioplasty with or without stent should be considered in those with severe atherosclerotic and/or bilateral RAS. Patients with mild-moderate cases of RAS do not benefit from surgery and should be managed with pharmacological treatment and lifestyle modifications alone.


Disclosure of Interest: None declared
RECENT EXPERIENCE OF ENDOVASCULAR RELINING FOR PERSISTENT ENDOTENSION-INDUCED EXPANSION OF ABDOMINAL AORTIC ANEURYSM (AAA) SAC FOLLOWING ANEURYSM EXCLUSION USING THE ORIGINAL PERMEABILITY PTFE GRAFT

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Introduction: Endovascular relining with a less permeable endograft has been reported to be effective in treating continuously enlarging aneurysm sac due to endotension following abdominal aortic aneurysm (AAA) repair. The objective of this study was to review our recent experience with this approach in the treatment of endotension-induced AAA sac expansion.

Materials & Methods: A retrospective analysis of patients who developed persistent sac enlargement after AAA repair and thus underwent secondary intervention between 2012 and 2015 was performed. The contrast-enhanced computed tomography images were reviewed for identification of endotention, the absence of endoleak.

Results: We identified six patients, all of whom underwent initial AAA repair procedures using the original more porous polytetrafluoroethylene (PTFE) graft. Four patients had initial open repair, whereas two patients underwent endovascular repair. The existing original grafts were relined endovascularly with low-permeability endoprostheses in five patients. The average time from the original AAA repair to relining was 8.5 years (range, 1-14). Mean diameter of the original aneurysms was 6.05 cm (range, 5.2-7.0), and the mean aneurysm diameter at relining was 10.6 cm (range, 7.08-14.0). Hounsfield units of sac contents averaged 21.35 (range, 18.79-24.75). There was no mortality associated with the relining procedures. At a mean of 10.3-month follow-up after relining, there was no recurrence of sac enlargement.

Conclusion: Our experience demonstrated that the endovascular relining is an effective and safe option in treating delayed aneurysm sac enlargement after repair with the original permeability PTFE graft, and further adds to the growing body of literature.

Disclosure of Interest: None declared
Introduction: Treatment of renal failure while awaiting transplant requires vascular access, which comes with complications as well as significant failure rates. In order to improve this, information about the AVF or AVG itself, as well as the haemodynamics is required. This data would then be used for computer modelling techniques and computational flow dynamics. Previously, the required imaging was provided by contrasted MRI, contraindicated in renal failure. New MRI software that provides imaging data as well as haemodynamic information without using contrast could be used to provide new high quality data for modelling.

Materials & Methods: This was a prospective pilot study. 3 control cases (with no history of vascular illness or surgery of any kind to the right upper arm), as well as 2 grafts and 3 fistulae underwent phase contrast MRAngiography of the right upper arm with a Siemens Magnetom Symphony 1.5 T MRI. Images were then processed using Supertool in Matlab and flow velocities at predetermined points on the brachial artery and cephalic vein, graft and fistula were calculated.

Results: Velocities ranged from 5.8cm/sec in a volunteer to 85.5cm/sec in an AV graft. Flow volumes in the cephalic vein or access ranged from 6.9ml/min in a volunteer to 4584ml/min in an arteriovenous fistula. This correlates with velocities measured on duplex Doppler imaging. Early reconstructions show significant flow haemodynamic changes.

Image:

Conclusion: This technique provides good imaging and quantitative data about small vessel haemodynamics.

Disclosure of Interest: None declared
196.08
FREQUENCY AND NATURE OF POSTOPERATIVE COMPLICATIONS AFTER GUNSHOT COMBAT INJURIES OF MAJOR VESSELS
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Introduction: The objective of this study was to define the frequency and nature of postoperative complications in injured with gunshot combat injuries of major vessels and find out the reasons for their development.

Materials & Methods: A 23-year retrospective cohort analysis performed to evaluate the number and nature of postoperative complications in injured with gunshot injuries of major vessels, received during the counter-terrorist operation in the North Caucasus, admitted to the medical detachment for special purposes and to the department of vascular surgery the Main Military Clinical Hospital of national guard troops of Russia from 1993 to 2016 year. Continuous and categorical variables were studied with the Student’s t test, Fisher’s exact test or χ² test, multivariate analysis was performed using a stepwise regression logistic model.

Results: A total of 250 records were reviewed. The main method of surgical treatment of wounds of the great vessels during medical evacuation was the ligation of the damaged vessel in wound - in 190 (76%), the imposition of the side seam on the edge of a vascular defect of the vessel was carried out in 23 (9.2%), installation of a temporary shunt - in 16 (6.4%), autovenous bypass surgery and prosthetics - in 21 (8.4%) wounded. Prevention of thrombosis carried heparin or low molecular weight heparins.

A high percentage of ligation damaged vessels in the wounds was due to massive arrival of wounded, the lack of qualified medical staff and lack of special tools in some periods of the fighting. Postoperative complications were found in 96 (38.4%) of wounded: vessel thrombosis in the operation area - in 29 (11.6%), the development of reperfusion syndrome - 8 (3.2%), wound suppuration - in 23 (9.2%), arrorsive bleeding - in 12 (4.8%), gangrene of the limbs - in 24 (9.6%).

The main causes of morbidity were slowing blood flow caused by shock, blood loss and hypovolemia in the first hours after the operation, the nature of the primary-infected gunshot wound and technical faults committed during operations at the stages of evacuation. The complication rate depended on the time since the vascular injury prior to surgery. Best results were obtained when performing no later than 8-10 hours after wounding.

Conclusion: Performing surgical interventions in combat injuries of major vessels for 8-10 hours after a gunshot wound is crucial to saving limbs and preventing postoperative complications (p <0.05).

Disclosure of Interest: None declared
THE INFLUENCE OF AGE ON VALVE DISEASE IN PATIENTS WITH VARICOSE VEINS: A QUANTITATIVE ULTRASTRUCTURAL ANALYSIS BY TRANSMISSION ELECTRON MICROSCOPY AND STEREOLOGY

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Introduction: The aim of this study was to investigate the influence of age on the ultrastructure of venous valve morphology in patients with C2 graded chronic venous disorders according CEAP classification.

Materials & Methods: All patients were classified C2 according CEAP and female. The (pre-) terminal valve including the vessel wall was harvested from the proximal 2 centimeters of the great saphenous vein. A blinded morphologist performed the examination by transmission electron microscopy and stereology.

Results: The study population consisted of 16 patients. The mean age was 49.8 years (30-66). The mean V/S-ratio for all examined valve components was 25.23 µm³/µm² [range 9.01 – 70.96]. For elastin, it was 0.87 µm³/µm² [range 0.18 – 3.74], for collagen 18.01 µm³/µm² [6.94 – 44.40] and for the endothelium 0.65 µm³/µm² [range 0.19 - 1.25]. The remaining unspecified valve components had a mean thickness of 5.70 µm³/µm² [range 1.20 – 21.57]. Analyses by Pearson’s product moment correlation, Kendall’s tau and Spearman’s rank correlation showed no statistically significant correlation between age and the ultrastructural morphology within this patient group.

Conclusion: The ultrastructural morphology of the venous valves in chronic venous disorders appears to be uniform within C2 class patients not depending on age. This actually supports the CEAP classification system.


Disclosure of Interest: None declared
Introduction: The aim of this communication is to systematically review the literature on friendly fire, its causes and outcome.

Materials & Methods: All MEDLINE, PUBMED papers on friendly fire, their causes, and effects on war victims were studied. Papers were critically appraised regarding their design and outcome.

Results: A total of 99 papers were found in the search. 15 relevant papers were critically appraised, 11 papers were relevant and included in this review. The term of “friendly fire” needs to be more precise. It is replaced by “fratricide” injury by U.S. Army. About quarter of the American soldiers were killed by friendly fire in the Gulf war and 70% of these injuries were caused by ground to ground fire. Air-to-ground fire incidents have major impacts, especially if they hit hospitals. Friendly fire deaths remain high despite advances in technology. They can be caused by inexperience, lack of communication or coordination, situational stress, or misidentification.

Conclusion: Friendly fire is a human error, which is similar to medical errors, may have dramatic effects on the health care of war zones.

Disclosure of Interest: None declared
MANAGEMENT OF WAR-RELATED COLORECTAL INJURIES
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Introduction: Primary repair of the colon in civilian practice in certain conditions is acceptable. Nevertheless, the surgical management of colorectal injuries in war is different. We aimed to study the mechanism, management and outcome of patients having colorectal injuries who were treated during the Second Gulf War so as to have insights into the management these injuries.

Materials & Methods: War-related injured patients who had colorectal injuries and were treated at Mubarak Al-Kabeer Teaching Hospital from August 1990 to September 1991 were retrieved from the War Trauma Registry [1, 2]. Studied variables included age, gender, anatomical site of colorectal injuries, mechanism of injury, surgical management, and clinical outcome.

Results: 29/1100 patients (2.6%) having a mean (range) age of 23 (8-71) years had colorectal injuries. Twenty eight (97%) were males and 15 (50 %) were civilians. Twenty of these were caused by gunshot injuries (69%). Injuries were equally distributed all over the colon. Five (17 %) had rectal injuries. 11 patients (38%) presented with shock, and these had significantly higher mortality compared with patients who did not present with shock (5/11 compared with 1/18, p=0.018, Fisher’s Exact test). Two patients died on table, three patients had primary repair of the colon, and all others had a colostomy. Two patients had missed injuries, one had contusion of the sigmoid colon that caused a colo-cutaneous fistula, and the other had a missed ureteric injury. The median (range) hospital stay was 7.5 (1-70) days. 18 patients (62%) needed blood transfusion. 14 patients needed ICU admission (48%). Six patients (21%) died; three from massive bleeding and three from delayed sepsis.

Conclusion: Patients who had colorectal injuries in the war are usually very sick with a considerable percentage having hemorrhagic shock that need blood transfusion. Damage control principles should be applied with delayed colonic anastomosis in these patients.


Disclosure of Interest: None declared
Introduction: We aimed to study the demography, mechanism, and outcome of pediatric war-related injuries of the Second Gulf War.

Materials & Methods: War-related injured children who are less than 18 years old and who were treated at Mubarak Al-Kabeer Teaching Hospital from August 1990 to September 1991 were retrieved from the War Trauma Registry [1]. Studied variables included age, gender, and anatomical site and mechanism of injury, surgical management, and clinical outcome.

Results: 31 out of 361 of admitted patients were children (8.6%). They had a median (range) age of 15 (1-17). Twenty six (84 %) were males. All patients were civilians. Majority were caused by blast injuries (52%) followed by bullets (32.3%). Majority were Kuwaiti (48%) and Jordanian (42%). Injuries were highest in the lower and upper limbs (58% and 32 % respectively). Five patients (16.1 %) presented with shock. Six patients needed laparotomy (all were positive), one needed thoracotomy, and three chest injuries were treated with chest tubes. Three patients had femoral artery injuries which were repaired (two venous grafts and one end to end anastomosis; one of these failed). The median (range) hospital stay was 5.5 (1-42) days. All patients survived but one patient had paraplegia, one had above knee amputation and two had below knee amputation.

Conclusion: Pediatric injuries in conventional wars inside cities in which civilians were not directly targeted were less than 10% of injured victims. Despite that the price of these injuries was high. Extremely high percentages of pediatric injuries in recent conflicts should raise the suspicion of directly targeting civilians.


Disclosure of Interest: None declared
AN ANALYSIS OF CONTEMPORARY MILITARY BLAST AND GUNSHOT TRAUMA VERSUS CIVILIAN INJURIES
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Introduction: The pandemic spread of terrorism logically raised a significant concern about our preparedness to respond adequately to this evil challenge. The present study was aimed to delineate the specifics of each type of trauma in order to improve the medical response and training of trauma surgeons.

Materials & Methods: A total consecutively and prospectively enrolled 154 cases were included in the study – 73 with blast trauma and 81 with gunshot wounds. They were treated in two Field Hospitals in Afghanistan. Overall 416 consecutive patients with civilian trauma treated in Trauma center level I were used as comparator. Statistical analysis was performed using Bonferroni test for quantitative and Student’s t-test for dichotomous variables.

Results: Blast trauma was associated with significantly higher rate of 3 and more body regions involvement. The distribution of the variables in blast, gunshot and conventional trauma was following – mean Injury Severity Score (20, 13 and 11), head (31%, 5% and 11%), face (18%, 3% and 18%), neck (11%, 6% and 0%), chest (36%, 31% and 18%), abdomen (21%, 35% and 3%), extremities (69%, 53% and 87%). The rates of Intensive Care admission and mortality were 44%, 20%, 13% and 10%, 4%, 4%, respectively. Computed tomography was performed in 49%, 21% and 15% respectively. Missed injuries were observed only in blast group – 3% vs. zero. The rate of surgical interventions was significantly higher in blast and gunshot groups. Civilian abdominal injuries in were associated with more frequent involvement of three and more body regions and with severest trauma. Blast and gunshot injuries were predominantly penetrating (80% and 96%). Hollow viscus organ injuries were more frequent in blast and gunshot groups. Missed injuries were observed only in blast trauma in 15.4% of the cases.

Conclusion: Overall, both blast and gunshot injuries tend to utilize significantly more hospital resources, including time and personnel. In contrast to the overall analysis, civilian abdominal injuries were also associated with more frequent involvement of three and more body regions. Hollow viscus organ injuries were more frequent in blast and gunshot groups, whereas solid organs trauma was typical for civilian trauma. Practically, the broad spectrum of the military injuries mandates training of basic skills on different surgical specialties outside abdominal surgery.

References:

Disclosure of Interest: None declared
VTE PROPHYLAXIS IN INJURED WITH GUNSHOT FRACTURES OF THE LOWER LIMBS
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Introduction: Gunshot fractures of the long bones of the lower limbs are characterized by the frequent development of thrombotic complications.

Materials & Methods: Analysis of treatment of 291 wounded with gunshot fractures of long bones of the lower extremities in the period from 2000 to 2016 was performed. All the wounded - men, age 27.3±7.8 years. Mine-blast injuries were at 169 (58%), bullet - at 122 (42%) injured.
On admission, 285 (97.9%) of the wounded had been diagnosed traumatic shock. Depending on the prevention of VTE all the victims were divided into 2 groups. The study group included 150 (51.6%), which at the step of qualified medical care (QMC) were held unfractionated heparin (UFH) 5000 IU 4 times a day for 1-5 days before the evacuation. At the specialized medical care step (SMC) prevention of VTE consisted a mechanical (elastic bandaging, compression stockings, intermittent pneumocompression) and pharmacological methods for the entire time of stay in hospital: UFH 5000 IU 4 times a day or low molecular weight heparins (LMWH) 70 IU/kg 1 time a day.
Intermittent pneumocompression was held 33 (11.3%), electromyostimulation 29 (10%) injured. Skin defects restrict the use of mechanical methods of prevention.
The control group included 141 (48.4%), who have no VTE prevention at QMC step & at the SMC step were held LMWH: 35 IU/kg 1 time a day for 16-20 days.
The control of haemostatic system indicators was conducted.

Results: There was no thrombosis before injuries. Deep vein thrombosis of the lower limbs (DVT), according ultrasound, was found at 23 (15.3%) in the study & at 56 (39.7%) in the control group.
Changes in blood coagulation system persisted for two months & more after the injury in all groups, with a tendency to normalization in the study group and with little positive dynamics in the control group.
Research of hereditary thrombophilia was performed at 25 injured of the study group. At 20 (80%) of them we found from 1 to 4 of genetic mutations of haemostatic system components, increasing the risk of VTE. DVT was found in 14 (70%) injured with genetic coagulation system defects.
Pulmonary embolism was found at 2 (1.4%) injured in the control group.

Conclusion: 1. Victims with gunshot fractures of limb bones shown holding VTE prevention at all steps of treatment. 2. Comprehensive prevention of VTE using developed technique has reduced the number of venous thrombosis from 39.7% to 15.3%. 3. Study of hereditary thrombophilia is a promising method for predicting the development of VTE at wounded.

Disclosure of Interest: None declared
INTRODUCTION: The hybrid war of Russia against Ukraine has been started in certain districts of Donetsk and Luhansk oblasts within the Donbas area in 2014. The application of modern weapons against Armed Forces of Ukraines during the hybrid war is resulted in amputations of upper and lower extremities among the military personnel. Aim of the study was to evaluate the frequency of amputations and to identify injury factors causing the limbs amputations.

MATERIALS & METHODS: A 159 combat-related patients were identified at National Military Medical Clinical Center of Defense Ministry (Ukraine). All patients were injured at hybrid war in the East of Ukraine within the period of 01.06.2014 to 30.06.2016. Mean age of patients was 33 years (range 18 to 61). There were 158 (99.4%) males and 1 (0.6%) female. The mean term of military service at the moment of injury was 1.97 years (range 11 days to 25.2 years). Of 159 patients, 99 (62.3%) were enlisted personnel, 50 (31.4%) non-commissioned officers or junior officers, 9 (5.7%) warrant officers or senior officers; 1 (0.6%) a volunteer without military rank. Qualified and specialized surgery was performed at military hospitals and civilian medical facilities.

RESULTS: In 139 (87.4%) cases limb amputations were significantly associated with explosive ammunition (mine-explosive wounds, blast wounds, shrapnel wounds, secondary effects of explosions (collapse of concrete walls) as compared to 20 (12.6%) patients with other causes of amputations (p<0.05). Of these 20 cases, in 11 (6.9%) cases amputations were due to due to vascular damage followed by critical ischemia (sniper rifle); in 2 cases (1.3%) due to traumatic limbs avulsion at traffic accidents; in 7 (4.4%) cases due to frostbite injury. Moreover, out of 159 patients, in 119 (74.8%) cases of amputations were associated with direct effect of blast wave: 3 (1.9%) patients were injured inside the armored vehicle at the moment of explosion due to behind-armor explosion. In 15 (9.4%) cases amputations were due to shrapnel damage, but behind the area of blast wave: in 2 (1.3%) cases due to collapse of concrete constructions.

CONCLUSION: Mine-explosive injures are the major cause of upper or low extremities amputations in combat-related patients at hybrid war in the East of Ukraine.

DISCLOSURE OF INTEREST: None declared
RETRACTED PAPERS IN SURGICAL JOURNALS. WHAT ARE SURGEONS DOING WRONG?
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Introduction: The retraction of scientific papers consists in one important mechanism to preserve science integrity. The number of retracted paper has been increasing in recent years. Scientific misconduct may occur in a variety of ways, such as: fraud, plagiarism, forgery and negligence. This study aims to analyze paper retractions in surgical journals.

Materials & Methods: We searched for retracted papers in the 100 surgical journals with highest SJR2 indicator (The SCImago Journal & Country Rank) from the beginning of PubMed indexation to June 2016. We recorded reasons for retraction and origin, year of publication, and recurrence for journals, papers and authors.

Results: We found 130 retracted papers. At least 1 retracted article was found in 47 (47%) journals; 39 (39%) in Asian journals, 30 (30%) European, 28 (28%) North American and 3 (3%) other continents. Five or more retracted papers were published in 8 (8%) of the journals. The mean time between publication and retraction was 26 months (range 1-158 months). United States, China, Germany, Japan and United Kingdom accounted for over 3/4 of the retracted papers. According to medical specialty, the highest number of retractions came from orthopedics and traumatology, general surgery, anesthesiology, cardiothoracic surgery and plastic surgery, in that order. Non-surgeons were responsible for 16% of retractions in surgical journals. The main reasons for retraction were: misconduct (59%), subdivided into duplicate publication (31%), plagiarism (15%) and data manufacturing (8%); and research error (38%) subdivided into absence of proven study integrity (13%) and violation of research ethics (9%). In 25% of the retracted papers, authors were recurrent; 34% anesthesiologists, 12% neurosurgeons, 12% cardiothoracic surgery, 9% plastic surgery, 9% general surgery, 24% others and according to the nationality, 28% were North Americans, 22% Germans, 9% Japanese, 9% Chinese and 32% others. No editorial punishment was found.

Conclusion: Papers retraction occurs frequently in surgical journals. Misconduct is present in the majority of retractions, especially duplication and plagiarism. Retractions are most frequent from countries with the highest number of publications; however, some authors are recurrently retracted and some groups present at risk for paper retraction in surgical journals, such as non-surgeons.

References:

Disclosure of Interest: None declared
WORLD HEALTH ORGANIZATION SURGICAL SAFETY CHECKLIST DECREASES POSTOPERATIVE MORTALITY AND LENGTH OF ADMISSION IN THE LONG TERM; AN ANALYSIS OF AN AUSTRALIAN TERTIARY CARE CENTRE OVER 5 YEARS

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Introduction: The World Health Organization Surgical Safety Checklist has been widely implemented in an effort to decrease surgical adverse events. The effects of the checklist on postoperative outcomes have not previously been examined in Australia and there is limited evidence on the effects of the checklist in the long term.

Materials & Methods: A retrospective review was conducted using administrative databases to examine the effects of the implementation of the checklist on postoperative outcomes. Data from 21,306 surgical procedures, performed over a 5-year time period at a tertiary care centre in Australia were analyzed.

Results: Postoperative mortality rates decreased from 1.2% to 0.92% (p=0.036, OR 0.74 (0.56-0.98)) and length of admission decreased from 5.2 days to 4.7 days (p=0.014). A sub analysis of cases in the immediate (within 6 months) and short term (within 12 months) of the checklists implementation found no significant findings.

Conclusion: Implementation of the WHO SSC was associated with a statistically significant reduction in mortality and length of admission over a 5-year time period in a regional tertiary care centre in Australia. This is the first study demonstrating a reduction in postoperative mortality after the implementation of the checklist in a high income setting. Previous studies may have been underpowered to reach statistical significance or may have used a time period too short to allow for the 'safe surgery cultural change' which the checklist promotes to become evident. Further research into the effects of the checklist in the long term is required.

Disclosure of Interest: None declared
Introduction: With advancing technology and experienced skills, the diagnosis can be made early in the developing process of cancer. The diagnosis timing often synchronizes with cancer stage. Therefore, the survival benefit relies on the intervention after diagnosis. Theoretically, the interval between diagnosis and intervention should be as short as possible where governments are rightly concerned about saving health and social care costs.

Materials & Methods: We selected head and neck cancer patients undergoing operation as primary intervention from Aug. 2000 to Aug. 2009. For survival analysis, the follow-up last till Aug, 2011. Later, we categorized these patients, by the interval between diagnosis and intervention, as one week, two weeks, and more than two weeks.

Results: A total of 339 patients were included (315 males, mean aged 52.4; 24 females, mean aged 57.4). There were 146 patients with interval less than a week, 105 patients between 1 and 2 weeks, and 85 patients with more than 2 weeks. The Cox regression revealed there is not survival benefit for cancer stage I, II, and III, regardless of what interval is. But interval became significant indicator for survival prognosis for Stage IV cancer (p=0.037).

Conclusion: The results suggest the sooner intervention after diagnosis will have better survival benefit for stage IV cancer patients. Meanwhile, shortening the interval or early intervention will not take additional costs but savings from delayed institutionalization. Improved health and quality of life of cancer patient would make early diagnosis and intervention an even more cost-effective health policy and investment.

Disclosure of Interest: None declared
POTENTIAL RISK FACTOR FOR NIVOLUMAB-INDUCED THYROID DYSFUNCTION

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Introduction: Nivolumab is an anti-programmed death-1-specific monoclonal antibody used for the treatment of malignant melanoma, non-small cell lung cancer, renal cell cancer, and Hodgkin’s lymphoma. Thyroid dysfunction, such as hypothyroidism and thyrotoxicosis, is occasionally induced after the administration of nivolumab, but the reason for this is not fully understood.

Materials & Methods: Here, we report nivolumab-induced thyroid dysfunction in 82 lung cancer patients (56 males, 26 females) who received nivolumab at Kanagawa Cancer Center from January to December 2016. The median age of the patients was 66.5 years (range, 46–84), the median body mass index (BMI) was 22.4 kg/m² (range, 13.6–28.8), the median single dose was 180 mg (range, 107–240), and the median number of prescriptions was four (range, 1–22). Median levels of thyroid-stimulating hormone, free triiodothyronine, and free thyroxine before therapy were 1.46 mlU/mL (range, 0.04–99.69), 2.71 ng/mL (range, 1.42–3.62), and 1.09 ng/mL (range, 0.48–1.50), respectively.

Results: Of the 82 patients, 72 showed normal thyroid function, three had latent hyperthyroidism, and seven had latent hypothyroidism. Of the 72 with normal thyroid function, the incidence rate of nivolumab-induced hyperthyroidism and latent hyperthyroidism was 15.3% (n=11), and that for hypothyroidism and latent hypothyroidism was 5.6% (n=4). One patient developed hypothyroidism after treatment for hyperthyroidism. The average time for the development of thyroid dysfunction after nivolumab administration was 81 days (range, 13–182). There were no significant differences with respect to gender, age, BMI, single dose, or thyroid function before therapy between those patients with normal thyroid function and those who developed thyroid dysfunction. However, these patients showed a significant difference in the number of prescriptions (4 vs. 8; p=0.03).

Conclusion: This study indicates that the number of prescriptions of nivolumab is a possible risk factor for the development of nivolumab-induced thyroid dysfunction.

Disclosure of Interest: None declared
Introduction: Improper decontamination and sterilization of surgical equipment can act as a vector for surgical site infections (SSIs). While sterile processing of surgical equipment is standardized and well-described in high income countries, there is a dearth of information on both the current standards and practices in low and middle-income countries. We evaluated the sterile processing techniques at a tertiary hospital in Ethiopia using process mapping, a structured analysis of sequential instrument decontamination and sterilization processes, to identify gaps and areas for improvement in compliance to both hospital and international standards.

Materials & Methods: This improvement project involved piloting our infection prevention program at a major surgical hospital in southwestern Ethiopia. Central sterile processing was divided up into five categories for improved characterization: (i) decontamination, (ii) processing, (iii) sterilizing, (iv) sterile storage and (v) distribution. We enumerated standard protocols for sterile processing at our pilot hospital and internationally. We compiled process maps to identify gaps and barriers to an efficient and robust decontamination and sterilization system, which we presented to the local implementation team, then explored options for improving the processes.

Results: Process mapping identified barriers and limitations in resources, personnel management, and standardized protocols. Resource limitations included lack of appropriate detergent, running water, distilled water for autoclaves, and proper sterile indicators to confirm sterilization of instruments. Management limitations included inadequate communication between sterile processing and administration, lack of robust protocols, and inefficient sterile processing systems that use multiple departments for the same task. Practical options and interventions included developing locally sensitive protocols for instrument cleaning, sterilizing, and certification including discontinuing the use of caustic chlorine, establishing a logbook to document autoclave function, and procuring sustainable sterile indicators.

Conclusion: An essential but frequently neglected component of surgical capacity building is improving the reliability and efficiency of instrument decontamination and sterilization. By understanding inherent limitations, we were able to develop local solutions at a single center to improve and codify the process of sterilization of instruments for use during surgery.

Disclosure of Interest: None declared
I CAN’T GET NO “SURGEON” SATISFACTION – A CROSS-SECTIONAL SURVEY OF SURGEONS AND THE RISK FACTORS FOR DECREASED JOB SATISFACTION
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Introduction: The consequences of decreased job satisfaction among surgeons range from physician distress to reduced quality of patient care and increased costs. There is limited knowledge on variables associated with job satisfaction. The purpose of this study is to determine risk factors for decreased job satisfaction among surgeons.

Materials & Methods: A cross-sectional survey of surgeons was conducted from September to December 2016. Screening for job satisfaction was performed using the abridged Job in General scale. Respondents were grouped into more satisfied and less satisfied cohorts using the median score of 21. Twenty-eight factors were examined including demographics, occupational, wellness, and work-environment variables. A chi-square, Fisher’s exact, and independent t-test were used for evaluation of statistical significance.

Results: Overall, the survey had a 78% completion rate with 709 surgeon respondents. Of the demographic variables, women and those between the ages of 40 and 60 had decreased job satisfaction (p<0.05). The remaining demographics (ethnicity and region) were not statistically different. Surgeons in the less satisfied cohort were more likely to screen positive for PTSD symptoms, PTSD, and physician burnout, which included both the emotional and depersonalization subcomponents (p<0.001). Occupational variables (academic career, experience, residency type, fellowship participation, practice size, and payment model) did not play a role in job satisfaction. All wellness variables examined were linked to reduced job satisfaction (inadequate time with family/friends, inadequate time for extracurriculars, feeling well-rested, and feeling healthy (p<0.001)). Work-environment variables (autonomy, hospital support, camaraderie, patient diversity, hospital culture, safe patient load, salary, and ownership) were not significant.

Conclusion: Job satisfaction impacts healthcare quality, access, and cost. Reduced job satisfaction can lead to depression, substance abuse, inferior patient care, unnecessary tests/procedures, decreased productivity, and early retirement. As such, a concentrated effort to improve physician wellness and satisfaction is vital to patient care and healthcare as a whole. Our study highlights the association of decreased job satisfaction with physician burnout and wellness. In addition, it emphasizes the importance of work-life balance as the principal factor in surgeon satisfaction regardless of working conditions.

Disclosure of Interest: None declared
Introduction: The World Economic Forum reported that Japan still has one of the largest gender gaps in the world, despite the government’s endeavors to increase the presence of women in the workforce and reduce the pay gap. The overall average annual income of Japanese women is 53% that of men. Here, we explored the gender pay gap among surgeons in Japan.

Materials & Methods: In 2012, the Japan Society for Surgery invited all registered members (approximately 28,000 surgeons) to participate in an online survey. The response rate was 29.7% (n=8,316). We randomly selected subjects for analysis within the same graduation year with a female-to-male sampling ratio of 1:2. The study sample comprised 546 women and 1,092 men. Differences in various factors between the genders were assessed using t-tests and chi-squared tests. A linear regression model was used to estimate the annual income gap adjusting for gender and other covariates.

Results: Approximately 50.5% of men chose gastrointestinal surgery (GI) as a subspecialty; in contrast, 29.7% of women chose endocrine and breast surgery, followed by GI (27.5%). There was no significant difference in current position. Men and women worked for 91.5 and 76.1 hours/week, respectively ($p<.0001$), and their average annual income was US$108,000 and US$88,000, respectively ($p<0.0001$). This increased with age ($p<0.0001$), being married ($p<0.0001$), the number of children ($p<0.0001$), holding a PhD ($p<0.0001$), holding senior positions ($p<0.0001$), and being a GI surgeon ($p<0.0001$). Male surgeons’ income remained US$14,400 higher than female surgeons after adjusting for age, marital status, number of children, number of hospital beds at place of employment, current position, and work hours. The linear regression analysis showed that male surgeons’ income increased by US$10,800 ($p<0.0001$) if they were married and by US$3,500 per child ($p=0.0014$). In contrast, female surgeons’ income decreased by US$7,000 per child ($p=0.0005$).

Conclusion: This is the first study of the gender pay gap in Japanese surgeons that adjusts for factors that may influence income. Future studies are needed to investigate if this gap is associated with surgeon productivity. The government, medical societies, medical schools, and hospitals should implement practical measures such as modifying education and training programs, ensuring equal pay, and establishing an impartial promotion system.

Disclosure of Interest: None declared
Introduction: There’s inequity and maldistribution of the surgical workforce in Nigeria, creating an ongoing surgical workforce emergency. Most specialists practice in second and third level hospitals often located in urban or semi-urban areas, leaving large swaths of the mostly rural parts of the country without trained surgeons. This has important implications for timely access to safe and affordable surgical care when needed. A knowledge of the proposed choice of practice location of surgical trainees and the factors that influence the choice could provide insight into future surgical coverage and help in planning and policy making.

Materials & Methods: This is a cross-sectional survey of surgical trainees attending the mandatory integrated revision and update course of the West African College of Surgeons in 2015. Anonymous structured questionnaires were self-administered to 200 trainees, of which 143 completed and returned the questionnaires.

Results: The response rate was 71.5%. There were 135(94.4%) males and 8(6.6%) females. 120(83.9%) were registrars and 23(16.1%) were senior registrars. 21(14.7%) of the trainees already had permanent appointments at their institution of training however only 10(6.9%) planned to retain the appointment after training. One hundred and six (74.1%) trainees preferred to work in a tertiary hospital on completion of training, 13(9.1 %) in a private hospital and 16 (11.2%) were undecided. Nearly all tertiary hospitals are located in urban or semi-urban towns. The commonest factors influencing choice of practice location were proximity to family (19(13.3%) , proximity to hometown (11(7.6%) , availability of working facilities (10(6.9%) , income 7(4.9%) and underserved areas 7(4.9%). Although 125(87.4%) trainees believed their skills would be needed in a rural setting, only 66(46.2%) have ever given thought to working in a rural setting. Of 122(85.3%) trainees who agreed to work for some period each year (ranging from 1 week to 6 months) in a rural setting, 42(29.3%) would do it without additional financial incentive. Only 1(0.0069%) resident was willing to work for life in a rural setting.

Conclusion: The choice of most surgical trainees not to work in a rural setting as specialists would exacerbate the ongoing surgical workforce maldistribution and inequity in Nigeria. However, the willingness of 85.3% to provide periodic rural surgical coverage could be leveraged in planning of initiatives to address the maldistribution.

Disclosure of Interest: None declared
STRUGGLES OF WOMEN IN PURSUING SURGERY
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Introduction: Greater than 50% of medical school admission are women, yet the number of female surgeons is remarkably low. Men and women both report similar interests towards pursuing a surgical career, yet this field still remains a male dominated profession. Our primary aim is to determine the factors that influence and deter women from pursuing a career in surgery and how we may be able to encourage gender equality in this field.

Materials & Methods: A literature review was conducted to gain an insight into current status of women in surgery, which included single-institutional studies, multi-institutional studies, surveys and editorials. Additionally, a telephone interview was conducted with Dr Eugene Braunwald, husband of the late Dr Nina Braunwald. A set of questions was prepared on topics pertaining to the journey of the first female cardiac surgeon, her struggles, mentors, as well as her life in and out of the hospital.

Results: Studies show that the female workforce differs between specialties. Ranging from 4% of orthopaedic surgeons being women, to 18% in general surgery. In America, 16% of general surgeons are women and these figures are similar for UK and most of Europe. The deterring factors included: lack of appropriate female mentorship, lack of exposure to surgical fields, negative attitudes towards, perceptions of a ‘glass ceiling’ and work-life balance. Our research highlighted the importance of mentorship and early exposure as being vital to increasing female interest towards surgery.

Conclusion: Positive role models, both male and female, are vital in the development of an individual and influencing students to pursue a surgical field. Varying levels of mentorship should be provided at different stages in an individual’s career. Early exposure and positive exposure is necessary to attract medical students of both gender. Scholarships and awards should be offered to recognise the potential of women and encourage continued development.


Disclosure of Interest: None declared
Introduction: The principles of damage control laparotomy (DCL) initially designed for the management of severely injured patient with physiological derangement are now being generalized to non-traumatic abdominal conditions. According to its principles, restoration of physiology is a priority to anatomical repair of lesions. Its implementation is based on a rigorous clinical assessment combined to an extensive paraclinical work-up. Surgeons working in resource limited settings often face situations of major physiological derangements related to a surgically correctable abdominal condition. This study aims at analyzing the outcome of laparotomy performed in patients in an extreme situation.

Materials & Methods: We retrospectively reviewed the files of 57 patients who underwent damage control laparotomy for trauma and non-trauma related abdominal conditions in two level 2 institutions in the South-West region of Cameroon. Data included demographics, available physiological and peri-operative variables and outcome.

Results: The mean age of patients was 39±9 years and 48 (84.2%) of them were aged less than 50 years. A total of 8 patients (14%) had at least one comorbidity. They mostly presented with a diffuse community acquired peritonitis (n=34), a post-traumatic haemoperitoneum (n=6) or a ruptured ectopic pregnancy (n=9). The systolic blood pressure was below 90mm of mercury in 45 patients (78.9%) and 31 patients (54.4%) were in severe sepsis/septic shock. They all had an ASA score of 3 or more and 29 of them (50.9%) had a leucocyte count >25,000/ml. The overall mortality rate was 59.3% and the operative room mortality was 19.3%. Time to death varied from 0 to 11 days and mortality significantly increased with septic shock and a Leucocyte count above 25,000/ml. However, mortality did not seem to be correlated to age above 50 years.

Conclusion: If properly applied, the principles of damage control laparotomy are likely to save lives, even in resource limited settings. However, the mortality rate is still high and special guidelines based on the use of precise clinical criteria need to be defined in the absence necessary work-up equipment.

Disclosure of Interest: None declared
THE SUICIDE ATTEMPT PATIENTS AT THE EMERGENCY ROOM OF RURAL AREA OF JAPAN
M. Kimura

Introduction: In Japan, the official number of suicides has slightly decreased around 30,000 people per year. However, the real number is predicted to be more than 100,000 because suspicious deaths were not counted. Thus the number of suicides in Japan is the top class among developed countries. In this study we examined suicide attempt patients at the emergency room (ER) of our hospital located in rural area.

Materials & Methods: One hundred seventy six patients with suicide attempt (male 75 cases, female 101 cases, median age 50 years old) were transported to the ER of our hospital from January 2010 to December 2016. The patients' backgrounds, suicide means, treatment methods, and prognosis were examined.

Results: One hundred thirty-five (77%) of 176 cases survived, otherwise 41 cases (23%) died. Six of 41 patients showing cardiopulmonary arrest state (CPA) or death on arrival, were able to be resuscitated but finally all of them died. Patients with mental illness were higher in young person in 94 cases (53%). Suicide methods were drugs in 89, hanging in 33, stabbing in 22, poisoning (pesticide, detergent, nicotine, gasoline) in 20 and the others in 12. Drugs and wrist cut were more common in the younger patients and showed high lifesaving rate (95%, 99%), meanwhile pesticides and hanging were more common in the elderly and showed high mortality rate (40%, 82%). For treatment, intubation, gastric lavage and CHDF were performed. Six of 141 patients excluded CPA died during hospitalization whose suicide method was pesticided in 1 and hanging in 5. Of 135 survivors, 99 cases had kept ADL well, on the other hand, elderly patients had poor ADL to need assistance. Causes of suicide were troubles with family, school, or workplace in younger patients, meanwhile pain of sickness in elderly.

Conclusion: It is difficult to save lives of CPA patients, such as suicide attempt by hanging and jumping down. Younger patients often has mental illness and needs mental care. Suicide attempts of elderly are mostly caused by physical problems leaving worse ADL after the attempt, which might be a problem in aging society. The number of suicide in elderly patients is increasing reflecting elderly society in rural area of Japan.

Disclosure of Interest: None declared
IMPROVING LOCAL ANAESTHETIC SYSTEMIC TOXICITY AWARENESS IN MATERNITY CARE
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Introduction: Local anaesthetic (LA) agents are widely used in Obstetrics. Although relatively safe, their use does carry risks, the most serious of which is systemic toxicity (LAST). LAST incidence figures in Obstetrics are generally considered inaccurate due to this wide use and under-reporting. One reason for under-reporting may be under-recognition of LAST in maternity care, where LA monitoring is primarily by midwives, obstetricians, nurses and support staff, rather than anaesthetists. This non-specialist responsibility and the variety of training backgrounds represented led us to question the awareness of LAST among maternity care providers.

Aims: i) to investigate LAST awareness among staff in a DGH maternity unit, ii) to deliver an educational intervention designed to improve awareness, iii) to investigate LAST awareness following intervention.

Materials & Methods: Baseline awareness was investigated using an anonymous questionnaire before intervention. An educational video was created and distributed among maternity care staff. Post-intervention awareness was investigated using the same questionnaire. Domains of interest were awareness of maximum safe LA doses, LAST signs, symptoms and management, use and location of lipid emulsion, and local guidelines. Responses were analysed collectively and according to discipline/role.

Results: Baseline: 19% non-anaesthetists could list ≥2 LAST signs/symptoms. 100% anaesthetists and 33% other staff could list ≥2 steps in LAST management. 50% doctors and 20% midwives were aware of Intralipid antidote and its route of administration, and 0% and 7% respectively knew its location in the unit. 25% prescribers knew maximum safe doses of 4 common LA agents.

Post-intervention: 50% non-anaesthetists could list ≥2 LAST signs/symptoms and 75% could list ≥2 management steps (100% anaesthetists). 67% doctors and 50% midwives knew antidote and route, and its location in the unit. 100% prescribers knew maximum safe doses of 4 common agents.

Conclusion: LAST awareness was poor across all non-anaesthetic disciplines, making under-recognition likely. Prescriber knowledge of safe doses was also poor. By using a short educational video, we were able to demonstrate improvement in staff awareness within a short time period. This could help to prevent avoidable morbidity and mortality in maternity care.

Stage 2 of this quality improvement project aims to maintain and further this increase in awareness via distribution of posters in the unit.


Disclosure of Interest: None declared
EFFECT OF ESMOLOL ON INTRAOCULAR PRESSURE DURING SURGERIES IN STEEP TRENDELENBURG POSITION

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Introduction: Increased intraocular pressure (IOP) during surgery is a risk factor for postoperative ophthalmological complications. Esmolol is an ultra-short acting beta-1-antagonist used to alleviate hemodynamic changes caused by endotracheal tube or surgical incision. However, the effect of esmolol on IOP during surgeries in steep Trendelenburg position has not been evaluated. We designed this study to assess the efficacy of systemically infused esmolol in preventing the increase in IOP caused by a steep Trendelenburg position.

Materials & Methods: In total, 50 ASA class I or II patients undergoing laparoscopic surgery in a steep Trendelenburg position were included. Patients in the esmolol group received a 0.25 mg/kg IV loading dose of esmolol before anesthesia, followed by an infusion of 15 µg/kg/min throughout the operation. Patients in the saline group were infused with the same volume of normal saline. IOP and ocular perfusion pressure (OPP) were measured 16 times: before anesthetic induction (baseline value, T1); before administration of the study drug (T2); after administration of anesthetic induction agents (T3); after tracheal intubation (T4); 1, 3, 5, and 10 min after tracheal intubation (T5-T8); immediately after intraperitoneal CO2 insufflation (T9); immediately after the steep Trendelenburg position (T10); 1, 2, and 4 h after the steep Trendelenburg position (T11-T13); just before the supine position (T14); and 10 and 30 min after the supine position (T15, T16).

Results: IOP was statistically higher in the saline group from T11 to T14 comparing to the esmolol group. In the saline group, the IOP increased when the subject was in the steep Trendelenburg position, and was 11.3 mmHg higher at T14 compared with the baseline T1 (before anesthetic induction). This increase in IOP was attenuated in the esmolol group, for which the IOP was only 4.2 mmHg higher (P < 0.001 vs. the saline group). The steep Trendelenburg position was associated with a decrease in the OPP; the degree of decrease was comparable for both groups.

Conclusion: Systemic administration of esmolol infusion attenuated the increase in IOP during laparoscopic surgery in a steep Trendelenburg position, without further decreasing the OPP.


Disclosure of Interest: None declared
SAFE, AFFORDABLE SURGERIES FOR CANCERS AND ENDOCRINE DISORDERS IN UNDERSERVED, LOW INCOME GROUP: FEASIBILITY, STRATEGIES AND CHALLENGES

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Introduction: Providing modern, affordable, safe Surgical Care by experts in poor patients for rapidly rising cancers is a worldwide challenge needing huge Expenditure. Desired goals are not achieved optimally due to distance, lack of expert care givers, infrastructure, poverty, taboos, mistrust, no insurance, escalated medical cost. The foundation, an incorporated Not for Profit Company (NGO) promote humanitarian work for underserved cancer and endocrine patients for affordable treatment with awareness and early detection. We share preliminary yet encouraging results of our unique concept for desired surgical management in low income group through cooperation in community, taken as a pilot project of 2yrs (80-95% patient’s satisfaction) by this team

Materials & Methods: Many Specialist Doctors, professionals of different fields, Hospitals have come on one platform as members with minimal membership fee (main financial support) to share - non-competitively times/skills, either free or on pre-decided discounted rate to poor patients. Patients were carefully selected and categorized based on Collective family income, Type of operation and facilities in the Hospital, Anticipated total Cost for Surgery and possible Complications.

A multifold approach is taken by integrating early detection through free community medical camps, Simultaneous senior Professional's help to guide for technological advances, and junior professionals energy to educate, teach socially and financially useful skills and overcome other hinderances

Results: our impact with efforts of team

1. 24 Free static or mobile Health, Cancer and endocrine Awareness & Detection camps with around 1200 free consultations, free cancer follow-up clinics and medicines to needy
2. 15 successful major Cancer Surgeries done by experts in well equipped hospitals (for pancreatic and Cancer Cervix, Thyroid Cancer, Commando for Oral Cancer, Spine decompressive Surgery etc) with cost reduction and variable discounts as per FNS category (from 50 to 100 %) and added monetary help by foundation. 3 patients treated by all modalities. Additional free basic education and skill training to 50 poor children. Beneficiary satisfaction shown through their donated for patients like them

Conclusion: This work is feasible and can run with more Resources. Uniqueness lies in voluntary cooperation, partnership, skill sharing, maximal use of existing resources, integrating various aspects and professionals.

Disclosure of Interest: None declared
SYSTEMATIC REVIEW OF THE SYSTEMIC LEVELS OF LOCAL ANESTHETIC FOLLOWING TRANSVERSUS ABDOMINIS PLANE BLOCK AND RECTUS SHEATH BLOCK
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Introduction: Safe and efficacious modalities of perioperative analgesia are essential for optimal recovery after surgery. Truncal nerve blocks are one potential method for analgesia of the abdominal wall, and in recent years their popularity has increased. Transversus abdominis plane block (TAPB) and rectus sheath block (RSB) have been shown to reduce morphine consumption and improve pain relief following abdominal surgery. These blocks typically require high volumes of local anaesthetic (LA). We aimed to synthesize studies evaluating LA systemic levels following perioperative TAP and RSB to enhance our understanding of systemic LA absorption and the risk of systemic toxicity.

Materials & Methods: An independent literature review was performed in accordance with the methods outlined in the Preferred Reporting Items for Systematic Reviews and MetaAnalyses (PRISMA) statement. An electronic search of four databases (MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, and PubMed) was conducted. Primary articles measuring systemic levels of LA following single-shot bolus TAPB or RSB were included.

Results: Fifteen studies met the inclusion criteria. Rapid systemic LA absorption was observed in all studies. Of a total 381 cases, mean peak concentrations of LA exceeded toxic thresholds in 33 cases, of which three reported mild adverse effects. The addition of adrenaline reduced LA systemic absorption.

Conclusion: Local anaesthetic in TAPB and RSB can lead to detectable systemic levels that exceed commonly accepted thresholds of LA systemic toxicity. Our study highlights that these techniques are relatively safe in regards to LA systemic toxicity.

A NEW METHOD OF INTRAABDOMINAL TRANSVERSUS ABDOMINIS PLANE (INTAP) BLOCK AND ITS EFFICIENCY FOR LAPAROSCOPIC INGUINAL HERNIA REPAIR

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Introduction: Pain after laparoscopic inguinal hernia repair is the main problem interfering with patient comfort and return to normal activity. Ultrasound-guided (USG) transversus abdominis plane (TAP) block is a well-known method for analgesia in the early postoperative period, but this method is technically challenging and time consuming. In our study we describe a new method of INTAP block and evaluate its efficiency for laparoscopic inguinal hernia repair.

Materials & Methods: INTAP block is a method of transversus abdominis plane block under visual control during laparoscopy by a transabdominal needle. The needle is inserted through one 5 mm trocar, and the injection is done 2 cm below spina iliaca anterior superior. The method is easy to use, there is no need for specific skills and it takes about one minute to perform.

In total, 60 patients undergoing elective laparoscopic transabdominal preperitoneal inguinal hernia repair were randomised in two groups: a TEST group of 30 patients undergoing INTAP block with 20 ml of 0.25% Bupivacaine and a PLACEBO group of 30 patients undergoing INTAP block with saline. In the postoperative period pain and discomfort was assessed using a 0-10 visual analogue scale (VAS) at 4, 24 hours and analgesics consumption.

Results: There was no significant difference in the age, gender, BMI, hernia size in both groups. In the TEST group, pain at 4 hours after the operation was significantly lower – a median of 1 (IQR 0-2.5) vs. 6 in the PLACEBO group (IQR 4-6), p<0.001. The discomfort level was significantly lower in the TEST group, 2 (IQR 0-6), than in the PLACEBO group, 6 (IQR 4-10), p<0.001. Postoperative analgesics were required less in the TEST group - 1 injection in comparison with the PLACEBO group - 3 injections, p<0.001 and there was no need for opioid injections in the TEST group – 0, in comparison with the PLACEBO group - 1, p=0.032.

Conclusion: The new INTAP block is an effective method to reduce pain, discomfort and the need for analgesics after the laparoscopic inguinal hernia surgery.

Disclosure of Interest: None declared
INCIDENCE OF NEPHROTOXICITY AMONG GENTAMICIN TREATED SURGICAL PATIENTS AT BASE HOSPITAL TANGALLE SRI LANKA

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Introduction: Gentamicin, despite its nephrotoxicity, is widely used in treating many surgical infections due to its low cost and high efficacy. This study aimed to compare the rates of transient renal impairment (TRI) and persistent renal impairment (PRI) among gentamicin treated and non-gentamicin treated surgical patients.

Materials & Methods: A retrospective study was conducted at Base Hospital Tangalle with 385 surgical patients. Patients' Bed Head Ticket (BHT) were used to gather the information. Transient and permanent renal impairments were defined as serum creatinine rise (>50%) which returns back to normal within a week and a rise for > a week respectively.

Results: Of the 385 patients, 63% were females and mean age was 50.34 years. Average duration of hospitalization was 5.48 days. Of the patients 28.6% were treated with gentamicin. Of them TRI and PRI were observed in 4.5% and 2.7% respectively. Among the patients who were not on gentamicin treatment 2.2% and 0% had TRI and PRI. Significant association was observed between gentamicin treatment and development of PRI (p=0.006)

Conclusion: Gentamicin showed a significant association with PRI in this study. However none of the PRI patients were undergone dialysis and their renal functions recovered eventually. Hence it is important to select patients carefully, perform regular renal functions investigations and avoid other nephrotoxic drugs and proper hydration in patient management. Further, facilities should be implemented in government hospitals in Sri Lanka, to investigate serum gentamicin levels


Disclosure of Interest: None declared
Introduction: Humanitarian surgery often has to deal with limited infrastructure. Especially in rural regions, where humanitarian aid is preferably delivered, resources for surgical care are often limited. Consequently, improvisation is often needed, especially in emergency situations.

Materials & Methods: We present an assembly instructions for "how to build a thoracic drainage" in rural areas with limited resources. With simple methods a functional thoracic drainage for emergency situations can be constructed easily.

Required materials: One pair of gloves, scalpel, one larger (i.e. 1 or 2 liter) and one smaller (i.e. 0.5 liter) PET-bottle, two suction tubes, tape and a scissor.

Results: The assembly starts with the preparation of the suction tube. A length of preferably 125 cm is needed. Mark the first 15 cm on end. Use the scalpel to make perforations over the entire first 15 cm's. It is advocated to fold the tube double and use a scalpel to prepare these perforations.

During the following step another 75-100 cm tube is needed to connect both PET-bottles. The small bottle should be filled with 5 cm's of water. Each bottle has to be covered with a glove, to ensure air tightness. Both gloves are fixed with a running tape around the bottle.

The bottles are now connected using the shorter tube (75 cm).

Subsequently, two fingers are cut away in each glove, resulting in a total of 4 separate perforations. Those perforations should preferably be next to each other. The short tube is used to reconnect both bottles introducing each end in one perforation and fixing it with tape. Meanwhile the long tube is inserted within the thorax and connected to the larger bottle. The perforations of this long tube need to be outside the PET-bottle, as they are used to drain fluid/air from the thoracic cavity. The remaining perforation in the small bottle (0.5 liter) serves as a safety valve and allows pressure compensation between both bottles.

Conclusion: With minimal material and basic physiological knowledge, a reliable and functional thoracic drainage can be quickly assembled in rural areas.

Disclosure of Interest: None declared
Introduction: Oral Cancer is very common in Indians. It can be attributed to widespread tobacco abuse. Reconstruction is quite challenging especially if option of free flap is not readily available. We operated a care of carcinoma tongue and reconstructed using musculocutaneous flap.

Materials & Methods: I recorded the video of musculocutaneous flap and edited it for video presentation.

Results: It was a nice reconstruction and have result almost similar to free flap.

Conclusion: This flap can be a viable and feasible option for reconstruction in low and middle economy countries.

Disclosure of Interest: None declared
ANALYSIS OF ENDOTHELIAL NITRIC OXIDE SYNTHASE G894T GENE POLYMORPHISM IN SURGICAL PATIENTS WITH DIFFUSE SECONDARY PERITONITIS

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Introduction: Severe complications in patients with generalized secondary peritonitis are still major problem for clinicians, although significant progress in surgical treatment and intensive care support has been made. Despite standardized therapy, sepsis susceptibility and poor outcome has been observed, independently from patients age, gender and comorbidity conditions. Some variability can be explained by genes polymorphisms. Nitric oxide (NO) plays a key role in the pathogenesis of sepsis. During the early phases of septic shock NO is produced by endotelial NO synthase (eNOS). NO production has been associated with the upregulation of proinflammatory cytokines and superoxide production but also with some important benefits during sepsis. The aim of our study was to investigate the association of eNOS G894T gene polymorphism (rs 1799983) with the sepsis-related outcome of surgical patients with secondary peritonitis.

Materials & Methods: Our study includeed 75 surgical patients who were treated at the Clinic for Emergency Surgery due to perforation of the hollow viscus with diffuse secondary peritonitis. All patients underwent emergency laparotomy, surgical source control of contamination, antibiotic therapy and intensive care support. The microbiology analysis of peritoneal fluid specimens was performed. We analysed clinical findings, surgical outcome: sepsis, severe complications and mortality. eNOS G894T gene polymorphism was detected by PCR-RFLPs method.

Results: The morbidity rate was 48.5% and it was the highest in patients with colon perforation (p<0.001). The overall mortality rate was 13.3%. It was the highest among patients with mesenteric ischemia (p<0.001). Although our results did not reach statistical significance analysis of eNOS G894T in the group of patients with Gram positive infections showed that GG genotype was associated with ICU stay (p=0.07), presence of severe sepsis (p=0.07) and MODS (p=0.06) independently from etiology of peritonitis and perioperative patients characteristics.

Conclusion: eNOS G894T polymorphism may influence the risk of severe complications in patients with secondary peritonitis.

Disclosure of Interest: None declared
INTRODUCING PHLEBOTOMY AS A MINIMALLY INVASIVE PROCEEDING FROM THE PERSPECTIVE OF AVICENNA
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Introduction: From Avicenna perspective in some of these cases phlebotomy as a minimally invasive matter can cover the need to surgical approach. Phlebotomy (Bloodletting) is a non-drug treatment in the school of traditional medicine in Iran. Given that this intervention is carried out with the bistoury it can be called a minimally invasive action. Today, despite the extensive improvements in the medical field and discovering multiple therapeutic options aggressive treatments are still needed and in addition to high costs and bilateral stress both for the patient and surgeon, the side effects of surgery are inevitable and irreversible. It seems that finding prevention strategies would be valuable for reducing the need for surgery in some cases. In this study the bloodletting has been based introduced as one of the fast-acting therapeutic and less invasive procedures on the basis of traditional medicine writings.

Materials & Methods: This study is a review of library that the reference books of Iran Traditional Medicines have been studied in, with the focus on Avicenna’s Canon of Medicine by bloodletting (phlebotomy) keyword.

Results: different therapeutic steps and the needed details have been described widely in the clinical site of traditional medicine books and foundation therapeutics. These steps include lifestyle modification and nutritional therapy, drug treatments and manipulative therapies. These treatments are with hands and can include non-invasively procedures (massage), less invasive (phlebotomy) and invasive (open surgery). Bloodletting is one of the most widely used methods and it is prescribed for prevention and treatment (such as sciatica pain, hemorrhoids and chronic headaches). In the traditional medicine books the prescribing items and prohibition of this action and the method and its performing site due to aim, has been described detailed.

Conclusion: todays, In spite of people welcome and development of traditional medicine, due to insufficient evidence-based information in this field, different scientific challenges exist in the scientific society. Since phlebotomy is considered as a minimally invasive procedure and a detailed description of that exists in traditional medicine textbooks, it seems that more researches and documented ones in order to determining the scientific efficacy, indication, contra indication and method may help both reducing challenges and utilizing this minimally invasive procedure and open a new point of view in the prevention and treatment science

Disclosure of Interest: None declared
Introduction: Curative surgical resection is the standard treatment of choice and gives the highest probability of long-term remission and cure for stage I non-small cell lung cancer (NSCLC); however, the inherent heterogeneity of NSCLC causes diverse clinical outcomes even after complete resection. Since we had previously reported that MyoD family inhibitor (MDFI), distal-less homeobox 4 (DLX4), and Protocadherin 10 (PCDH10) were methylated more frequently in patients who had recurrence after curative resection of pathological stage I NSCLC, the aim of this study is to determine the efficacy of combined analysis using methylation status of these three specific genes as an improved prognostic biomarker.

Materials & Methods: Methylation-specific polymerase chain reaction analysis for MDFI, DLX4, and PCDH10 was performed using cancer tissues from 109 patients who underwent complete tumor resection for pathological stage I NSCLC from June 2005 to November 2011. The prognostic impact according to the number of methylated genes was evaluated.

Results: Among 109 patients, 17 (15.6%) showed DNA methylation in 3 genes, 32 (29.4%) showed that in 2 genes, and 60 (55.0%) showed that in 0–1 gene. Survival analysis using the Kaplan-Meier method revealed that there was significant difference in overall survival, and disease-free survival (log rank test; p = 0.0005, p<0.0001, respectively) according to the number of methylated genes. Five-year overall survival rates were 52.9% in patients with 3 genes methylation, 74.3% in patients with 2 genes methylation, and 86.4% in patients with 0–1 gene methylation. Five-year disease-free survival rates of patients according to the number of methylated genes were 17.7%, 56.3%, and 84.8%, respectively.

Conclusion: These combined analyses indicated that the number of specific methylated genes could be a promising biomarker for accurate selection of patients with poor prognosis and may be useful for establishing a tailored treatment strategy after curative resection of pathologic stage I NSCLC.

Disclosure of Interest: None declared
CASTLEMAN’S DISEASE OF THE CHEST WALL MIMICKING MYOSITIS OF THE LOWER EXTREMITIES.

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Introduction: Castleman's disease refers to a group of uncommon lymphoproliferative disorders.

Materials & Methods: A 72-year old male patient presented with pain and muscle ache of the lower limb. Detailed work-up was performed initially on evaluating hematological malignancies, the presence of a solid tumor, autoimmune diseases, and degenerative disorders of the peripheral nerves.

Results: Blood tests of the patient revealed a slight leukocytosis (11.340 with 79.6%>neutrophils an elevated CRP counting 210mg/L and an ESR (erythrocyte sedimentation rate) counting 90mm/1hour. Protein electrophoresis and antibody tests made unlike the occurrence of hematological malignancy or rheumatologic disease. An MRI of the lower extremities suggested the presence of myositis of several muscles. A biopsy of the right vastus lateralis muscle revealed a possible mitochondrial disorder but with however uncommon pathological findings. Finally, a 20x11mm space-occupying lesion located in the left side of the thoracic wall was diagnosed after performing a PET-CT scan. Significantly, no other lesion and no signs of lymphadenopathy were depicted. A CT-guided biopsy showed the existence of an atypical lymphocyte proliferation. After resection of the tumor with a diagnostic video-assisted thoracoscopic surgery (VATS), definite histopathological examination confirmed the presence of a lymph node hyperplasia with manifestations of a hyaline-vascular Cattleman’s disease. By absent manifestations of the disease on other locations, diagnosis of a unicentric disease was concluded.

Conclusion: The manifestations of the present case suggest that a systemic inflammation might occur in the unicentric form of the disease possibly due to cytokine hypersecretion. The multicentric disease should be well distinguished from the unicentric form.

Disclosure of Interest: None declared
Introduction: Primary spontaneous hemopneumothorax (PSHP) is a life-threatening disorder but uncommon. We report a case of left PSHP with simultaneous right pneumothorax, which was even rarer.

Materials & Methods: A 15-year-old male had sudden attack of anterior chest pain after strenuous exercise. On arrival at our emergency department, chest pain, which was aggravating, associated with cold sweating and dyspnea were noted. He had a BMI of 17kg/m², denied smoking or recent trauma. On physical examinations, breathing sounds were diminished bilaterally. His vital signs were still normal except heart rate 100/min. Chest roentgenogram revealed bilateral pneumothorax (Fig. 1). Therefore, bilateral tube thoracostomies were performed with left side immediate drainage of 300 c.c fresh blood. For the following 4 hours, a drainage velocity of 75ml/h was noted. CAT scan showed bilateral apical bullae. Since the bleeding amount had no signs of decrease, surgical intervention was indicated.

Results: Under tracheal intubation, left VATS was performed. Active bleeding from ruptured vascularized bullae was found and excised with endoscopic staple. After that, VATS blebectomy was performed on right side. The patient was released uneventfully 4 days postoperatively. The patient is of no recurrence for 2 years.

Conclusion: One stage bilateral VATS is feasible in such cases if they are hemodynamic stable.

Disclosure of Interest: None declared
Introduction: Acute and chronic pain following inguinal hernia repair causes significant morbidity to patients and affects negatively their quality of life. The aim of this study was to evaluate whether the routine identification and preservation of all three inguinal nerves reduce the risk of developing inguinal chronic pain.

Materials & Methods: 770 consecutive patients with inguinal hernia were evaluated in a ten-year period (2007-2017) retrospective review. Hernia repair was done under general or spinal anesthesia according to Lichtenstein as described by Amid et al. Patients aged 18 years and older with unilateral primary and recurrent inguinal hernia were included and polypropylene light mesh were used. All operations were performed by three senior surgeons. The nerves were routinely identified and preserved. The pain was assessed by Visual Analogue Scale (VAS) as mild 1-3, moderate 4-7, severe>7. The early postoperative pain was suppressed by paracetamol and non-inflammatory drugs. The patients were discharged the day after surgery and evaluated in the outpatient clinic after 1, 4, and 24 weeks.

Results: 700 patients operated electively and 70 as acute cases. The mean age of the patients was 68 years with a male: female ratio of 14:4 (720:50). Inguinal hernia was indirect in 520 (67.53%) patients, direct in 180 (23.37%) and “pantaloon hernia in 70 patients (9.09%). Identification of both inguinal and iliohypogastric nerves was 82%, all the three nerves were identified at 62%. Of all patients 7 (0.90%) developed acute postoperative neuralgia VAS score >7 and they were reoperated within 48 h. In every each of these patients the nerves were entrapped by the mesh. 180 patients developed mild pain and 26 moderate pain. Chronic pain 6 months postoperative was of zero percentage. None of the patients was diagnosed with testicular atrophy and 18 patients experienced mild hypesthesia. Urinary retention was the commonest complication occurred in 24 (3.11%) patients. Wound hematoma was observed in 28 (3.63%) cases all treated conservatively. All patients were discharged within 48 h after surgery. The average recovery time was 12 days. No recurrences were recorded.

Conclusion: Intraoperative identification and preservation of all the inguinal nerves are very important in preventing the development of chronic pain. One or more nerves are less likely to be detected in emergency and recurrent hernias. The general surgeon must be familiar with inguinal anatomy and he should identify and handle gently the nerves.

Disclosure of interest: None declared
Introduction: Blunt chest trauma is a common problem in road traffic accidents and may lead to potentially lethal injuries. However, azygos vein pseudoaneurysm following blunt chest trauma is extremely rare. We report a case of traumatic bleeding azygos vein pseudoaneurysm following a road traffic accident that was treated with endovascular stenting.

Materials & Methods: A 55 year old female pillion rider was flung from a motorbike after it skidded while traveling at approximately 70 kilometres per hour. On arrival at the emergency department, she was initially hypotensive with a blood pressure of 71/35. Focused assessment with sonography in trauma (FAST) showed free fluid in the hepato-renal and pelvic areas. Chest x-ray showed mediastinal widening while no fractures were seen on pelvic x-ray. The patient responded to resuscitation and underwent a computed tomography of her head, cervical spine, thorax, abdomen and pelvis. The findings showed macerated spleen and left kidney, as well as multiple liver lacerations and pseudoaneurysm of azygos vein with suggestion of bleeding.

The patient underwent exploratory laparotomy, splenectomy and left nephrectomy for grade 5 traumatic splenic and kidney injuries. The liver lacerations were treated with packing, and the abdomen was closed via temporary abdominal dressing. She then underwent urgent venogram through the left internal jugular vein, which showed azygos vein pseudoaneurysm with contrast extravasation. A 7 x 50mm covered stent was deployed across the site of tear in the azygos vein pseudoaneurysm and post-deployment venogram showed no further extravasation of contrast. The patient was then brought to surgical intensive care unit for further management.

She eventually succumbed to multiorgan failure in SICU. A post mortem conducted showed an azygos vein pseudoaneurysm with a stent in-situ was confirmed. There was no obvious perforation of the vein or thrombosis of the stents seen at autopsy.

Results: We review the literature of azygos vein pseudoaneurysm and its presenting signs and symptoms, as well as management options of azygos vein pseudoaneurysm.

Conclusion: Traumatic azygos vein pseudoaneurysm is a rare entity, however one should always have a high index of suspicion in managing patients with blunt chest trauma. While there is no clear treatment strategy for this condition, stenting of the pseudoaneurysm using endovascular technique has been shown to be a safe, and feasible option.

Disclosure of Interest: None declared
ONE-STAGE REPAIR OF VENTRAL HERNIA COMBINED WITH PENDULOUS ABDOMEN (VENTER PROPENDENS)
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Introduction: Abdominal wall surgery with or without panniculectomy is treatment of choice for obese patients who developed umbilical, incisional or other ventral hernias. This type of operations can be performed alone but in many cases these procedures are combined. The main goal of abdominal contour surgery is quality of life improvement given to good physiological, psychological and aesthetic outcomes in addition to abdominal wall reconstruction.

Materials & Methods: We share the experience of our department with simultaneous abdominoplasty and ventral hernia repair in 12 cases for three years period (2014–2016). Anchor-shaped abdominoplasty with umbilical preservation is the most preferred and performed procedure in our institution used in 9 cases, where postoperative midline ventral hernia or umbilical hernias were presented. In 3 cases we performed horizontal panniculectomy combined with postoperative ventral hernia reconstruction. All the patients underwent onlay mesh technique for wall reconstruction. During the same period another group of 32 morbidly obese patients with abdominal wall hernias were operated by plastic reconstruction of abdominal wall alone.

Results: This report present single institution experience with one-stage repair of abdominal wall hernias combined with abdominoplasty. Ten of the presented patients are females and 2 are males with mean age of 56(+/-10) years. Median BMI was assessed as 38(35-42)kg/m². There was no mortality in this short series and we encountered no major complications such as deep-vein thrombosis and pulmonary embolism (PE). Wound-related complication which we faced included: one wound infection, 4 cases of seroma and one case of skin necrosis. All complications were treated successfully. There was no statistically significant difference in the complications occurred between two groups.

Conclusion: Isolated ventral hernia repair in morbid obese patients and those combined with excessive resection of pendulous abdomen are operation associated with significant systemic and wound-related complication. According to our experience wound complications showed no significant difference between both procedures. Thus we propose that simultaneous abdominoplasty during the ventral hernia repair is suitable procedure which has no contribution to increased wound complication rate but has remarkable improvement of quality of life.

Disclosure of Interest: None declared
Introduction: Trauma is still leading cause of death particularly in young people population. The liver is the most common cause of death in blunt abdominal trauma and this injuries treatment strategies has significantly changed though the last decade. The gold standard for grade I and II liver injuries are nonoperative management (NOM) , however there are still blurred choice between operative (OM) and nonoperative treatment of choise for patients with high grade injuries.

Materials & Methods: Patients with high grade (grade III – V) blunt liver injuries in Riga East Clinical university hospital were retrospective analysed over the period from 2011 to 2016.

Results: Totally 86 isolated liver trauma patients and 23 combined liver and spleen trauma patients were selected. Thirty-six patients with grade III (22 patients), grade IV (13 patients) and grade V blunt liver trauma (1 patient) were analised. Isolated liver injuries were identified in 32 patients, however liver and spleen injuries, grade III - V were identified in 4 cases. NOM were possible in 26 haemodynamically stable patients, 9 patients underwent surgery – perihepatic packing were done for 7 patients (median ASA score 4 points, median ISS score 43 points) and suturing were done in 2 cases, one patient underwent embolisation of segmentar branch of S8 a. hepatica propria.

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<tr>
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<th>OM, N = 9</th>
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<th>NOM, N = 26</th>
<th>IQR</th>
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<td>ISS</td>
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<td>(50-25)</td>
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<td>55,60%</td>
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HD instability, higher ISS and Lac score and lower HgB level were predictive factors for operative management in our series.

Conclusion: Damage control laparotomy and perihepatic packing can be the only treatment option in haemodynamically unstable patient with high ISS score and blunt liver trauma.

Disclosure of Interest: None declared
Introduction: Inguinal hernia repair is one of the mostly performed operations in general surgery practice. The mesh is usually fixed with non-absorbable hand-sewn prolene sutures. In this study hand-sewn method and tacker (hernia fixation device Autosuture 5mm ProTack) were compared.

Materials & Methods: Tacker used 93 inguinal hernia repair operations which took place in 2015 were compared with 73 hand-sewn repairs. Duration of surgery, postoperative hematoma, postoperative pain and chronic pain (following 1 year), wound infection rates were taken into account. SPSS 15.0 was used for statistical analysis and a p<0.05 was accepted as statistically significant.

Results: Duration of surgery was significantly lower in tacker group (27 minutes versus 38 minutes p<0.001). Postoperative hematoma formation was also significantly lower in tacker group (p<0.01). 3 (4.1%) patients in tacker group and 6 (8.2%) patients in hand-sewn group had hematoma on the first postoperative day. There were no significant difference in postoperative pain, chronic pain and wound infection parameters.

Conclusion: Hernia fixation device in a safe and time saving. Postoperative hematoma is less and other complication rates are similar.

Disclosure of Interest: None declared
A CASE OF INTERNAL JUGULAR VEIN AND SUPERIOR SAGITTAL SINUS THROMBOSIS IN PAPILLARY THYROID CARCINOMA

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Introduction: Papillary thyroid carcinoma (PTC) is a slow growing, locally invasive tumor which spreads chiefly via the lymphatics. We report a case of a patient whose right thyroid lobe has been obliterated by PTC and whose illness was subsequently complicated by thrombosis of the superior sagittal sinus and the right internal jugular vein (IJV).

Materials & Methods: Case report

Results: Our patient is a 63 year old man with a papillary thyroid carcinoma. The patient presented with a 6cm right level III neck swelling. CT scans showed a virtually non-existent right thyroid lobe (replaced by an ill-defined hypodense lesion) and a large necrotic level III node. The patient refused surgery and went for alternative medicine. He re-presented with seizures after 7 months. MRI revealed to infarcts of the right frontal and parietal cortices as a complication of thrombosis of the superior sagittal sinus and the right internal jugular vein. Anti-coagulation therapy was initiated and the patient was subsequently discharged with good functional recovery.

Conclusion: Intravascular thrombosis consequent to PTC is a rare complication of this malignancy. We report a case of an untreated longstanding PTC which led to pressure thrombosis of the IJV with subsequent extension into the superior sagittal sinus and precipitating seizures in the patient concerned. Due to the slow growing nature of PTC and its relatively good prognosis, surgery with excision of the affected IJV remains a viable option. To mitigate against further neurological insults from an intracranial thrombus, long term anticoagulation in this patient is probably necessary.

References:

Disclosure of Interest: None declared
DO FOOD INTAKE AND BODY COMPOSITION CHANGING DIFFER IN DIFFERENT TYPES OF BARIATRIC SURGERY?

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Introduction: Obesity is now a global epidemic diseases. Bariatric surgery is an effective treatment for patients with severe obesity or Moderate obesity with a disease. When other treatment methods fail, bariatric surgery is considered. After that usually sense of taste varies, this can cause people to change habits and die. The aim of this study was to find out the effect of bariatric surgical procedures on Dietary intake and body composition after surgery in obese patients.

Materials & Methods: Search Strategy: It is a review article by using Cochrane, PubMed and googlescolar databases and searching body composition, foodintake. Bariatric surgery keywords

Main outcome: Weight regain occurs in some patients after surgery. The factors that cause weight regain include food intake, metabolic changes, surgical failure, and psychological, physical activity.

Results: Although studies show that nutrition is one of the factors that affects weight loss and weight regain process after surgery. Few studies have been done about the types of obesity surgery and nutritional status. Importance of this factor is currently unknown Studies in relation to food intake among different people after different type of bariatric surgery is limited. It has been shown in various studies that Reduction of lean mass in Limiting methods is more common

Conclusion: Dietary intake can affect the outcome of bariatric surgery. Changes in body composition following the bariatric surgery can impress the results. It seems Conduct a detailed clinical trials and Regular and periodic evaluation of nutritional status and body composition before and after surgery by using validated FFQ is necessary. More studies is needed to set a suitable diet depending on the type of surgery.

Disclosure of Interest: None declared
RESTRICTIVE GUIDELINES IN A STRAINED HEALTH SYSTEM DO LITTLE TO HELP THOSE WITH ACUTE PANCREATITIS

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Introduction: The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) identified that in 65.9% of cases of acute pancreatitis guidelines were not followed1. The International Association of Pancreatology (IAP) recommends USS within 24 hours, with CT scans used when there is diagnostic uncertainty, or after 72 hours. If gallstones are the cause laparoscopic cholecystectomy (LC) should happen within 2 weeks or index admission2.

Materials & Methods: An audit into the management of all patients with acute pancreatitis at West Middlesex Hospital was completed between January and October 2016. Clinical data were collected to evaluate adherence to IAP management guidelines.

Results: 132 admissions were identified (52% male, mean age 52). Average stay was 7.45 days. 44% of patients did not receive an USS within 48h. Of these 68% had a CT scan within 48h. This group had a lower amylase (672 IU vs. 1175 IU, p<0.01) and higher CRP (170 vs. 121, p<0.05) and were less likely to have any investigation of their biliary tract (60.4% vs 95.8%, p<0.01).

LC for those with gallstones was achieved in 53.7% of cases, with a mean time to operation of 74 days, with only 16.3% happening within 2 weeks.

Conclusion: The management of this cohort mirrors NCEPOD data1. An integrated pathway to provide guidance and improve awareness is required to prevent unnecessary early CT scanning and overall management of pancreatitis. We also argue that restrictive timeframes of 2 weeks may be preventing the development of a gallstone pancreatitis fast track pathway, where patients can be discharged and return for a day case LC. We propose relaxing the recommended time to LC to 3-4 weeks. This may give centres a more realistic timeframe to complete this operation and improve overall time to surgery.


Disclosure of Interest: None declared
LAPAROSCOPIC CHOLECYSTECTOMY IN DESTRUCTIVE FORMS OF ACUTE CALCULOUS CHOLECYSTITIS

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Introduction: Conduct analysis of laparoscopy results in destructive forms of acute calculous cholecystitis.

Materials & Methods: From 2010-2016 in the department of general surgery of the Central Hospital of the Ministry of Internal Affairs were treated 236 patients with destructive forms of acute calculous cholecystitis. The age of patients ranged from 23-75 years, men were 125 (53%), women - 111 (47%). From the beginning of disease to treatment in hospital within 24 hours were hospitalized 70 (29.6%), within 48-72 hours 166 (70.4%) patients. Within days after admission to the hospital were operated 41 (17.4%), after 1 day of receipt - 70 (29.6%), for 2-3 days - 125 (53%). On admission, all patients were examined, an abdominal ultrasound was performed, and if necessary was performed MSCT and MRI cholangiography.

Results: Laparoscopy was performed to all 236 patients; for 216 (91.6%) patients the operation was completed with laparoscopic cholecystectomy, for 20 (8.4%) patients were carry out conversion. In this case the cause of the transition to the conversion were - bleeding from the gall bladder bed in 4 patients, in 4 - Mirrizi syndrome, 12 - pronounced inflammatory and infiltrative process in bile areas, where differentiation and selection of anatomical structures of the gall bladder is difficult. Interoperative abscess form of acute calculous cholecystitis was detected in 140 (59.3%) patients, gangrenous form in 96 (40.7%), which were subsequently confirmed by histological examination of macropreparations. Arising complications: lymphocele in the right subhepatic area in 2 cases, biloma of subhepatic area due to choledochous duct injury in coagulation - 1, clipping and the intersection of choledochous duct - 1.

Conclusion: Thus, in 91.6% cases it was possible to finish the operation laparoscopically in patients with destructive forms of acute calculous cholecystitis. In 8.4%, the conversion is made, and the reason for the conversion was the presence of pronounced inflammatory and infiltrative process in bile areas that does not allow allocating the anatomical structures, bleeding from the gall bladder bed and Mirrizi syndrome.

Disclosure of Interest: None declared
Introduction: Lymphangiomas are rare benign congenital malformations of the lymphatic system. They are thought to happen due to obstruction of the local lymph flow system. Lymphangiomas may arise in any part of the body. Approximately 95% of lymphangiomas are found in the head, neck and axilla, and 5% appear in other parts of the body. Lymphangioma of the ovary especially huge one is exceptional. Lymphangiomas are usually slow growing and patients remain asymptomatic for a long time.

Materials & Methods: We report a case of a 55 years old postmenopausal woman admitted in surgical department for a huge lymphangioma cysts of right ovary and the peritoneum for 2 years of evolution. Followed-up and treated for diabetes mellitus, asthma and arterial hypertension for last 5 years. Ultrasound examination and CT scan showed a huge cystic lymphangioma of the right ovary; the cystic lymphangioma of the peritoneum was not detected (seen) because it was attached to the big ovarian one by thine adherence.

Results: After a short preparation, the patient was operated and removal of both cysts was carried out. The first largest Cyst (3.5 liters) was sucked, the second peritoneal Cyst was removed subsequently (Photos 4-5-6-7-8-9). Post-operative period was uneventful. She was discharged after 5 days with a body weight of 111.5 kg. The histological result was in favor of cystic lymphangioma of the right ovary and peritoneum.

Conclusion: The cystic Lymphangioma of the ovary is extremely rare benign tumor. The clinical symptomatology is polymorphic and not specific. The diagnosis is suggested by the imaging modalities but still requiring a histopathological confirmation. The treatment of choice is surgical and consists of a full resection of the lesion. The intracystic sclerotherapy could be used for symptomatic tumors. The present case illustrates that lymphangiomas should be included in the differential diagnosis of ovarian cystic masses. Even though, they are being benign in nature majority of the time, wide excision with clear margin and regular follow up is mandatory. The laparoscopic excision is a safe and reliable approach for the treatment.

Disclosure of Interest: None declared
MRSA-INFECTED CARBUNCLE IN A DIABETIC PATIENT. MULTIMODAL THERAPY WITH CONVENTIONAL RADICAL SURGICAL DEBRIDEMENT, MODERN ANTIBIOTIC AND WOUND MANAGEMENT SHOWING PROMISING RESULTS. A CASE REPORT.

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Introduction: Carbuncles are debilitating infections of the cutaneous and subcutaneous tissue commonly seen in diabetic patients. Due to the immunocompromised status and previous history of frequent usage of antibiotic treatments these wounds have a high risk of getting infected with resistant bacteria. Commonly used treatment consists of incision and drainage with open conventional wound management which in many cases results in a chronic surgical wound under the consequence of inadequate healing.

Materials & Methods: This is a case report about a 49 year old lady with long term diabetes mellitus and psoriasis. She was previously treated for a 10x5 cm carbuncle at the back with several antibiotics before considering multiple incisions for an acute infection. Patients wound was tested positive for MRSA, for which she underwent regular conventional dressings but led to persistence of the MRSA infected back carbuncle. At time of referral it was decided to perform radical surgical excision and open wound management with Silver containing hydrofibers. Moxifloxacin® as 4 generation fluorchinolon was given 1 week postoperatively.

Results: In June 2016 a radical debridment of the carbuncle almost to the fascia of the back was performed what led to a wound of 12x6x1,5 cm. Moxifloxacin®, a sensitive antibiotic, was administered preoperatively and continued for a week postoperatively. Silver hydrocolloid dressing was applied every second day for the first 4 weeks followed by twice a week. Wound cultures were done in week 2 and week 6 postoperatively which turned out to be MRSA negative. 4 weeks after the surgery the wound exhibited healthy granulation tissue covering the wound area completely. Two months after the surgery, the wound was epithelialized while keeping remaining 5x2 cm area open. At this stage, with regards to wound management, as instructed patient performed self-dressing with paraffin gauze every third day. 3 months after the surgery the wound was completely epithelialized and healed.

Conclusion: In light of this case report, clinical management of a MRSA infected carbuncle in a diabetic patient still remains to be a challenge requiring appropriate antimicrobial coverage with radical surgery and strict follow-up compliance. This approach, should however, be supplemented with effective wound dressing modalities, as discussed in this report, to achieve complete healing in a relatively short period.

Disclosure of Interest: None declared
Introduction: Atraumatic splenic rupture (ASR) is a rare life threatening event and can occur in association with neoplasms, infections, inflammatory diseases, drugs or mechanical conditions. We report two cases of ARS with distinct etiologies.

Materials & Methods: Case Report

Results: Case 1: A 57 year old male presented to the emergency department with abdominal pain, vomiting and fever. He had been discharged 20 days prior to this episode after a necrotizing alcoholic pancreatitis. The patient was hypotensive and tachycardic with abdominal distension and tenderness on the left hypocondrium, with no palpable mass. After fluid resuscitation and vital signs stabilization, computed tomography (CT scan) was performed that revealed infected walled off pancreatic necrosis and a ruptured splenic hematoma. Splenectomy and necrosectomy were performed, but the patients’ condition deteriorated culminating in death 48h after surgery.

Case 2: A 75 year old male presented to the emergency department syncope and lethargy. He also referred vomiting, diffuse abdominal and left shoulder pain for the last 24h. The only relevant medical history was an ulcerated skin lesion with recent growth that motivated dermatologic consultation scheduled for the week after. This patient was also hypotensive and tachycardic with abdominal distension and tenderness on palpation on the left hypocondrium, with no palpable mass. There was only transient response to fluid challenge. CT scan revealed a ruptured spleen with active hemorrhage. The patient underwent emergency splenectomy. Pathologic examination of the spleen revealed blastic plasmocytoid dendritic cell neoplasm, secondary to the skin lesion previously described. The patient was discharged on the 8th post-operative day and is currently under chemotherapy.

Conclusion: ASR usually occurs in the abnormal spleen or due to local inflammatory conditions. Hematologic disorders and acute pancreatitis are the first and third most common causes of ASR, responsible for up to 15 and 10% of ASR, respectively. Prompt diagnosis is essential in managing unstable patients, although it is often a clinical challenge.

Disclosure of Interest: None declared
SHORT AND MID-TERM OUTCOMES OF NEGATIVE APPENDICECTOMY

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Introduction: Acute appendicitis (AA) is traditionally considered a clinical diagnosis and negative appendicectomy (NA) rates vary across healthcare systems. NA is reported to have similar or more morbidity compared to appendectomy for uncomplicated AA. We aimed to report short and mid-term outcomes of NA at our institution.

Materials & Methods: We reviewed histology reports of all patients undergoing appendectomy at our institute from January 2011 to December 2015. Medical records of patients with NA were reviewed for demographic, clinical and outcome data.

Results: 2603 patients underwent AA for suspected AA and NA rate was 3.34% (n=87). Patients with NA had a mean age of 30.3 (14.8-69.8) years and no gender difference (51.7 % male). Right lower abdominal pain was present in 76 (87.4%) patients and 10 patients (11.5%) had pyrexia. Right lower abdominal tenderness was present in 79 (90.8%) patients and 48 (55.2%) patients had abnormal white blood cell count. Alvarado score suggested probable to very probable diagnosis of AA in 34 (39.1%) patients and 33 (37.9%) patients met systemic inflammatory response (SIRS) criteria. Computerized tomography (CT) scan was done in 50 (57.5%) patients. Median operative time was 75 (35-190) minutes and 66 (75.9%) patients had laparoscopic appendectomy with 3.5% open conversion rate. Median length of hospital stay was 2.1 (0.9-14.7) days and 7 (8.1%) patients developed superficial surgical site infection. One patient (1.2%) developed intra-abdominal abscess and there was nil mortality in this study. 9 (10.3%), 13 (14.9%), 16 (18.4%), 18 (20.7%) and 21 (24.1%) visited emergency department (ED) for abdominal symptoms at 12, 24, 36, 48 and 60 months respectively after surgery. Nine patients (10.3%) required hospitalization at 12 months for abdominal complaints. At a median follow-up of 28 months (18-60), no patient has developed incisional hernia.

Conclusion: NA rate is low in our experience. ED visit for abdominal symptoms is common but not associated with increased morbidity.

Disclosure of Interest: None declared
Introduction: Laparoscopic appendectomy (LA) has become the standard choice for acute appendicitis. There are several techniques to close the appendiceal stump, and use of polymeric clips, are shown safe and cost effective. This study was conducted with the aim of evaluation of the efficacy and safety of appendiceal stump closure with polymeric clips in LA.

Materials & Methods: This is a retrospective cohort study in which totally 35 patients underwent LA, between April 2013 to August 2016 in Rasool-e-Akram university hospital and the appendiceal stumps ligation were performed by polymeric clips. All patients had a one month follow up after surgery. The data of patients including demographic, surgery, complications, readmission and pathological reports, were collected from medical records and data base.

Results: 35 patients were included in this retrospective study. 19 patients were male and 16 patients were female (54.3% vs 45.7%). The mean age was 28.49±9.56 years, mean operative time was 59.6 ± 11.8 minutes and mean hospital stay was 2.54±0.7 days. There was no intraoperative complication, no intraabdominal abscess formation, no readmission and no perioperative death. In pathologic reports, there were 15 (42.8%) suppurative and one gangrenous (2.8%) appendicitis.

Conclusion: Application of polymeric clips for stump ligation is safe, cost effective and time saving, and can be the favorable technique in LA.

Disclosure of Interest: None declared
PROSPECTIVE COMPARATIVE STUDY FOR THE EVALUATION OF PATIENTS DISCOMFORT IN STOPPA’S HERNIOPLASTY VERSUS LAPAROSCOPIC TOTALLY EXTRAPERITONEAL IN INGUINAL HERNIA: A RANDOMIZED STUDY

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Introduction: There is evidence of better quality of life of patients operated with laparoscopic procedure (posterior hernioplasty) as compared to Lichtenstein (anterior hernioplasty). The present study is done to compare to predict the patients discomfort in posterior hernioplasty i.e. Stoppa’s repair vs Endoscopic totally extraperitoneal (TEP) hernioplasty in inguinal hernia surgery.

Materials & Methods: Patients (November 2014 to October 2015) were randomly allocated either to Stoppa’s (Group 1) or TEP (Group 2) by using computer generated random numbers. Stoppa’s hernioplasty (Group 1) was performed through midline or Pfenniensteil incision for bilateral hernias and transverse incision at level of anterior superior iliac spine was used for unilateral hernia. TEP was performed through 3 ports in midline. Conventional polypropylene mesh was placed in preperitoneal space in both groups.

Twenty patients in each groups were analyzed on same day after surgery, 1, 3 and 6 months by using Carolinas equation of quality of life (CeQOL) questionnaire, which was uploaded on smart phone from website. The tool contain 9 questions, which after filling automatically predicts the risk of discomfort after one year in percentage.

Results: Comparison of results to predict discomfort between the groups across the time periods by CeQOL (Table 1)

<table>
<thead>
<tr>
<th>Time period</th>
<th>Gr1 (Stoppa) (n=20)</th>
<th>Gr2 (TEP) (n=20)</th>
<th>Mean difference</th>
<th>p-value¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same day after surgery</td>
<td>14.60±4.87</td>
<td>11.25±3.43</td>
<td>3.35±6.25</td>
<td>0.01*</td>
</tr>
<tr>
<td>1 month</td>
<td>12.05±4.01</td>
<td>9.30±2.83</td>
<td>2.75±5.23</td>
<td>0.01*</td>
</tr>
<tr>
<td>3 months</td>
<td>9.10±3.30</td>
<td>7.80±2.44</td>
<td>1.30±4.01</td>
<td>0.16</td>
</tr>
<tr>
<td>6 months</td>
<td>9.00±2.99</td>
<td>6.75±2.33</td>
<td>2.25±3.58</td>
<td>0.005*</td>
</tr>
</tbody>
</table>

¹Unpaired t-test, *Significant

Conclusion: Comparatively operative time is significantly high in TEP however discomfort is less after one year. So TEP offers a better quality of life as compared to Stoppa’s hernioplasty.

References:

Disclosure of Interest: None declared
SYSTEMATIC REVIEW OF ANTIMICROBIAL RESISTANCE IN INTRA-ABDOMINAL INFECTIONS IN LOW- AND MIDDLE-INCOME COUNTRIES

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Introduction: Intra-abdominal infections are common and cover a wide range of diagnoses. Source control is one component of therapy and can be accomplished through a variety of mechanisms including surgical intervention. In addition to source control, proper antimicrobial therapy is required for optimal patient outcomes. With increasing reports of antimicrobial resistance globally, it is important to understand antimicrobial resistance patterns and the impact on outcomes in patients with intra-abdominal infections, especially in low-resource settings where there may be limited antibiotic options. The aim of this study was to determine common pathogens and antimicrobial resistance patterns in intra-abdominal infections in low- and middle-income countries.

Materials & Methods: A systematic literature review of antimicrobial resistance in intra-abdominal infections in low- and middle-income countries was performed. Search terms included “antimicrobial resistance,” “intra-abdominal infections” and low- and middle-income countries. The search was limited to human subjects, English language, articles published in the past 10 years and studies with greater than 10 subjects. Data were abstracted on source of infection, pathogens and antimicrobial resistance patterns.

Results: The initial literature search yielded 45 references. After reviewing for inclusion criteria, 31 articles were included in the final study. 12 studies were global, multi-center studies and the remainder were single center studies in 11 different countries. 15 studies discussed a broad range of intra-abdominal infections. 5 studies discussed infections associated with peritoneal dialysis catheters and 3 studies discussed spontaneous bacterial peritonitis. Common pathogens included Eschericia coli, Klebsiella, Pseudomonas, Proteus, and Acinetobacter. Common antimicrobial resistance patterns included extended spectrum beta lactamase and carbapenem resistance.

Conclusion: While there is limited information on antibacterial resistance in intra-abdominal infections in low- and middle-income countries, the antimicrobial resistance rates reported are relatively high. Additional data is needed to better determine rates of antimicrobial resistance and optimize antibiotic management in these patient populations. Antimicrobial stewardship programs could be used to monitor antibiotic use and surveillance systems.

Disclosure of Interest: None declared
ABDOMINAL LYMPHANGIOMATOSIS IN AN ADULT PATIENT – A CASE REPORT
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Introduction: Lymphangiomas are rare benign tumours of the lymphatic system. Abdominal lymphangiomatosis is very rare in adult patients and clinical presentations are varied and non-specific. We report a case of a 31-year-old male who presented with melena. Computer Tomography scan revealed multiple enlarged and matted abdominal masses encasing the retroperitoneum and mesentery. A laparotomy and incisional biopsy of the mesenteric cystic mass was performed. Histological examination demonstrated fibrofatty tissue with prominent, thick-walled endothelial-lined vessels consistent with a mesenteric cystic lymphangioma. The patient was subsequently discharged home well.

Materials & Methods: 

Results: 

Image:

Fig 1. Contrast-enhanced axial sections of the abdomen reveal lobulated, fluid-density masses in the root of the mesentery (long arrow). The masses cause mild mass effect with displacement of the bowel loops. Note the lack of obstruction on the adjacent third part of duodenum (short arrow) despite the size of the mass.

Conclusion: Abdominal Lymphangiomatosis is an extremely rare disease seldom encountered in adult surgical practice. Its presentation may be subtle and varied. CT or MRI is the recommended pre-operative diagnostic investigation. Patients may present with acute complications requiring urgent surgical intervention. Complete excision is the treatment of choice where possible.

Disclosure of Interest: None declared
COMPLETE CYTOREDUCTIVE SURGERY IN PSEUDOMYXOMA PERITONEI APPEARS TO PROVIDE ADEQUATE DISEASE FREE SURVIVAL IN HIV PATIENTS.

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Introduction: Pseudomyxoma peritonei is a clinical syndrome that is mainly characterized by the presence of mucinous ascites resulting from the rupture of a mucin-producing neoplasm.

Materials & Methods: A 54-year old male patient with a chronic HIV infection (Stage A2/CDC 1993), a hepatitis C infection and a diagnosed atypical colitis developed a complicated diverticulitis which was initially treated conservatively with antibiotics. A Hartmann resection was performed due to septic complication, while the histopathological examination revealed no signs of malignancy. Six months after the first surgery a Hartmann reversal was tried which however revealed peritoneal implants suggesting the presence of a low-grade pseudomyxoma peritonei. Five months later a second try for a Hartmann reversal was performed. In the view of the slightly enlarged paracolic lymphnodes a low anterior resection was performed with a primary descendorectostomy. Histopathological examination revealed no more signs of the tumor, which confirmed the completeness of the cytoreductive surgery by the first operation.

Results: Pseudomyxoma peritonei of extra-appendiceal origin represents a rare clinical syndrome. The primary origin of the tumor (appendiceal versus extra-appendiceal) does not seem to correlate with poorer survival with regard to the literature, while independent prognostic factors associated with poor survival are: high grade tumor differentiation and incomplete cytoreduction. The patient of the current report would have been expected to be at a higher risk of recurrence due to his immunocomprised situation related to the chronic HIV infection. However, the low grade histology and the completeness of cytoreductive surgery seem to have contributed to the good course of the patient’s disease.

Conclusion: Completeness of cytoreductive surgery and low grade histology seem to be the most important prognostic factors regarding pseudomyxoma peritonei in immunocompromised patients as suggested by the long overall and progression-free survival of the present patient.

Disclosure of Interest: None declared
RE-OPERATION BY LAPAROSCOPY VERSUS LAPAROTOMY FOR POST-OPERATIVE COMPLICATIONS
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Introduction: Re-operation within the first weeks after abdominal surgery is often challenging. The goal of the study is to determine the role of laparoscopy (LSC) in such patients in terms of safety and efficacy to resolve the problem, and compare it to laparotomy (LT).

Materials & Methods: We identified all patients who underwent abdominal re-operation within 1 month from the initial surgery in our institution during January 2012 to July 2016, and collected their clinical data retrospectively. Patients undergoing programmed 2-stage elective surgery, or LT for evisceration or open abdomen were excluded from the comparative analysis.

Results: A total of 118 patients underwent abdominal re-operation, 42 (36%) in LSC, and 76 (64%) in LT. Nine patients (8 LSC, 1 LT) had the re-operation for staged colectomy, 13 (all in LT) for evisceration or open abdomen. The remaining 96 patients were re-operated for post-operative intra-abdominal complications and constitute the study group (Table 1).

Laparoscopic re-operation resolved the problem with no further intervention in 22 (65%) patients, LT in 30 (48.4%). Overall, 25 (73%) patients approached in LSC had their complication managed laparoscopically.

Patients in the LSC group compared to the LT group were younger and had their initial operation performed more often in LSC. The types of complication that indicated the re-operation (infection/ischemia, bowel occlusion, bleeding, and other) were similar in both groups. Median operative time was longer in LSC. The rate of wound infections, median hospital stay and mortality were more favorable in the LSC group.

Image:
Conclusion: Laparoscopy can be used selectively to treat post-operative complications, even after primary laparotomy. Potential benefits compared to laparotomy in terms of wound infection, length of stay, and mortality, remain to be demonstrated.

Disclosure of Interest: None declared
Pancreatic heterotopia is a rare congenital anomaly. Literature review shows that it most commonly affects the stomach and proximal small intestine. The majority of patients with pancreatic heterotopia are asymptomatic. We report a case of pancreatic heterotopia in the ileum, who presents with bleeding gastrointestinal tract.

Case details:
A 58 year-old man was seen in the emergency department for complaint of hematochezia, on the background of use of aspirin for ischaemic heart disease. Clinical examination was otherwise unremarkable, digital rectal examination showed altered blood in the stools, however there was no mass, and no piles were seen on proctoscopy. Investigation revealed anaemia with haemoglobin level of 6.9 g/dL. He was transfused with packed red blood cells and stabilised. An oesophagogastroduodenoscopy and colonoscopy evaluation was normal. A computed tomographic enteroclysis showed a 3.6cm polyp in the ileum. The patient subsequently underwent small bowel resection and primary anastomosis, with the resected small bowel sent for histology. The histology was reported as pancreatic heterotopia with ulceration.

Results: Case discussion:
We review the literature of pathogenesis of heterotopic pancreas, and the typical presenting symptoms and outcomes of these patients.

Conclusion: Pancreatic heterotopia is a rare cause of bleeding gastrointestinal tract. High clinical index of suspicion permits earlier diagnosis and appropriate surgical management.

Disclosure of Interest: None declared
Introduction: Necrotizing fasciitis is a soft tissue infection affecting subcutaneous tissue with rapid spread through fascial planes. It is usually polymicrobial in origin and carries mortality of 30-70%. Myroides spp. necrotizing fasciitis and soft tissue infections are a rare occurrence with only nine cases reported but this bacteria’s multidrug resistance and fulminant course poses tremendous diagnostic and therapeutic challenge.

Materials & Methods: Analysis of a clinical case of necrotizing fasciitis with identified rare causative bacteria and literature review.

Results: 51 year old male was admitted with complaints of head ache, fever and general malaise. While treated for suspected serous meningitis patient developed small painful and cyanotic skin area over the site of intramuscular injections in his left gluteus. Skin changes progressed rapidly over few days with following hemodynamic instability and other signs of sepsis and septic shock. Diagnosis of necrotizing fasciitis was made and patient underwent emergency incision and debridement. Vacuum assisted closure (V.A.C.) therapy for postoperative wound was started immediately after surgery and continuous venovenous hemodiafiltration for acute renal failure was initiated on the first postoperative day. Initially patient received broad spectrum antibacterial therapy that was corrected after first wound cultures revealed Myroides spp. infection sensitive only to norfloxacin, pefloxacin and minocyclin. Repeated debridements were performed and V.A.C. therapy was continued until wound was clean and covered with granulation tissue. Wound cultures were negative for Myroides spp. fifteen days after surgery and after twelve days of specific antibacterial therapy. Patient was discharged on the forty third postoperative day and was further referred to specialist center for skin grafting.

Conclusion: Early recognition with aggressive surgical and supportive treatment and multidisciplinary approach is the key to successful management of not only Myroides spp. but also other types of necrotizing fasciitis.

Disclosure of Interest: None declared
Introduction: The uterus, ovary, and fallopian tube are rarely present in an inguinal hernia. We report on an operation to treat just such a rare condition for a right inguinal hernia.

Materials & Methods: An 87-year-old Japanese woman was admitted with swelling in the right inguinal region and a purulent discharge from the vagina.

Results: Vital signs were stable, but the mobile mass was irreducible. Computed tomography of the abdomen indicated uterine tissue in a right inguinal hernia. We diagnosed an inguinal hernia with an incarcerated uterus and performed surgery on that basis. An incision approximately 6 cm long was made in the skin above the swollen area to open the inguinal sac, disclosing a tumor enveloped by a hernial sac. Opening the hernial sac revealed the prolapsed uterus, the fallopian tube, and the right ovary. Because no ischemic change was noted, the incarcerated uterus was returned to the abdominal cavity, and the hernial opening was closed with the onlay mesh technique. The posterior wall of the inguinal canal was found to have prolapsed laterally to the inferior epigastric artery, resulting in an external inguinal hernia.

Conclusion: This case demonstrates that careful attention must be paid to inguinal hernias in female patients because the uterus, ovary, and fallopian tube may be involved.

Disclosure of Interest: None declared
EMERGING THERAPIES: MULTIMODAL TREATMENT IN SOFT TISSUE INFECTIONS IN DIABETES DMT2. A SINGLE INSTITUTIONAL EXPERIENCE AT THE ADVANCED CENTRE FOR DIABETES IN ECUADOR

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Introduction: Diabetes Mellitus a disease of the 21 Century is a leading cause of non-traumatic lower extremity amputation. Any Foot ulceration is a chronic, non-healing complication of diabetes that leads to a mayor lower extremity amputation. A growing number of treatments for foot ulcer exist, but almost none for diabetic foot ulcers complicated with invasive infections.

Materials & Methods: In a Diabetic Foot Ulceration. (DFU) become infected and shows inflammatory reaction in a cephalic extension it represents a serious problem. Must have a Complete Physical Evaluation to determine various comorbid pathologic and metabolic derangements that need to be corrected.

Triple IV antibitics are given. Skin evaluation to determine the level of normal skin borders, level of skin necrosis, followed with debridement for necrotizing fascitis and skin necrosis. For localized fluid collection under the skin without skin necrosis, percutaneous aspiration under local anesthesia. Under direct US evidence of fluid collection is aspirated for gram stain and culture and washed with saline 0.9% with 10 milligram of Gentamycin. If the collection is greater in size, a Jackson-Pratt tube is installed for continued aspiration for three to seven days. The infected foot ulcer is cleaned, debrided and infiltrated with saline 0.9 % solution with 10 mg Gentamycin and covered with sterile gauze dressing. Fibrinolysis therapy is applied with 5.000 units endovascular intra-arterial with Sodium Heparin in the same Femoral side of the diabetic foot infection every 12 hours, for three times, afterwards 1000 units Q 12 hours, subcutaneous application is continued for seven days. Any sign of bleeding should be controlled. Intravenous Hematopoietic Growth Factor is given for seven days.

Results: Before the patient is discharged. Written Instructions for patient compliance.

Conclusion: Diabetes Mellitus affects every organ system of the body without exceptions. It’s not surprising that single therapy “treatments almost always fail and these are the reasons for developing combination therapies that appear to be fundamental to improved future septic complications of Diabetes Mellitus Type 2”. This concept consist of a combination of drugs, that block different key mechanisms associated with Chronic Diabetes MT2 pathophysiology.


Disclosure of Interest: None declared
Introduction: At present, the importance of laparoscopic guided rectus sheath tunneling for peritoneum dialysis (PD) catheter insertion has been widely recognized. Rectus sheath tunneling was describes as a tangential passage of transmuural segment of the catheter tubing though the abdominal wall using a long musculofascial tunnel aiming to maintain pelvic orientation of catheter tip. Tunneling method was claimed to prevent tip migration, leakage and hernia. Open technique of PD catheter insertion is the standard surgical technique in Thailand, but it had higher incidence of catheter outflow dysfunction, compared to laparoscopic technique. The study aims to demonstrate technique of rectus sheath tunneling by using open PD catheter insertion.

Materials & Methods: Seven end stage renal disease (ESRD) patients who aged range from 45 to 82 years were included in this study. All open laparotomy technique was performed under local anesthesia. Firstly, three to four centimeters midline incision was done at suprapubic region for abdominal cavity entering. Catheter tip was inserted caudally into the pelvis by using guide wire. The second, one to two centimeters paramedian incision was made inferirolateral to umbilicus (figure 1). The long rectus sheath tunneling started from preperitoneal layer at suprapubic incision by the tunneler (Faller stylet) and attached PD catheter. The spike of the tunneler was advanced through a cephalic directed, passed through rectus muscle and curved trajectory toward small paramedian incision (figure 2, 3). Deep cuff was placed beneath the anterior rectus sheath and exit site was performed by tunneler at pre-marked site. Superficial cuff was adjusted into subcutaneous layer (figure 4). All surgical wound were checked and closed layer by layer.

Results: The operative time ranged from 30-40 minutes. There are no intraoperative and postoperative complication. Post-operative imaging confirmed catheters tip in pelvic cavity and catheter were functioning well in mean follow-up at 6-8 weeks.

Image:
Conclusion: This new simplified technique using a rectus sheath tunneling in open PD catheter insertion could improve PD catheter insertion outcome by prevention of catheter tip migration and pericannular leakage. 

Disclosure of Interest: None declared
Introduction: The objective of this study was to determine the outcomes associated with the endoscopic removal of foreign bodies (such as mesh or permanent suture) in the abdominal wall after hernia surgery with the 980nm diode laser.

Materials & Methods: A retrospective chart review of 15 consecutive patients found to have mesh or suture exposure was performed. All patients underwent endoscopic laser ablation using dedicated laser devices through a 3 mm laparoscopic port. Primary endpoint was removal of implanted mesh by laparoscopic mapping of exposed mesh. Secondary endpoints were resolution of previous symptoms, surgical time, recovery and complications.

Results: Between February and December 2016, 15 patients underwent 980nm diode laser ablation or removal of exposed mesh or suture in the abdominal wall. Presenting symptoms included recurrent hernia, pain, adherences to the mesh. 9 patients have an IPOM mesh repair, while 5 had a preperitoneal approach and 1 a hiatal hernia repair. One patient (6.6%) had residual mesh after the first procedure, which required a conversion to open procedure. Only minor postoperative complications were observed (hematoma in the zone of mesh removal in 2 patients -12.2%>.

Resolution of symptoms was complete in all patients. Surgical time was slightly increased (15% of total time compared to regular energy devices).

Conclusion: Endoscopic mesh removal with laser laparoscopic surgery has good success rates and minimal morbidity.

Introduction: Liposarcomas represent one of the most common subtypes of soft tissue sarcomas (STS) with 24% of the cases occurring in the extremities. The 5-year survival rates for localized liposarcomas varies from 75% to 91% with histologic grade as the most important prognostic factor.

Materials & Methods: We retrospectively reviewed 48 patients diagnosed with localized liposarcomas between 2010-2013. Statistical analysis was performed using the SPSS. Demographic, histopathological characteristics and survival rates were determined.

Results: The sample consisted mainly of men (54.2%) with a mean age of 59.5 years. The vast majority of the lesions were located in the lower limb (85.4%) with a deep localization in 91.7% of the cases. The mean size of the lesions were 13 cm with 64.6% of patients having lesions greater than 10 cm. Neoadjuvant radiotherapy was performed in 8.3% cases. Limb-sparing surgery was performed in 97.9%. Disease-free margins (R0) were reported in 73.9%. High grade malignancy lesions represented 43.8% of the cases. The local recurrence rate was 4.2% and no predictive factor was identified.

The overall survival at 5 years was 95%. The disease-free survival and disease-specific survival rate at 5 years was 92% and 100%. In the univariate analyzes no prognostic factor was identified, however, patients with high-grade lesions presented a lower rate of disease-free survival.

Conclusion: In this study it was not possible to identify predictive factors of local recurrence, since the events were rare. The disease-free survival rate was 92%, which demonstrates a benign behavior of the majority of these neoplasms, especially in low-grade lesions. In this series and up to 5 years of follow-up, there was no death due to liposarcoma, so the disease-specific survival rate was 100% which is higher than the rates described in the literature.

Disclosure of Interest: None declared
UTERO-CUTANEous FISTULA FOLLOWING CESAREAN SECTION
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Introduction: Utero-cutaneous fistula is an extremely rare condition. Only a few case reports have been published on this topic. The communication of the skin surface with the uterine cavity usually occurs as postoperative complication. Herein, we report a case of utero-cutaneous fistula, which developed following lower segment Cesarean section (LSCS).

Materials & Methods: A 36-year-old woman had a LSCS performed two weeks earlier. The patient presented with fever and greenish discharge from the wound for two days. On examination, the abdomen was soft and not tender. The scar of the LSCS showed a small opening discharging pus. Blood investigation has shown Hg 88 g/l, WBC 18.6 x10⁹/L, and CRP 179 mg/L (N<1). Ultrasound scan of the abdomen has shown a fluid collection measuring approximately 3x1 cm in the anterior abdominal wall adjacent to the surgical site.

Results: The wound was opened and pus was drained. Following two weeks of daily changing the dressing, secondary suture was performed. The patient continued to have yellowish discharge from the wound. The patient noticed that when she has her menstrual period the discharge becomes bloody. MRI of the pelvis has shown a utero-cutaneous fistula extending from the LSCS scar into the uterine cavity. Surgical excision of the fistula was performed. Post-operative period was uneventful. The patient was discharged home and the wound healed completely.

Conclusion: Despite its rarity, utero-cutaneous fistula should be suspected after Cesarean section if there is a bloody discharge from the wound during menstruation. Surgeons should be aware of such complication for proper investigations and early surgical treatment.

Disclosure of Interest: None declared
Introduction: We present a case of Sinonasal Renal Cell-like Adenocarcinoma (SRCLA) in a 56 year old male patient. This is a rare tumour that has been previously described as mimicking Renal Cell Carcinoma (RCC) and is distinguished by immunohistochemical analysis\(^1\). Literature has also shown a favourable prognosis for SCLRA, along with low recurrence rate following resection\(^2\).

Materials & Methods: Analysis of histopathological specimens in addition to radiological imaging. A literature review was also carried out.

Results: The patient presented initially at a peripheral hospital with epistaxis that was difficult to manage. At initial exploration a pulsatile polyp was identified in the right nasal tract, specimens were sent to histology. The patient was then referred to a tertiary centre, a staging PET completed and the tumour was identified as T4aN0M0. A lymph node at level II in the neck was determined to be reactive and not metastatic. Complete excision of the tumour was carried out via a lateral approach craniofacial resection.

Microscopically the tumour displayed sheets, islands and nests of epithelial cells with clear cytoplasm in the vascular stroma, similar to RCC. There was also focal duct formation, no necrosis was seen and few mitosis. PAS, PAS-D special stains confirmed the abundance of glycogen in the cytoplasm. Immunostaining showed the tumour expressed AE1/AE3, CK7, CAM5.2, S100, Vimentin and NSE. The proliferation index with Ki67 was <5%.

Resection was complete and post operative radiotherapy was deemed unnecessary by the MDT.

Conclusion: The morphology and the immunoprofile were consistent with a low grade SCLRA. A year following resection the patient has made a good recovery and returned to work. His only symptom is continuous crusting of the nose, for which he requires frequent nasal douching. Follow up imaging 1 year after resection has shown no sign of recurrence and there is no evidence of metastatic spread.


Disclosure of Interest: None declared
Introduction: The improvement of the provided medical care implies the evaluation of medical interventions and their effects on the patient. The proper care requires the prior assessment of the patient at risk of postoperative morbidity.

Materials & Methods: A prospective recording of the patients admitted to the 1st Propaideutic Surgery Department of the University of Athens from September 2015 to June 2016. The present illness, the medical record, the management and the patient's outcome were recorded. 177 of these patients developed at least one complication, with a respective rate of 13.6%. A retrospective analysis using the Statistical Package for the Social Sciences (IBM, SPSS, version 23.0) was conducted to detect possible factors related to complication occurrence. For all statistical tests, a P value <0.05 was considered significant.

Results: The following factors were found to be significantly related to complication occurrence: Complexity of Surgery (p<0.001, V=0.208), Postoperative Care Level (ward vs ICU) (p<0.05, φ=0.199), Surgical Approach (Open vs Laparoscopic) (p<0.001, φ=0.172), Pathophysiology of the Disease (Neoplastic or not) (p<0.001, φ=0.113), Diabetes Mellitus (p<0.05, φ=0.085), Sex (p<0.05, φ=0.079). We also noticed a significant difference concerning the postoperative hospital stay (p<0.01, ρ=0.344).

Disclosure of Interest: None declared

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Conclusion: Postoperative morbidity in the surgical patients is related to several factors regarding their illness, their comorbidities and the surgical management. The development of statistical models to anticipate postoperative complications is considered crucial in order to assess the quality of the provided surgical care.
Introduction: Tumours of soft tissues are rare and paratesticular liposarcoma occurs very rarely compared with other sites of soft tissue tumours

Materials & Methods: A 59-year-old male visited a general surgeon in December 2015. The main complaint was the enlargement of the scrotum in the past four months, particularly on the right side with minimal scrotal pain. The patient reported no trauma and no history of orchitis.

In order to specify the diagnosis, a computer tomography exam was performed, which showed a normal bilateral structure of the testes; an encapsulated mass sized 7.6 cm x 6.5 cm was seen behind the right testis, containing components of fat tissue and cloudy lightly contrasting soft tissue. The finding suggested primarily a fat-containing tumour. Thoracic and abdominal organs appeared normal.

Results: Under general anaesthesia, an incision was made on the raphe scroti. The right testis and the mass were luxated out and gradually freed. Examination revealed a stone-hard mass the size of approximately one and a half fists. The right testis was closely joined with the mass. The decision was made to perform a right orchiectomy and funiculectomy with the removal of the mass. The funiculus was freed on the level of the external opening of the inguinal canal, penetrated and ligated with non-absorbable sutures. The specimen was removed. A latex drainage was left in the scrotum. The wound was closed in layers with absorbable sutures. Wound dressing was applied.

Histological report - morphologically paratesticular atypical lipomatous tumour, WHO G1. Resection margins clear.

Conclusion: According to the decision of the oncological multidisciplinary team, a medical oncologist will be consulted to decide the need for adjuvant chemotherapy.

Paratesticular atypical lipomatous tumours are very rare and the treatment is surgical en bloc removal.

Disclosure of interest: None declared
Introduction: Medical students, interns, and trainees are frequently encouraged or even required to do research projects. Often no formal instruction is offered to prepare these learners in choosing a project, doing background literature searches, obtaining ethics review board approval, implementing the proposal, presenting the findings in a formal setting, and ultimately writing up the results and submitting for materials and methods.

Materials & Methods: Under the encouragement and guidance of the Medical Education and Research Director (MERD) of Kijabe Hospital who wanted to create “a culture of research”, a basics of research curriculum was developed for medical personnel with no previous experience in designing, implementing, and presenting results of research projects. The curriculum included the following topics:

- Asking a pertinent, researchable, and clinically-relevant question
- How to perform a literature search
- Where to find open-source full-text articles
- How to read a scientific paper
- Basic terminology of research
- How to write the paper and perform proper bibliographical formatting
- Oral and electronic presentation principles
- Research ethics, the Institutional Ethics Review Board, and human subjects training
- Examples of on-going and completed research projects in this institution (Kijabe Hospital)
- Brainstorming of quality-improvement challenges within the hospital suitable for QI projects

Results: Aimed at medical officer interns (first year out of medical school) and clinical officer interns (first year after training program) but open to any interested hospital personnel, the 14-session course consisted of weekly one-hour classes led by the MERD, two surgeons, and a librarian/medical educator from September to December 2016. The participants were encouraged to choose a mentor and work on project such as quality improvement or a case report.

Conclusion: The impact of the curriculum will not be known for several months or even longer. As projects are submitted to the Kijabe Hospital Institutional Ethics Review Board, the number of actual projects initiated will then be known.

Disclosure of Interest: None declared
DESIGN, DEVELOPMENT, AND EVALUATION OF A NOVEL LAPAROSCOPIC LASER DEVICE FOR MIS AND PEDIATRIC LAPAROSCOPIC SURGERY
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Introduction: A source of frustration during MIS (3mm port) laparoscopic surgery involves managing of sealing and thermic devices through the small ports and their anatomical limitations. We describe the development and testing of a novel laser device for the safe, minimal dimensions of 3mm laparoscopic port sites.

Materials & Methods: The study device consists of 3mm lavage-aspiration and laser fiber device. A systematic approach to develop the device started in May 2016 consisting of five consecutive steps. In step 1, 50 laparoscopic interventions (40 with 5mm and 10 with 3 mm trocars) were observed using subjective and objective measures to determine key indicators for the conception of a laser device for dissection, coagulation, cutting and aspiration or lavage in LS. In step 2, an expert workshop was held to find and evaluate solutions to generate concepts for a support system based on the results of step 1 and general methods. During the third step, prototypes of the laser device were tested in an experimental setting. Steps 4 and 5 are currently in process and include the final development of the laser device using the most promising concept for the evaluation during simulated LS.

In the dry lab, the researchers performed four typical laparoscopic tasks of increasing difficulty. Evaluation included performance times or number of completed tasks within a given time frame. All performances were videotaped and evaluated for unsuccessful attempts and unwanted interactions of instruments. Using subjective questionnaires, the participants rated difficulties with two-dimensional vision and coordination of instruments.

Results: Task performances were significantly better in the 3mm laser assisted group than in either regular laparoscopic 5mm group. The 3mm laser group showed a tendency toward better performances than the regular 5mm group, but the difference was not significant.

Conclusion: Although MIS and SILS are feasible, as shown in clinical series published by laparoscopically experienced experts, SILS techniques are demanding due to restrictions that come from energy devices that control bleeding or cutting. These can be compensated only partially by currently available SILS-designed instruments. The future of MIS and SILS depends on further improvements in the available equipment like laser devices or the development of new approaches such as lasers-needlescopedically-assisted.

Disclosure of Interest: C. Emparan Other Financial/Material Support from: Medical advisor, J. Insausti Ownership Interest of: Ansabere Surgicals
A NOVEL METHOD TO LEARN FROM MORBIDITY AND MORTALITY (M&M) CONFERENCES
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Introduction: The weekly departmental Morbidity and mortality (M&M) conference in our institution is designed to discuss the adverse events in clinical practice with the purpose to improve patient care. However, the discussion is mostly at a senior level. A weekly quiz was set up with the hope of improving resident learning from this platform.

Materials & Methods: The program director would select one of the discussed topics and a multiple-choice poll on the topic would be put onto the residency teaching website. Related papers would also be hyperlinked for further reading. This allows residents to participate and to read around the topic. Surveys were distributed to residents to assess their interest and satisfaction, perception of educational value, and efficiency with the poll.

Results: Survey response rate was 54.8% (23/42). Majority of the residents (65.2%) found the poll had improved the educational value of M&M. Eighteen (78.3%) residents indicated that they always participate in the poll. Common difficulties that encountered in the participation are: 1) Residents will forget to vote for the poll if no reminder sent out (50%); 2) Lack of further discussion about the quiz (27.3%).

In order to improve the educational value and participation rate for the poll, some improvements have been made. The hyperlinked papers would be discussed during resident teaching session in the following week, and a reminder was sent out after the poll. Significant improvement of participation has been observed after these modifications (P=0.002).

Conclusion: M&M poll has significantly improved the educational value of the M&M conference. Further discussion of the poll in the resident teaching sessions can improve the participation rate.

Disclosure of Interest: None declared
Introduction: Worldwide awareness programs for improvement of the quality of life of ostomates and those with related surgeries are established, but mostly in the western world. In the middle East due to religious and cultural reasons, but also due to lack of knowledge in the health professional group the quality of life for Ostomates is still poor.

Materials & Methods: A scientific program for stomaworkshops was organized, including anatomical, physiological and surgical related topics as well as quality of life concepts, followed by hands on training for ostomy item preparation and application.

Results: From 2014 until 2016 at Al Ain Hospital, UAE, 10 stoma care workshops took place. In total 190 nurses were participating and trained. The overall feedback resulted in excellent marks and more confidence in dealing with stoma patients. The knowledge about stoma products increased. The rate for peristomal dermatitis could be markedly diminished due to now correct placement for the ostomy items and the better education for the patients.

Conclusion: To support the patients right for an experienced professional medical support and stoma nursing care stoma workshops are an excellent tool. In the Middle East a start has now been made, but there is still a long way to go.

Disclosure of Interest: None declared
AN EPIDEMIOLOGICAL STUDY FOR PREVENTING DELAYED DIAGNOSIS OF CANCER: MAIN PROBLEMS IN TREATMENT INITIATION AND SOLUTIONS
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Introduction: Early diagnosis and timely initiation of treatment of cancer patients may improve survival and quality of life. Delayed diagnosis is a major contributing factor to the India’s lower cancer survival compared to developed countries. In the India, there is a significant national variation in early cancer diagnosis. Healthcare providers can offer an insight into local priorities for timely cancer diagnosis. The study proposes to measure total duration between onsets of symptom to start of treatment into three components, namely primary, secondary and tertiary delays. We aimed to identify the main problems and solutions relating to delay cancer diagnosis.

Materials & Methods: This study was a cross-sectional study. Data was collected from patients admitted to the surgical wards of Department of Surgical Oncology, SMS Medical college, Jaipur, India during 2015-2016. A questionnaire format was developed for primary, secondary and tertiary delay. Gamma regression and quantile regressions at 25th, 50th and 75th percentile of each of the delays were used to determine related factors. A total of 300 patients were included in the analysis.

Results: The median tertiary delay was found almost two folds than the primary and secondary delays. Extremity cancer patients had longest and gastrointestinal cancer, breast and genitourinary cancer were observed shortest primary, secondary and tertiary delays. We identified a number of concrete problems and solutions relating to delayed diagnosis of cancer. Raising public awareness, patient’s education as well as better access to specialist care and diagnostic testing were seen as the highest priorities.

Conclusion: Many identified priorities were feasible, affordable and converged around common themes such as public awareness, care continuity and length of consultation. There is an urgent need and scope to reduce delay at each level primary, secondary and tertiary delay. Intervention studies are needed through information, education and communication/screening programs to reduce the diagnostic and treatment delays in cancer patients in developing country (India).

Disclosure of Interest: None declared
TRAINING MODEL FOR CAMERA GUIDANCE IN LAPAROSCOPIC SURGERY
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Introduction: Camera guidance in laparoscopic surgery has considerable influence on the surgical procedure and its outcome. It is mainly performed by surgical specialty trainees who have often not had structured training in this task. Well performed camera guidance can facilitate the performance of surgical steps, reduce the duration of operations and avoid complications such as injury to abdominal structures. Consequently, a standardized training model for camera guidance has been developed and evaluated by our working group.

Materials & Methods: The training model offers practical experience with maneuvering a laparoscope inside a training box. The box ‘Tübinger Camera Guidance Trainer’ contains a course of 38 two-dimensional barcodes which are arranged in different positions. These barcodes have to be scanned in a prescribed order by controlling the camera. The HTML software can only register barcodes centered in the horizontal plane and appropriately focused. Completion of the course requires precise handling. Participants progress through three levels of difficulty. An initial pilot study was carried out with 18 medical students (9 female, 9 male) who undertook camera guidance training. A questionnaire was applied both before and after the training assessing the participants’ experience.

Results: The evaluation showed that medical students appreciated the camera guidance teaching and declared a significant gain of practical competences. They also observed improved communication and team-working skills. Since 2013 we regularly offer training courses for first- and second-year surgical specialty trainees as well as medical students in their final year.

Conclusion: Camera guidance courses enable students and junior doctors to become more familiar with maneuvering a laparoscope. The practical skills gained in the training unit could result in better cooperation between surgeon and camera operator during minimally invasive surgery. Further work is required to implement objective assessment and measure performance after participation in our training course.

Disclosure of Interest: None declared
INDIAN ENDOCRINE SURGERY WEBSITES - IS IT ADEQUATE FOR PATIENT CARE?

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Introduction: At present patients including junior faculty, garner more knowledge through website rather than direct interaction with the consultant physician. We aimed at assessing whether Indian website about Endocrine Surgery matched with their counterpart abroad.

Materials & Methods: We identified two most searched Endocrine Surgery website worldwide and 10 endocrine surgery website maintained by trained Endocrine Surgeons (three years training leading to award of Superspeciality degree) from India. The website parameters and Number of hits, demographic data of website, rank and other parameters were assessed using professional website (www.Alexa.com). An Endocrine surgeon along with a technical website advisor rated the content, presentation and likes from a scale of 1 to 5 (1 - minimum score and 5 maximum score).

Results: We analysed 10 Indian and 2 website from outside India. Fisher exact test was used to test the association between websites (India/Abroad) and individual variables. Results show that there was no significant association Website (India/Abroad) and Thyroid facts, Parathyroid Facts, Adrenal, Pancreas, Photographs, videos, Publications, Landscape of website, Quality, Presentation of website, Number of views, Gender of person viewing the website and age group of person (p>0.05), while there was significant association with Post-operative advise as well as complications (p<0.05).

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Conclusion: Most parameters were comparable in both groups. But the complication rate was not available in many websites. Post operative advice was present in only few websites. The advantage of these website is that patient can gather much needed information and also save much of unneeded discussion with physician and also save on second consultation. Indian websites regarding endocrine surgery is comparable to other countries except the complications are not highlighted and post op advise not found.

Disclosure of Interest: None declared
COMPARISON OF TELE-PRESENCE SUIT VERSES CONVENTIONAL METHOD OF TEACHING DURING THYROID SURGERY PROCEDURES.

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Introduction: The traditional surgical training has involved the supervisor /chief surgeon to scrub and assist or at least present in the operating room to guide the young surgeon. But with the advent of newer technology and availability of tele presence suit we intended to study the difference in both the situations.

Materials & Methods: The endocrine surgeon observed the procedure done by trainees by traditional method and as well as using tele-presence for the procedure of hemi thyroidectomy. The various parameters were assessed including the skill of the operating person, the visual appeal in both the methods, Clarity of vision and the comfort level of the trainees.

Surgical Telepresence

One of the modular operation theatre (OT) was equipped with a custom made digital OT solution (Stryker iSuite®) and the other modular OT was equipped with indigenously designed low cost Kiosk connected with HD video camera mounted over a height adjustable camera stand to capture live surgical video. The network of the second OT was so designed to route the video traffic using the same router of the iSuite®

Results: 20 patients undergoing HT or using traditional method and 20 using tele-presence suit was evaluated. Both the groups had similar demographic profile. The magnified the visual appeal and the absence of supervisor facilitated both the supervisor and trainee.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group 1</th>
<th>Group 2</th>
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<tr>
<td>Age in years</td>
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<tr>
<td>Sex</td>
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<td>M 5 F 15</td>
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<td>Side</td>
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<td>Right - 2</td>
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<td>C-50 F-2 I-25</td>
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<tr>
<td>HPE in %</td>
<td>C-75 A-20 H-5</td>
<td>C-35 A-5 L-5</td>
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Image:
Conclusion: Telepresence shall aid in surgical training, however larger studies are needed
Disclosure of Interest: None declared
EXTRAORDINARY CASE WITH A URETERO-ILIAC ARTERY FISTULA – CURRENT DIAGNOSTIC AND THERAPEUTIC MANAGEMENT

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Introduction: Extraordinary links between the arterial & another luminal system are considered a challenge in their adequate diagnostic & therapeutic management.

Materials & Methods: Aim: Scientific case report with description of an individual who underwent a successful approach combining vascular-surgical & image-guided measures for a rare right uretero-iliac artery fistula based on personal clinical experiences, a selective literature research as well as a detailed discussion of current recommendations for diagnostic workup & subsequent therapy.

Results: Case characteristics: Admission of a 79-year-old patient with hematuria & bladder tamponade with known bilateral actinic ureteral strictures secondary to neoadjuvant radiochemotherapy followed by abdominoperineal rectum extirpation for a suprasphincteric rectal cancer (ypT3ypN0M0). Laboratory parameters revealed an anemia, transabdominal ultrasound showed bilateral urinary retention. Complementary CT scan did not demonstrate a manifest bleeding because of an intermittent hemorrhage.

Interventional measures: Initially, bladder hematoma was removed & ureteral catheters were changed. Due to an endoluminal bleeding of the right ureter, a combined vascular-surgical (access to the right femoral artery, finally desobliteration & intimal refixation at the right superficial femoral artery due to dissection) / image-guided approach (insertion of an Amplatz [AMPLATZER™Vascular Plug II; St. Jude Medical, Saint Paul, Minnesota, USA] into the right internal iliac artery and iliac stenting by a cross-over maneuver from the left femoral access site) was initiated despite no detection of an acute bleeding in the CT scan (but confirmation of an acute hemorrhage during cystoscopy from the right ureteric ostium).

Clinical course: Time-adequate stabilization of the patient with perinterventional treatment on the ICU and discharge on the 15th postinterventional day with no evidence for recurrent hemorrhage.

Summary: In the presented case, the promptly initiated (vascular-surgical and image-guided) hybrid operation was the absolutely indicated approach with best prospect for recurrent arterial bleeding with clinical manifestation of hematuria and hemorrhage within the urinary bladder due to a uretero-iliac artery fistula.

Conclusion: Today, the minimally invasive approach with stenting is the method of choice of the sequential and urgent management of the potentially life-threatening uretero-iliac fistula due to an arterial endoluminal bleeding and the possible hemorrhagic shock.

Disclosure of Interest: None declared
VASCULAR RECONSTRUCTION OF THE INTERNAL CAROTID ARTERY BY HYBRID VASCULAR GRAFT PROSTHESIS AFTER RADICAL EXCISION OF A VERY RARE MALIGNANT GLOMUS-CAROTICUM PARAGANGLIOMA

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Introduction: Neck tumours are challenging regarding the diagnostic and therapeutic management, in particular, in case of malignant growth and near relevant vessels to achieve R0 resection status for best prognosis.

Materials & Methods: The aim of this case report on a patient with a rare malignant tumour of the Glomus caroticum (paraganglioma) was to present the successful outcome of a demanding interdisciplinary surgical approach (otorhinolaryngology and vascular surgery) because of a necessary surgical re-intervention due to malignant tumor growth (detected in the histopathologic investigation of the first specimen) including vascular resection using a hybrid graft for vascular reconstruction of the internal carotid artery near the skullbase.

Results: Case: A 38-years old male patient underwent diagnostics (magnetic resonance angiography und digital subtraction angiography) to clarify diagnosis of a tumour at the right neck, which was preoperatively embolized and subsequently resected including vascular reconstruction using a prosthetic interponate (7 cm; W.L. Gore GmbH, Putzbrunn, Germany) between common and internal carotid arteries - histology: malignant paraganglioma of 40 mm in diameter with cancerous haemangiosis et lymphangiosis prompting to re-operation (neck dissection [level II, III, IV, V] and novel vascular reconstruction using Gore® Hybrid Vascular Graft prosthetic stent [W.L. Gore GmbH] as interponate because of the short extracranial stump of the distal internal carotid artery near the skullbase and to limit clamping time). Early postoperative outcome revealed no complications; after 12 months, there were no signs and symptoms of recurrent tumour growth.

Conclusion: Extended resections – if necessary including vascular (arterial) segments aim at achieving R0 classification as shown in this extremely rare and usually challenging malignant tumour lesion. Hybrid vascular prostheses are suitable for time-saving vascular reconstruction to reprovide sufficient blood supply.

Disclosure of Interest: None declared
ASYMPTOMATIC SPONTANEOUS INFRARENAL AORTIC DISSECTION: A VERY RARE ENTITY

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Introduction: Spontaneous isolated dissection of the infrarenal aorta is a very rare presentation (about 2% of all aortic dissections): of the circa 70 worldwide cases that can be found in the literature, only 25% are asymptomatic. Most cases present with pain in the lower abdomen, the loin or with acute ischemic syndromes of the involved bifurcation, and obviously need rapid diagnosis and treatment.

Materials & Methods: We present the case of a 49 year old woman in whom we accidentally found the dissection of her infrarenal aorta while she had her oncologic follow-up CT scan 3 years after a left hemicolectomy for sigmoid cancer. On the precedent imaging (regular CT scan and MR during the years before), the aorta had always been completely normal and there where no signs like arteriosclerosis or kinking that could have explained the now encountered pathology. She was completely asymptomatic. The patient did not have any trauma in her past, nor does she present Marfan's syndrome, coarctation of aorta, cystic medial necrosis or recent pregnancy. The ligature of inferior mesenteric artery 3 years before is the only possible "iatrogenic" cause, but remains very improbable.

Results: We review the literature up to date, furnishing a complete radiologic presentation of initial findings and monthly follow-up Duplex, as well as CT scan at 6 months, during our conservative approach of this case and discuss the possible treatment options (open versus endovascular). To our knowledge it is the only conservative management of this pathology.

Conclusion: Inferior abdominal quadrant pain can present with some unusual diagnosis that should be kept in mind. Asymptomatic aortic dissection does exist and if it involves the infrarenal aorta only, probably not always needs an aggressive treatment.
References:
3. Venyo AK. Spontaneous isolated dissectioning infra-renal abdominal aorta in a 33-years-old man, presenting as left loin to left iliac fossa pain and acute retention of urine: a case report with a review of the literature. WebmedCentral UROLOGY 2011;2(1):WMC001474

Disclosure of Interest: None declared
CREATING A DISTAL LANDING ZONE AT THE JUXTACOEILIC AORTIC SEGMENT PREPARING ENDOVASCULAR REPAIR (EVAR) OF A THORACOABDOMINAL AORTIC ANEURYSM (TAAA)

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Introduction: Endovascular repair (EVAR) of the thoracoabdominal aortic aneurysm (TAAA) – to utilize the advantage(s) of a minimally invasive approach – is partially very challenging, in particular, with regard to the arterial branches and prevention of an endoleak as well as to warrant an adequate landing zone.

Materials & Methods: Aim: Case report on the challenging minimally invasive, e.g., endovascular approach to a TAAA by creating a distal landing zone at the supra- and juxtacoeliac aortic segment.

Results: Case presentation: Report on a 69-years old female patient with a TAAA (Crawford I) with a maximal transversal diameter of 59 mm. Medical history was significant for a previous open aortic repair of an infrarenal aortic aneurysm by implantation of a prosthesis and a severe chronic pulmonary disease (COPD).

Interventional measures: Intraarterial angiography did not reveal a stenosis of the coeliac trunk and a short distance to the bifurcation and down to the branch of the superior mesenteric artery. By means of occlusion test at the coeliac trunk using a balloon catheter and simultaneous mesentericography - direction of blood stream within gastroduodenal artery went into reverse reaching splenic artery segment. Therefore, coeliac trunc was embolized using Vascular-Plug 2 placed within splenic artery because of a very short segment of the coeliac trunc and its aneurysmatic dilatation (final control imaging: regular perfusion of the arterial branches of the coeliac trunk) and implantation of the stent prosthesis.

Clinical course: Postoperative contrast-enhanced CT scan on the 4th postinterventional day revealed a regular perfusion of the stentgraft prosthesis with no detectable endoleak (splenic infarction could be excluded), superior mesenteric artery and hepatic arteries.

Summary: By means of interdisciplinary collaboration of endovascular surgeon and interventional radiologist, a distal landing zone for the subsequent EVAR (stent prosthesis) was provided avoiding extended surgical trauma and invasiveness as well as preventing endoleak in a high-risk patient.

Conclusion: Combined, mostly interdisciplinary vascular medical measures allow to extend spectrum of options for EVAR and, simultaneously, reduce rate of early postinterventional (perioperative morbidity of open surgery) and long-term complications (endoleak, stent migration etc.).

Disclosure of Interest: None declared
A RARE CASE OF COELIAC ARTERY TRUNK THROMBOSIS POST AAA REPAIR. A CASE REPORT TO REVIEW.

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Introduction: Coeliac artery trunk thrombosis is a rare complication of acute abdomen. It is rarer when the patient had abdominal aortic aneurysm repair. Thrombosis of the celiac artery carries a high mortality and morbidity when the diagnoses and treatment are delayed.

Previous literatures mentioned the management of coeliac artery occlusions together with abdominal aortic anerysm repair, whether it be open surgery or endovascular approach, however no reported case of coeliac artery thrombosis as a complication post abdominal aortic aneurysm noted.

Materials & Methods: We are reporting a case of a rare complication of coeliac trunk thrombosis post abdominal aorta aneurysm repair. This patient presented to Hospital Kuala Lumpur initially for symptomatic abdominal aorta aneurysm in 2015. Subsequently we proceeded with an open repair and was successful. Patient was well and discharged home. However in July 2016, patient came to emergency department with recurrent upper gastrointestinal bleed. Hemodynamically patient was stable. Repeated scope was done however no obvious source of bleeding, hence we proceeded with laparotomy.

Results: Laparotomy, total gastrectomy with Bilroth II was performed. Intraoperatively noted ischaemic stomach which suggest coeliac trunk thrombosis. Blood loss was minimal. Post-operatively patient was closely monitored in ICU. However after a few days, patient died because of severe sepsis.

Conclusion: Coeliac artery trunk thrombosis post abdominal aortic aneurysm repair is a rarely observed abdominal emergency, it has a high mortality rate. This requires high index of suspicions as delay in management can lead to mortality.


Disclosure of Interest: None declared
THE ANALYSIS OF POLYPROPYLENE MESH CONTAMINATION FREQUENCY AND INFLUENCING FACTORS AFTER INGUINAL HERNIA REPAIR

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Introduction: Mesh infection is a devastating complication for both: a surgeon and a patient. Hypothetically mesh contamination should correlate positively with mesh infection. The aim of the study was to evaluate the frequency and influencing factors of polypropylene mesh contamination.

Materials & Methods: In the prospective study, personally operated patients with inguinal hernia during a three-year period were enrolled, who were divided into two groups whether skin protection with incision drape was done or not done. All patients before surgery received antibacterial prevention (Cefazolin 2 g or Cefuroxime 1.5 g). In both groups swabs for culture were taken twice: before incision from the disinfected skin and from the mesh just after implantation before the wound closure. Additionally to the swabbing results, possible mesh contamination risk factors were collected and analysed in binary logistic model: duration until mesh implantation, assistant status (medical student, rezident, surgeon), nurse, operating room.

Results: The full data for analysis were obtained from 162 patients. Incision drape was applied in 78 (Group 1) and not applied in 84 (Group 2) of patients. The skin contamination was detected in 34 patients (20.99%) with no significant difference between both groups. Skin contamination was strongly associated with positive mesh swab p<0.01. The frequency of the mesh contamination was in 22 patients (28.21%) from Group 1 and in 40 patients (47.62%) from Group 2, with no statistically significant difference between groups (Fisher’s exact test 0.09). In the most cases, growths of commensal bacteria that were susceptible to cefazolin and cefuroxime, predominantly Staphylococcus epidermidis, were found.

None of other factors, such as duration until mesh implantation, assistant status, nurse, operating room, had statistically significant impact on the mesh contamination.

During the 3 months long observation period neither superficial nor mesh infection was observed in all patients.

Conclusion: The frequency of mesh contamination is surprisingly high despite prevention activities, fortunately with no significant impact on surgery outcome. Antibacterial prevention possibly plays an important role in the prevention of the mesh infection.

Disclosure of Interest: None declared
PREOPERATIVE SCREENINGS FOR ELECTIVE ORTHOPAEDIC SURGERIES – A CLOSED LOOP AUDIT

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Introduction: A May-June 2015 audit observing current preoperative blood tests practices by foundation doctors of the Orthopaedic Department in a teaching hospital showed that 24% of patients had unjustifiable tests done; a wastage of £65.22 during that one-month audit period amounting to £782.64/year. Since then, foundation doctors have been briefed to only repeat bloods if they were abnormal or more than 3 months old1. Our aim was to monitor the elective preoperative blood tests practices by the foundation doctors in our trust since the induction briefing.

Materials & Methods: All elective orthopaedic cases from September-October 2015 were reviewed prospectively. The data collected included: Patient demographics, Co-morbidities, American Society of Anaesthesiologists’ (ASA) score, Surgical severity, Blood results on Pre-Assessment Clinic, Between Pre-assessment and Day of Surgery and Day of Surgery. Blood requests are justified based on the period between the most recent bloods to the day of surgery and the appropriateness of tests2, 3.

Results: The audit included 46 females and 33 males, mean age of 56 and BMI of 28.4kg/m². 56% of patients had an ASA score of 2 and 50% had a Surgical Severity of 4 (Arthroplasty). The average waiting days from pre-assessment to the day of surgery were 82 days. Only 14 patients required additional FBCs and U&Es on admission.

Conclusion: Overall, there were improvements in the requests for preoperative bloods. However, the high number of unnecessary FBCs and U&Es implies that more teaching is still warranted to ensure good clinical practice by foundation doctors.


Disclosure of Interest: None declared
Introduction: Chest trauma is the third most frequent cause of death in trauma. Blunt thoracic vascular injuries are rare and account for less than 5% of all traumatic vascular injuries. The true incidence is likely to be underestimated, as many victims die prior to arriving at the hospital. Of those alive on hospital admission, aortic trauma accounts for the majority of blunt thoracic vascular lesions. Traumatic rupture of internal mammary artery is rare and according to the literature no cases of combined aortic and IMA lesion after a blunt chest trauma were described.

Materials & Methods: Case report

Results: This is a case report of a 76-years-old male admitted to hospital after a fall from 2.5 meters. On the arrival he was hemodynamically stable with an increased respiratory rate. He accused diffuse thoracic pain. During the examination, the patient became hypotensive and tachycardic. The chest X-ray showed an important enlargement of the mediastinum (figure). A complete body CT-scan showed a large mediastinal hematoma with active bleeding from the right internal mammary artery. The ascending aorta showed a small pseudoaneurysm in the distal ascending portion and wall thickening of the arch as for hematoma. There were associated serial fractures of ribs and multiple vertebral bodies as well as the sternal body. The patient underwent emergency angiography that showed no active bleeding from the internal mammary artery. As the further course was complicated by respiratory failure, pneumonia as well as pulmonary embolism, vertebral fracture stabilization had to be deferred. Later, staged repair for the aortic wall injury was performed with an open replacement of ascending aorta and a single aortocoronary bypass. The further postoperative course was uneventful.

Image:

Conclusion: This case highlights the complexity of a multidisciplinary approach in blunt thoracic injury in an elderly patient. It further describes a rare combination of an ascending aortic pseudoaneurysm with internal mammary artery
injury both contributing to a large mediastinal heamatoma visible as an enlargement of the latter on conventional chest x-ray.

Disclosure of Interest: None declared
A PROPENSITY MATCHED COMPARISON OF ROBOTIC AND LAPAROSCOPIC ADRENALECTOMY
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Introduction: Data on comparison between robotic (RA) and laparoscopic adrenalectomy (LA) are scant and also flawed, as most studies were performed while surgeons were still within the learning curve of the newer robotic approach. The aim of this study is to compare perioperative outcomes of RA and LA at a high-volume adrenal surgery center with a long-standing robotic and laparoscopic program.

Materials & Methods: Between 2000 and 2015, 156 patients underwent RA and 188 patients LA. Propensity score analysis was used to successfully match LA patients to RA patients based on tumor size (within 1 cm), approach (lateral transabdominal vs posterior), body mass index (BMI: within 5 kg/m²), pathology and presence or absence of adhesions. Perioperative outcomes were compared using Chi square and t-test.

Results: Fifty-one patients each were matched into RA and LA groups. Demographics, diagnosis, tumor size and side, approach, BMI and presence or absence of adhesions were equal between groups. Conversion to open rate (1% vs 1%), estimated blood loss, hospital stay (1.2 vs 1.2 days), post-operative pain and complications (1% vs 1%) were similar between the RA and LA groups (p>0.05). Mean ± standard error of the mean operative time (OT) was 161±7.5 minutes for LA and 141±6.6 minutes for RA (p = 0.05).

Conclusion: This study shows that RA may be performed with a safety and efficacy similar to LA by experienced surgeons. The results also demonstrate a 20-minute reduction of OT with the robotic approach, which we believe was attributable to a superior dissection ability achieved with a more stable surgical platform and articulated instrumentation.

Disclosure of Interest: None declared
Catecholamine Induced Cardiomyopathy in Patients Undergoing Resection of Pheochromocytoma

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Introduction: Catecholamine-induced cardiomyopathy (CC) is a rare complication of pheochromocytoma (PCC). Published literature to date is limited to case reports and small case series. We aimed to assess the clinical course and outcomes of CC in patients undergoing resection of PCC at a tertiary care center.

Materials & Methods: Retrospective analysis of patients with resected primary, recurrent and malignant or benign PCC from 1996-2016 was performed. The electronic medical record was reviewed to identify patients with CC and obtain clinical data including demographics, clinical presentation, echocardiographic findings, biochemical investigations, medical and surgical management, and overall outcomes. Patients with cardiomyopathy other than catecholamine-mediated were excluded.

Results: Of 442 patients undergoing resection of PCC, 8 (1.8%) presented with CC preoperatively. Median age of patients with CC was 46 years (±12). PCC associated symptoms were present for a median of 45 days (2-1460) prior to presentation with CC. Systolic or diastolic ventricular dysfunction was present on echocardiogram in all patients, with a median left ventricular ejection fraction (LVEF) of 29% (10-72%). All 8 patients had imaging consistent with PCC, with median tumor size 4.5 cm (3.5-26) and 24-h urinary total metanephrines elevated (median of 12,000 mcg/24h; 6,100-76,400). All patients received medical preparation prior to surgery with alpha- and beta-adrenergic blockade; 3 patients additionally receiving metyrosine. Patients underwent adrenalectomy a median of 29 days (3-1511) following initial presentation with cardiomyopathy. Three patients underwent open operation, 2 laparoscopic, one retroperitoneoscopic, and one laparoscopic bilateral adrenalectomy. One patient with recurrent retroperitoneal disease was managed with alpha- and beta-adrenergic blockade for 5 years prior to open resection. Cardiac function improved following treatment in all cases: 4 patients demonstrating normalization of EF and no regional wall motion abnormalities (RWMA) preoperatively while on medical therapy, 1 patient with normalization of LVEF and no RWMA at follow up, and 3 patients with improving LVEF and RWMA at follow up. None required cardiac transplant.

Conclusion: CC secondary to PCC is a rare complication. Patients should be medically managed in preparation for elective operation. Our series suggests that cardiac function will improve after medical preparation and resection of PCC.

Disclosure of Interest: None declared
PE054
SURGERY FOR ADRENAL METASTASES: A TERTIARY REFERRAL CENTER EXPERIENCE
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Introduction: Metastases to the adrenal gland are a relatively common finding in neoplastic patients and represent an end-stage disease; however, improved survival rates after adrenalectomy in selected groups of metastatic patients have been recently reported. However, most experiences include only few cases or include heterogeneous multicentric series. This study was aimed to evaluate the main features of adrenal metastases and the results of adrenalectomy in a single center series.

Materials & Methods: A retrospective study analyzing the records of 79 patients with adrenal metastases submitted to adrenalectomy at a tertiary referral center was conducted.

Results: The most common primary tumor site was the lung (36.7%), followed by kidney (19%), colon-rectum (16.5%) and liver (8.9%). The adrenal metastases were symptomatic in 20.3% and isolated in 58.2%. Metastases were metachronous in 75.9% of cases and the mean disease free interval (DFI) after the treatment of primary tumour was 35.5 months. Laparotomic adrenalectomy was performed in 59 patients; the remaining 20 patients underwent a transperitoneal laparoscopic approach. Microscopically negative margins on final pathology (R0 resection) were achieved in 51.9% of cases. Post-operative morbidity occurred in 24.3% of patients. The mean overall survival (OS) was 33.8 months (range 0-149) and the mean disease free survival (DFS) was 13.8 months (range 0-91). Factors predicting a longer OS were: primary kidney tumor, absence of previous relapses, R0 resection and tumor size smaller than 6.5 cm. There were no significant differences between open and laparoscopic adrenalectomy concerning demographics, tumor size, operative time, R0 resection (52% vs 50%), postoperative morbidity (27% vs 15%), DFS (14.2 vs 12.6 months) and OS (33.9 vs 33.6 months); post-operative length of stay was significantly lower after laparoscopic adrenalectomy than laparotomic adrenalectomy (4.2 days vs 8.9 days; p=0.001).

Conclusion: Metastases to the adrenal glands indicate a late-stage cancer with poor prognosis; however, adrenalectomy may play a role since it may achieve a relatively prolonged long-term survival in selected patients. Laparoscopic adrenalectomy may be equivalent to laparotomic adrenalectomy in terms of safety and oncological outcomes in selected patients, and provides the additional benefits of a shorter post-operative length of stay and potentially increased quality of life.

Disclosure of Interest: None declared
 DOES THE QUANTITY OF PERI-ADRENAL FAT PREDICT A DIFFICULT LAPAROSCOPIC ADRENALECTOMY?
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**Introduction:** It is anecdotally accepted that a greater quantity of peri-adrenal fat (PAF) may predict a difficult laparoscopic adrenalectomy. There are no studies to support this dogmatic edict. Furthermore, while fat redistribution can occur with Cushing syndrome (CS), it is unclear whether the quantity of PAF is greater in CS compared to patients without evidence of autonomous glucocorticoid production.

**Materials & Methods:** All patients who underwent planned laparoscopic unilateral adrenalectomy between the years 1994-2016 for benign neoplasms including: CS, subclinical CS (SCS), aldosteronoma (Aldo), and non-functioning (NF) adenoma. Patients who underwent adrenalectomy for adrenocortical carcinoma, pheochromocytoma, and those with bilateral adrenalectomy, and those without CT imaging to quantify PAF were excluded. PAF was quantified by CT modeling and groups were subdivided according to quantity of PAF as low vs high quantity (<30 cm²/CT slice vs >30 cm²/CT slice). Primary end-points included operative time (OT), estimated blood loss (EBL), need for conversion to open, morbidity utilizing Clavien Dindo scores, and length of hospital stay (LOS).

**Results:** We identified 228 patients who met inclusion criteria of which 124 were female and average age of 51 years (range, 22-75). PAF was >30cm² in 135 patients, and <30cm² in 93 patients. There was no difference between groups with regard to age, sex, side of operation or size of neoplasm. BMI was greater in the high quantity PAF group (34 vs 29 kg/m², P=0.003). Patients with PAF >30cm² had longer OT (103 vs 74 min, P=0.007); EBL, conversion to open, morbidity, and LOS were similar between groups. On subgroup analysis based on biochemical functionality (Aldo=140, CS/SCS=60, nonfunctioning=28), there were no differences between groups with regard to age, sex, BMI, and side of operation. PAF was similar between groups (Aldo=35cm², CS/SCS=38cm², NF=40cm²) (P=0.1). Patients who underwent adrenalectomy for CS/SCS had greater 30 day morbidity based on Clavien Dindo Score (Aldo=2, CS/SCS=6, NF=2) (P=0.001).

**Conclusion:** Quantity of PAF correlates positively with OR time but does not predict EBL, risk of conversion to open operation, morbidity, or LOS in patients undergoing laparoscopic adrenalectomy for benign adrenal neoplasms. Furthermore, quantity of PAF does not correlate with biochemical functionality among neoplasms producing aldosterone or cortisol. However, patients undergoing laparoscopic adrenalectomy for CS/SCS may have greater morbidity for alternative reasons.

**Disclosure of Interest:** None declared
INTRODUCTION: Primary aldosteronism (PA) is associated with increased cardiovascular morbidity; recent studies have suggested also an increased prevalence of anxiety, depression and subnormal quality of life (QoL) that may be improved after surgical treatment. The aim of the study was to assess the impact of surgery on health-related QoL and depression status in patients suffering from PA and in a control group of patients with non-secreting adrenal tumors.

MATERIALS & METHODS: Demographics, blood pressure levels, adrenal hormonal secretion and data on QoL and depression status were prospectively collected during a 2 years period, preoperatively and after surgery at early (1 month) and long term follow-up (> 6 months) in patients with unilateral PA and in a control group of patients with non-secreting adrenal tumors. QoL was assessed using the Short Form 36 (SF-36) Health Survey for Physical (PCS) and Mental Component (MCS); the depression status was assessed by a 20-item depression scale (DS) questionnaire.

RESULTS: Twenty-six PA patients and 15 controls were recruited. All patients underwent unilateral transperitoneal laparoscopic adrenalectomy. No surgery-related morbidity occurred in both groups. Biochemical cure of PA was achieved following surgery in all PA patients; hypertension was cured in 31% and improved in the remaining 69% of cases. There were no significant differences between PA patients and controls concerning demographics, preoperative PCS, MCS and DS values. In PA patients, MCS values improved at early (42.7±13.7 vs 51.6±9, p=0.0005) and long term follow up (42.7±13. vs 51.8±7, p<0.0001); also DS values improved at early (15.9±12 vs 8.3±8.8, p=0.0002) and long term follow up (15.9±12 vs 4.6± 6.1, p<0.0001); PCS values significantly improved only at long term follow up (51±8 vs 55.8±5.1, p=0.013). In the control group, an improvement of MCS and DS scores was found at early and long term follow up compared to preoperative values, while no significant differences in PCS were found both at early and long term follow up.

CONCLUSION: Health-related QoL is affected in both PA and non-secreting adrenal tumors, with worsened MCS and DS scores. Adrenalectomy is effective in curing PA, and ameliorating QoL, improving MCS and DS scores at early and long-term follow-up in PA patients. Similar results may be found also in non-secreting adrenal tumors, but in PA patients surgery significantly and specifically improves also PCS at long term follow up.

DISCLOSURE OF INTEREST: None declared
Introduction: Early diagnosis and treatment minimizes the progression of hypertension-mediated vascular damage in primary aldosteronism. Normograms have been developed to help predict hypertension cure following surgery (1,2,3). The aim of the study was to assess hypertension cure in endocrine hypertension following surgery using a Japanese normogram.

Materials & Methods: Retrospective cohort study of 79 patients who underwent adrenalectomy for endocrine hypertension. Demographic, pathological and treatment related details were collected. Hypertension cure was defined as a blood pressure of less than 140/90 mmHg without any antihypertensive drugs at 12 months postoperatively or at last follow up. The predicted cure rate was calculated using the normogram proposed by Utsumi et al.

Results: The mean age of the cohort 51.75 (±54) years with a male: female ratio of 1:1. The mean systolic BP preoperative was 142 (±22) mm Hg with 31 (30%) patients on a single class of antihypertensive medication, 41 (40%) on 2 classes and the 36 (30%) on 3 or more classes of drugs. Cure was achieved in 66 (84%) of patients, 5 (6%) with reduction in the number and dosage of medications. The probability of cure with laparoscopic adrenalectomy in this cohort using the normogram model was 45% and this is consistent with published series.

Conclusion: The Japanese normogram is fairly accurate in predicting hypertension cure in patients with primary aldosteronism. The achieved cure rate in this cohort is comparable to established series.


Disclosure of Interest: None declared
LONG-TERM OUTCOME OF A SINGLE INSTITUTION SERIES OF PATIENTS WITH SURGICALLY TREATED MALIGNANT ADRENAL TUMOR

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Introduction: Surgical treatment of adrenal tumors has evolved substantially over the past 40 years. However, non-surgical treatments for malignant adrenal tumors have not been fairly developed. Complete surgical resection is a treatment of choice for malignant adrenal tumor. We report long-term outcomes of patients with surgically treated malignant adrenal tumor.

Materials & Methods: This study is retrospective analysis operated at a single institution from 1979 to 2016. The patient was eligible for malignant adrenal tumor when the operation was primary, and macroscopic radical adrenalectomy was performed (R0 or R1). Those patients were excluded who had retroperitoneal miscellaneous malignancy involving adrenal gland, or malignant lymphoma treated as adrenal tumor. Adrenocortical carcinoma and metastatic carcinoma were confirmed by pathology. Malignant pheochromocytoma was defined when distant metastases were proved or combined resections of adjacent organs were necessary.

Results: There were 950 adrenal surgeries during the above period and 53 patients (5.6%) were eligible for the criteria. The patients were 13- to 73-year-old, median age was 52, and 25 males, 28 females. Adrenocortical carcinoma: 14 (Cushing and subclinical Cushing: 7, non-functioning: 7), pheochromocytoma and functioning paraganglioma: 19 (12 adrenal pheochromocytoma, 7 retroperitoneal paraganglioma), and metastatic adrenal tumor: 20 (primary site: lung 13, gastric 1, rectal 1, kidney 1, cervix 1, pancreatic islet cell 1, hepatic cell 1, uterine body 1). Median overall survival of all cases was 8.5 years; metastatic: 3.4, adrenocortical carcinoma: 10.8, pheochromocytoma: 12.7 years respectively. Combined resection was performed in 14 patients which include kidney, liver, pancreas, inferior vena cava, spleen, mesentery and colon.

Conclusion: Many patients with malignant primary adrenal tumor can be expected to have long-term survival after successful removal of the tumor. However, patients with metastatic adrenal tumor have shorter term than the others, so we need to carefully consider surgical adaptation for them.

Disclosure of Interest: None declared
Introduction: Although the prevalence of adrenal masses is ≈5%, only a minority undergo adrenalectomy. Our aim is to describe the clinical presentation, surgical indications, and histopathology of patients undergoing adrenalectomy.

Materials & Methods: Retrospective chart review of all adult patients who underwent adrenalectomy at Mayo Clinic, Rochester, between 2000 and 2014.

Results: Adrenalectomy was performed in 1240 patients (50.7% female, median age 54 years [range, 18-87]) for adrenal indications in 1090 (87.9%) patients (305 [28%] pheochromocytomas, 174 [15.9%] malignant tumors, and 610 [55.5%] benign tumors) and for non-adrenal reasons in 150 (12.1%) patients.

Benign adrenal tumors included: 130 (11.9%) non-functioning adenomas; 304 (27.9%) aldosteronomas; 104 (9.5%) cortisol-secreting adenomas; 5 (0.4%) androgen-secreting adenomas; 7 (0.6%) with multiple hormone excess; and 60 (5.5%) benign non-cortical adrenal lesions. Malignant adrenal tumors included 83 (7.6%) adrenocortical carcinomas and 91 (8.3%) other malignant tumors. Modes of adrenal mass discovery included: imaging incidentaloma in 487 (44.7%); hormonal excess in 459 (42.1%); cancer staging workup in 78 (7.2%); tumor mass effect in 34 (3.1%); monitoring due to known familial syndromes in 14 (1.3%); and constitutional symptoms in 10 (0.9%). Compared to patients with adrenal masses diagnosed non-incidentally, patients with adrenal incidentalomas were older (56±14 vs 52±14 years, \( P < 0.001 \)) and had a larger tumor sizes (4.5±3.1 vs 3.5±3.8 cm, \( P < 0.001 \)).

In comparison to patients with benign tumors and pheochromocytomas, patients with malignant tumors were older (57±15 vs 53±13 and 54±16 years, \( P = 0.01 \)), had larger tumor sizes (7±5 vs 3±3 vs 4±2.5 cm \( P < 0.0001 \)), were more likely discovered due to mass effect symptoms (12.1% vs 1.3% and 1.6%, \( P < 0.0001 \)), and were less likely to present with symptoms of hormonal excess (13.8% vs 53.6% and 35.1%, \( P < 0.0001 \)).

Over the 15 year study period, there were 83 adrenalectomies/year with a decreasing frequency of open procedures (33% in 2000 vs 13% in 2014, \( P < 0.001 \)).

Conclusion: Nearly 50% of our operated patients with adrenal masses were discovered incidentally. While 60% of adrenalectomies were performed for hormonally active adenomas or pheochromocytomas and 15% for malignant masses, a quarter of adrenalectomies were performed either for nonfunctioning benign adrenal masses or for non-adrenal reasons. The frequency of open surgery has decreased over the study period.

Disclosure of Interest: None declared
Introduction: Adrenal metastasectomy (ADMX) has been proven to be a safe procedure that can improve survival in selected patients. However, whether or not this procedure is utilized by all patients who can benefit from it has not been fully evaluated due to the rare incidence of the disease. The objective of this study was to evaluate possible socioeconomic disparities that may impact the utilization of this procedure and its clinical outcomes.

Materials & Methods: The Healthcare Utilization Project National Inpatient Sample was used to identify all patients who had adrenal metastases (ADM) and who underwent ADMX from 2007 to 2011. Patients were identified by ICD-9-CM diagnosis and procedure codes. Predictor variables evaluated included age, sex, race, medical comorbidities, median household income, primary insurance payer, surgeon and hospital characteristics. Primary outcomes evaluated included receiving an ADMX, and for the surgical cohort, same hospitalization mortality, length of stay (LOS), infection, blood transfusion, cardiac, pulmonary, and renal complications. Univariable and multivariable analyses were conducted to identify statistical associations.

Results: Over the study period, there were 32331 ADM and 1070 ADMX patients identified in the database. Despite similar comorbidities, Black patients were 0.348 (95CI:0.251, 0.482, p<.0001) times less likely to receive an ADMX compared to White patients. Moreover, Medicaid patients were 0.384 (95CI:0.282, 0.523, p<.0001) times less likely and private insurance patients were 1.273(95CI:1.084, 1.495, p=.0032) more likely to receive an ADMX compared to Medicare patients. Patients who went to rural non-teaching and low-volume hospitals were 0.274(95CI:0.112, 0.669, p=0.0472) and 0.316 (95CI:0.267, 0.374, p<.0001) times less likely to receive an ADMX, respectively. Of the 1070 ADMX cohort, there was no statistically significant association between socioeconomic characteristics and same hospitalization mortality or surgical complications.

Conclusion: Patients with ADM who are Black, on Medicaid, go to rural non-teaching and low-volume hospitals received significantly less ADMX compared to their counterparts despite having the same comorbidities. However,
health outcomes of patients with these socioeconomic characteristics are not significantly worse after surgery. Thus, increased health promotion is needed concerning ADMX among Black and disadvantaged patients.

Disclosure of Interest: None declared
COMBINED CAESAREAN SECTION AND OPEN ADRENALECTOMY IN THE THIRD TRIMESTER FOR PHEOCHROMOCYTOMA DIAGNOSED DURING PREGNANCY: A SINGLE CENTRE EXPERIENCE AND REVIEW OF THE LITERATURE

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Introduction: Pheochromocytomas and sympathetic paragangliomas (PPGLs) are rare catecholamine-secreting [AM1] tumours derived from the adrenal medulla or sympathetic nerve ganglia. PPGLs are a rare but important cause of hypertension during pregnancy with a reported mortality rate for mother and child of up to 50%, if undiagnosed. At Sahlgrenska University Hospital pheochromocytoma diagnosed during pregnancy have been treated with combined caesarean section and open adrenalectomy during the third trimester, after initial pre-medication with alpha-blockers. The aims of the present study were to (1) analyse our single centre experience and (2) review the literature to establish best practice recommendations for treating patients with PPGLs diagnosed during pregnancy. A secondary aim (3) was to evaluate oestrogen and progesterone receptor expression on pheochromocytoma cells as a potential mechanism for onset of symptoms.

Materials & Methods: Retrospective review and follow up of cases treated at Sahlgrenska 1967-2012. A literature search was performed. Time of diagnosis and surgery, treatment with alpha blockers, method of delivery and outcome for both mother and child were analysed. Immunohistochemistry was performed for oestrogen and progesterone receptors (ER/PR) in three cases and 207 controls.

Results: From 1967 to 2012 six cases of PPGLs diagnosed during pregnancy have been treated at our institution; an additional 180 unique cases were identified in the literature. Sixty per cent of reported patients were pre-treated with alpha blockers with no pre- or perioperative maternal mortality, versus 21.6% maternal mortality in non-treated women; total maternal mortality rate 8.6%. The total child mortality was 11.8%; 21.6% in pregnancies without alpha-blockade pre-treatment, versus 5.3 % with alpha blockade. There was no significant difference in mortality when comparing surgery during the first trimester of pregnancy with combined caesarean section and adrenalectomy in late pregnancy. No increased ER/PR expression was seen in cases or controls.

Conclusion: Combined caesarean section and adrenalectomy in late pregnancy is a safe therapeutical approach in patients with PPGLs, as is surgery during the first trimester. Early diagnosis and administering alpha-blockers is associated with better outcomes for mother and child. No evidence was found for ER/PR signalling as a potential explanation for onset of symptoms in pheochromocytoma diagnosed during pregnancy.

Disclosure of Interest: None declared
Introduction: Treatment for localized adrenocortical carcinoma (ACC) is surgical resection. Treatment for advanced disease is limited. For metastatic disease, an improvement in response to chemotherapy and progression free survival (PFS) has been shown when systemic mitotane is combined with cisplatin, etoposide, and doxorubicin. Phase I and II trials have demonstrated the effectiveness of heated intraperitoneal chemotherapy (HIPEC) and cytoreduction for peritoneal mesothelioma and ovarian malignancies. The purpose of this study is to determine if the use of HIPEC after cytoreduction leads to an improvement in PFS in patients with intraabdominal ACC metastases.

Materials & Methods: Inclusion criteria for this prospective case series consists of patients with histologically proven ACC primarily confined to the peritoneal cavity. Disease has to be deemed resectable on CT or PET imaging based on multidisciplinary discussion. Exclusion criteria include ECOG >2, brain metastasis, or active infection. After undergoing cytoreduction, a completeness of cytoreduction score of 0 or 1, HIPEC is initiated with 250mg/m² of cisplatin. For renal protection, sodium thiosulfate is administered. The IRB approved this study and enrollment began in April of 2016.

Results: To date, seven patients have been enrolled. The first patient underwent cytoreduction/HIPEC with no complications and had a 3 month PFS. The second patient was not adequately cytoreduced and did not undergo HIPEC. The third patient was cytoreduced but did not undergo HIPEC, as they had already received HIPEC therapy, and had a 7 month PFS. The fourth patient underwent cytoreduction (including nephrectomy and IVC reconstruction)/HIPEC complicated by renal failure with dialysis and failure to thrive requiring a gastrostomy tube with a 4 month PFS. The fifth patient underwent cytoreduction (including nephrectomy)/HIPEC complicated by renal failure without dialysis and colonic anastomotic leak requiring ileostomy diversion and died 11 months after surgery. The sixth patient underwent cytoreduction/HIPEC with no complications and a 3 month PFS. The seventh patient underwent cytoreduction/HIPEC with no complications or recurrence over 2 months.

<table>
<thead>
<tr>
<th>Pt</th>
<th>Date of Dx</th>
<th>Date of original surgery</th>
<th>Date of recurrence</th>
<th>HIPEC date (CC¹/ HIPEC)</th>
<th>Clavien - Dindo**</th>
<th>Recurrence s/p HIPEC</th>
<th>Progression Free Survival (to date)</th>
<th>Current Status</th>
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<tr>
<td>1</td>
<td>1/2015</td>
<td>4/2015</td>
<td>8/2015</td>
<td>5/2016 (CC 0/+</td>
<td>0</td>
<td>8/2016</td>
<td>3 months</td>
<td>Doxil</td>
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<tr>
<td>2</td>
<td>1/2012</td>
<td>2/2012</td>
<td>9/2012</td>
<td>8/2016 (CC 3/-</td>
<td>IVb</td>
<td>N/A</td>
<td>0</td>
<td>No chemotherapy</td>
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<td>2013</td>
<td>2014</td>
<td>5/2016 (CC 0/-</td>
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<td>12/2016</td>
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<td>Surveillance</td>
</tr>
<tr>
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<td>12/2014</td>
<td>3/2016</td>
<td>7/2016</td>
<td>8/2016 (CC 0/+</td>
<td>IVb</td>
<td>12/2016</td>
<td>4 months</td>
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<td>12/2015</td>
<td>1/2016</td>
<td>6/2016</td>
<td>9/2016 (CC 0/+</td>
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<td>N/A</td>
<td>2 months</td>
<td>Aspiration and withdrawal of care</td>
</tr>
<tr>
<td>6</td>
<td>10/2015</td>
<td>11/2015</td>
<td>6/2016</td>
<td>9/2016 (CC 0/+</td>
<td>0</td>
<td>12/2016</td>
<td>3 months</td>
<td>Radiation</td>
</tr>
<tr>
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<td>2/2010</td>
<td>8/2010</td>
<td>11/2010 (CC 0/+</td>
<td>None</td>
<td>2 months</td>
<td>2 months</td>
<td>Surveillance</td>
</tr>
</tbody>
</table>

*CC = Completeness of cytoreduction CC 0=no disease, CC 1=<2.5mm, CC 2=2.5mm-2.5 cm, CC 3=>2.5cm

**Clavien-Dindo Classification of Surgical Complications:
I: Any deviation from the normal course without pharmacologic treatment or intervention
II: Requires pharmacologic treatment
IIIa: Requires surgical, endoscopic or radiologic intervention without general anesthesia
IIIb: Requires surgical, endoscopic or radiologic intervention with general anesthesia
IVA: Life threatening complication with single organ dysfunction
IVB: Life threatening complication with multiorgan dysfunction
V: Death
Conclusion: Our series suggests that patients with intraabdominal metastatic ACC treated with cytoreduction and HIPEC have clinical outcomes consistent with major cytoreductive surgery. Long-term recurrence and survival data will determine if cytoreduction and HIPEC improves PFS over the best available systemic therapy.

Disclosure of Interest: None declared
PE063
DECLINE IN LEAN PSOAS MUSCLE AREA PREDICTS SHORTER SURVIVAL IN ADRENOCORTICAL CARCINOMA PATIENTS: JOINT MODELING OF SURVIVAL AND LONGITUDINAL DATA
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Introduction: Predicting disease progression and survival is difficult in adrenocortical carcinoma patients. Morphomic analysis of computed tomography scans provides information about the physiologic state of the body at a point in time, including cumulative disease/comorbidity burden. We hypothesized that lean psoas muscle area is additive to current staging systems and can more accurately predict disease progression and survival.

Materials & Methods: Demographics, date of diagnosis, stage at diagnosis, tumor characteristics, disease severity at the time of each scan, lean psoas muscle area, and date of death or last follow-up was recorded for each patient and each scan. Cox regression analysis was conducted from the time of diagnosis with known clinical variables. Beyond this, we conducted joint modeling to investigate the association between survival and lean psoas muscle area as a longitudinal marker, independent of clinical variables.

Results: Of 391 patients cared for between 1999 and 2012, longitudinal data were included from 146 patients with scans. 373 scans were processed, ranging from 1-10 scans per patient. Mean time between scans per patient was 12 months. At time of diagnosis, tumor grade (p=0.0005) and stage (p<0.0001) were the most powerful predictors of survival. In the joint modeling, every one standard deviation decline in lean psoas muscle area resulted in an independent increase in hazard ratio of 2.02 (p=0.0055).

Conclusion: Inclusion of lean psoas muscle area with other traditional outcome predictors is superior to using current staging systems alone, and sequential changes in non-tumor morphomic markers can be used to prospectively predict survival in real-time.

Disclosure of Interest: None declared
THE SYNERGISTIC EFFECTS OF CELECOXIB ON TRAIL-INDUCED APOPTOSIS IN MEDULLARY THYROID CANCER TT CELLS
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Introduction: Tumor necrosis factor-related apoptosis-inducing ligand (TRAIL), as a member of the TNF gene superfamily, induces apoptosis preferentially in human cancer cells. However, medullary thyroid cancer is resistant to TRAIL. Celecoxib, a cyclooxygenase 2 inhibitor, has been identified having an apoptosis promoting effect in various cancer cell lines. We aim to investigate the synergistic effects of celecoxib on TRAIL-induced apoptosis in medullary thyroid cancer TT cells.

Materials & Methods: All experiments were conducted in TT cell lines. Cell growth inhibition was determined by MTT assay. PI staining was used for detection of cell cycle distribution. Apoptosis was evaluated by Hochest 33258 staining. Gene expression of DR4, DR5 and c-FLIP was measured by real-time PCR. The cell cycle and apoptosis associated proteins were measured by Western blot.

Results: TT cells was insensitive to TRAIL and the treatment of celecoxib could reverse the resistance of TT cells to TRAIL. Down-regulation of cyclin A and Cdk2 accompanied G0/G1 arrest caused by celecoxib contributed to the growth inhibition of TT cells induced by TRAIL. Celecoxib synergistically activated the cleavage of caspase-8 and increased the apoptosis level induced by TRAIL through the up-regulation of DR5 and down-regulation of c-FLIP in TT cells.

Conclusion: Our results suggest that celecoxib could help TT cells to decline the resistance to TRAIL. Which may suggests a framework for TRAIL-based combination treatment of TT cell line and provide a novel strategy for MTC therapy.

Disclosure of Interest: None declared
VOCAL CORD PALSY MISSED BY TRANSCUTANEOUS LARYNGEAL ULTRASOUND. DID THEY HAVE A WORSE OUTCOME?
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Introduction: Transcutaneous laryngeal ultrasound (TLUSG) is an innovative non-invasive tool in detecting post-thyroidectomy vocal cord palsy (VCP). However, TLUSG failed to detect about 6-15% laryngoscopic confirmed VCP. It is unclear whether the outcome of those patients with VCP missed by TLUSG [false negative (FN)] is different from patients with VCP diagnosed by TLUSG [true positive (TP)]. Clinical outcome and prognosis of patients with false-negative results are poorly studied. Therefore, we aimed to compare the outcome between patients with VCP missed by TLUSG (FN) and VCP diagnosed by TLUSG (TP).

Materials & Methods: From March 2012 to January 2016, all consecutive patients undergoing thyroidectomy in our center were recruited. Patients who had pre-operative VCP or refused laryngoscopy were excluded. All patients underwent pre-operative and post-operative voice assessments which included voice symptoms, Voice Handicap Index Questionnaire (VHI-30), TLUSG and laryngoscopy. Laryngoscopy and TLUSG were performed by separated experienced assessors who were unaware of voice quality and their mutual findings. For patients with vocal cord palsy on post-operative laryngoscopy, reassessment laryngoscopy would be arranged on 2nd, 4th, 6th and 12th months post-operatively until recovery of vocal cord function. Finding of voice outcome and vocal cord function between TP groups and FN groups were compared.

Results: Over 46 months, 1196 patients, including 74 post-thyroidectomy VCP, were included. TLUSG failed to assess 64 patients’ VCs (5.35%), including 6 VCP. For assessable VCs, 58 VCP were correctly diagnosed by TLUSG (TP) and 10 VCP were missed by TLUSG (FN). Sensitivity in detecting a VCP by TLUSG was 85.3%. Comparing to TP group, the rate of voice complaints was similar in FN group. However, there was significant increase in VHI-30 score after operation in TP group (5 to 40, p < 0.001) but not FN group (3 to 45, p = 0.089). Comparing to TP group, vocal cords function recovered earlier (69 vs 125 days, p< 0.001) and fewer patients suffered from permanent VCP in FN group. (34.5% vs 0.0%, p=0.027)

Image:
Conclusion: The VCP missed by TLUSG had a milder course of disease. Early recovery of VC function and non-permanent palsy would be expected.

Disclosure of Interest: None declared
GLOBAL LANDSCAPE OF ENDOCRINE SURGERY TRAINING PROGRAMMES AND IT’S IMPACT ON DEVELOPMENT OF THE SPECIALITY

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Introduction: Ample literature exists supporting the view that highly structured endocrine surgery fellowship programmes are associated with better knowledge and surgical skill, high standard of care, better patient and surgeon satisfaction and research activity. This study examines progressive development of endocrine surgery training programmes around the globe and its impact on development of this new surgical specialty.

Materials & Methods: Review of all currently existing endocrine surgery fellowship programmes, structured courses as reported in english literature, official websites of endocrine surgery professional bodies and University / Institution and personal communication were carried out. Data so achieved was compiled and analyzed.

Results: Globally 75 fellowship positions could be identified which is a significant growth from the year 2000 when only 23 positions were available. In the past six years, the number of positions have increased by 100% worldwide and 350% in India and number of endocrine surgeons by 47%. Total number of specialist endocrine surgeons have increased (n= 288 in 2000 and n= 1165 in 2016).

Introduction of a fellowship program is heralded by foundation of professional bodies in all eleven countries. In the year 2000 only five countries had professional body. Among developing countries, India has observed rapid growth trend in the development of this specialty. Since the foundation of first academic endocrine surgery department in the year 1989 to current eight academic departments and being the first country to launch a three year structured training course leading to a professional degree recognised by a regulatory body stand to this testimony. Positive impact of dedicated endocrine surgery programme on research activity can be seen in India as 440 original articles been published on endocrine surgery between 1975-2016, 57% of these in the last decade. Endocrine Surgeons contributed most (52%) compared to Surgical Oncologists, ENT surgeons and General Surgeons, in particular, most publications (86%) excluding thyroid subjects are authored by Endocrine Surgeons.

Conclusion: Establishment of professional endocrine surgery bodies by motivated endocrine surgeons and institution of training programmes in the form of fellowships/courses have influenced the present growth of endocrine surgery specialty. Further, this study also reveals that over three-quarters of globe do not have access to endocrine surgery training programme.

Disclosure of Interest: None declared
Intraoperative Identification of Parathyroid Glands by Autofluorescence Using Near Infrared Imaging

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Introduction: The near-infrared (NIR) fluorescent imaging technology has recently emerged as an intraoperative adjunct for parathyroid gland identification. While most studies adopted indocyanine green as the fluorescent agent, the autofluorescent property of parathyroid glands under NIR imaging has not been evaluated. This study aims to test the feasibility of parathyroid autofluorescence under NIR imaging for the identification of parathyroid glands.

Materials & Methods: This was a prospective in vivo feasibility study on 24 patients who underwent thyroid and parathyroid surgery by a single surgeon between December 2016 and January 2017. During surgery, the operative field was explored with NIR imaging using Fluobeam (Fluoptics, Grenoble, France) that emitted NIR light by a class 1 laser at an irradiance of 5mW/cm², a wavelength of 750nm, and an integration time of 333ms/frame (3 frames/sec). Intraoperative injection of fluorescent agent was not necessary. The ability to identify the parathyroid glands by their intrinsic autofluorescent property was recorded and analyzed.

Results: A total of 60 parathyroid glands from 24 patients undergoing hemithyroidectomy (n=12), completion lobectomy (=3), total thyroidectomy (n=6), and unilateral neck exploration (UNE) (n=3) were exposed to Fluobeam imaging. In all cases, there was no substantial autofluorescence on thyroid tissues, lymph nodes and adipose fat. Of 60 glands explored, Fluobeam identified 49 glands (81.7%) by NIR autofluorescence before visualization by the surgeon. For the remaining 11 glands (18.3%), all were identified by the surgeon upon further dissection and were found embedded inside adipose fat. Repeat Fluobeam imaging on all these exposed glands demonstrated autofluorescence. In three UNE, single parathyroid adenoma was visualized by both the surgeon and Fluobeam imaging. Histopathology confirmed hypercellular parathyroid tissues in all 3 resected glands. In 9 patients receiving total or completion thyroidectomy, only one patient developed postoperative hypocalcemia because three of her preserved parathyroid glands were inadequately perfused and were auto-transplanted.

Conclusion: Using class 1 laser without the need of fluorescent agents, near-infrared autofluorescence imaging of parathyroid glands is a safe technique with high rate of parathyroid gland identification during thyroid and parathyroid surgery. It may potentially reduce the risk of postoperative hypocalcemia.

Disclosure of Interest: None declared
RELIABILITY OF INTRAOPERATIVE ANGIOGRAPHY WITH INDOCYANIN GREEN AFTER THYROID RESECTION FOR THE EVALUATION OF POSTOPERATIVE PARATHYROID FUNCTION

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Introduction: New intra-operative methods based on near-infrared images are irrupting in neck surgery, to predict the function of each parathyroid gland (PG) visualized during thyroid surgery. We have previously demonstrated that Intra-Operative Angiography with the fluorescent dye Indocyanin Green (ICG) was feasible. We present here the results of patients who underwent total thyroidectomy, and in whom the four PGs were characterized with ICG-angiography.

Materials & Methods: Parathyroid angiography with intravenous administration of 3.5mL of ICG was performed in consecutive patients undergoing total thyroidectomy. A near-infrared imaging endoscopic system (PinPoint, NOVADAQ) was used to characterize the vascularization of the identified PG after thyroid resection. Patients with four PGs were identified represent the study cohort. Data collection was done prospectively.

Results: Between September 2014 and December 2016, 4 PGs were visualized in 70 of 292 patients undergoing total thyroidectomy. At least one well-perfused PG was demonstrated by ICG-angiography in 55 patients (78.5%). None of them developed post-operative hypoparathyroidism. For 42 of those 55 patients PTH and calcium values were evaluated at postoperative day 10 and were all in the normal range. For the other 13 patients clinical follow up was done without blood test; none of them developed symptoms of hypoparathyroidism.

In the other 15 patients, ICG-angiography did not show a good vascularization of any of the four PGs, despite the fact that at least one PG was visually considered well preserved in 8 of these 15 patients. Eleven of the 15 patients (including 2/4 with visually well preserved PGs) were hypoparathyroid at POD1 and six of them at POD10. One patient was still hypoparathyroid after 6 months; the others recovered a good parathyroid function. In nine patients the 11 PGs were autotransplanted.

The Positive Predictive Value of ICG-angiography (absence of hypoparathyroidism with at least one well vascularized PG) was 100% and the Negative Predictive Value (hypoparathyroidism when no PG is well vascularized) was 73.3%.

Conclusion: ICG-angiography evaluation of the PG is reliable and better than visual evaluation alone. ICG-angiography could help the surgeon decide which PG should be autotransplanted and could be a reliable tool to adapt the post-operative management of patients according to the ICG-angiography results.

Disclosure of Interest: None declared
PEROPERATIVE RISK FACTORS FOR DEATH IN SI-NET

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Introduction: Small intestinal neuroendocrine tumors (SI-NET) are rare and usually indolent tumors. Because of the usually slow progression many patients present with lymph node and liver metastases, reporting unspecific symptoms for years or sometimes decades. Prognostication of a newly diagnosed SI-NET has proven a challenge since patients with comparable tumor data might fare quite different. The aim of this study is to identify prognostic risk factors for death at the time of the first surgery for SI-NET.

Materials & Methods: Material and methods
This study was performed as a nested case-control study, including 1150 patients from the cohort of all patients diagnosed with SI-NET between 1961-2001 in Sweden. Cases were patients with SI-NET that had died due to their SI-NET during the study period and where matched to SI-NET controls that had outlived the cases. Risk factors for death were calculated with conditional logistic regression.

Results: Results:
Statistically significant prognostic factors for death, identifiable at the time of primary surgery were proximal lymph node metastases, stage IV disease, liver metastases, peritoneal carcinomatosis and nonradical surgery. In the presence of liver metastases, a radical removal of lymph node metastases still significantly improved prognosis.

Conclusion: Conclusions
Most of the findings in this study are relatable to tumor load and surgical completeness.
Thus, the present data indicate that removing the primary tumor and lymph node metastases reduce the risk of dying in SI-NET, also in presence of liver metastases.

Disclosure of Interest: None declared
META-ANALYSIS OF RECURRENCE AFTER CURATIVE SURGERY OF PANCREATIC NEUROENDOCRINE TUMORS

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Introduction: Follow-up after curative surgery is designed to detect recurrence early, however decent recurrence rates for cured patients are difficult to deduct from the literature. Without reliable recurrence rates, appropriate follow-up regimens and the need for adjuvant treatment remain unclear. This meta-analysis aims to gain insight into the prognosis of patients after curative resection of grade 1 or 2 pNET, by investigating recurrence rate, time to recurrence and predictive factors for recurrence.

Materials & Methods: Pubmed, Embase and the Cochrane library were searched for studies reporting recurrence rates of patients after curative resection of low to intermediate grade pNET, without distant metastases or hereditary syndromes. Both functional and non-functional tumors were included. Studies with less than 20 patients, high grade neuroendocrine carcinoma or patients who underwent (neo)adjuvant chemotherapy were excluded, as well as non-pancreatic NET or patients with gross incomplete resection.

Results: From a total of 1937 studies, 12 full-text and abstract studies were included. Curative resection was performed in 853 patients between 1982 and 2013, 121 patients had a recurrence. Mean weighted follow-up was 44.1 months (SD = 36.1). Meta-analysis of all studies showed a pooled recurrence rate of 14% (CI95% 10-20%). Sub-analyses of selected patient populations showed a pooled recurrence rate of 5% for non-functional tumors (95%CI 1-25%), 17% for well-differentiated tumors (95%CI 6-43%) and 7% for R0-resections (95%CI 3-14%). Weighted time to recurrence was 21.7 months (SD = 30.3), ranging from 14.5 to 130 months. Locoregional recurrence was seen in 5% (95%CI 3-9%, I2 0%) and distant metastases were reported in 10% (95%CI 6-16%, I2 27.4%). Reported factors associated with worse disease free survival included: tumor size, tumor grade, lymph node metastases, perineural invasion and R1 resection.

Conclusion: With rates of 14% (5-15%) recurrence of pNET is not rare. More research on risk factors for recurrence is warranted to identify patients at risk. This knowledge can contribute to the development of optimal follow-up regimens based on the risk profile of patients. Furthermore, this sets a basis to investigate the role of adjuvant treatment for selected, high-risk, patients.

Disclosure of Interest: C. Genc Grant/Research Support from: PhD funding by Ipsen, S. van Dieren: None declared, C. van Eijck: None declared, E. Nieveen van Dijkum: None declared
LOCALIZATION TECHNIQUES IN INSULINOMA: EXPERIENCE IN A TERTIARY REFERRAL CENTRE
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Introduction: Pre-operative localization techniques for insulinoma continue to evolve. The aim of this study was to study the accuracy of various pre-operative localization modalities used over last two-and half decades in our centre.

Materials & Methods: This retrospective study (January 1990 and December 2016) consists of 38 patients of biochemically diagnosed cases of organic hyperinsulinemic hypoglycemia. Correlation between radiologic, operative and histology findings were noted.

Results: Median age of the patients was 45 years (M:F= 1:1.2). Multiple endocrine neoplasia Type 1, islet cell hyperplasia and malignancy was noted in 15.8, 13.2 and 2.6% patients respectively and remaining had sporadic insulinoma. Median duration of symptoms was 36 months (15 days to 120 months). Overall 84.2% insulinomas could be localized pre-operatively. Computerized tomography (CT) was the commonest pre-operative modality used in 89.5% patients followed by magnetic resonance imaging (MRI) in 26% patients. CT was the sole preoperative localization used in 39.5% patients, whereas it was combined with ultrasonography (US) in 31.5%. In all 42% patients had two preoperative localizing studies performed and 18.5 had three or more. The sensitivity for localizing insulinoma for US, CT scan, MRI and selective arterial calcium stimulation with hepatic venous sampling (ASVS) was 25%, 73.5%, 60%, and 86% respectively. Pre-operative localization rate was 58 and 96% before and after the year 2005. The sensitivity of triple phase CECT was 90% in the last decade. Intra-operative USG was used in 89.5% cases. When one, two and three or more pre-operative localization modalities were used the localization rate was 93.3, 75 and 85% respectively. 28.7 % of those having three or more localization studies had islet cell hyperplasia. Bi-digital palpation and intra-operative ultrasonography (IOUS) was accurate in 97% cases. Surgery was successful in all but one case (97.4%). Two case of hyperplasia missed on first exploration needed re-operation. 15 enucleations and 23 pancreatic resections were performed.

Conclusion: Pre-operative localization techniques for insulinomas continue to evolve. CT scan is the most useful modality in our experience. Almost all insulinomas can be detected per-operatively by an experienced surgeon and expert performed IOUS.

Disclosure of Interest: None declared
DOES AGE INFLUENCE SURGICAL APPROACH IN PRIMARY HYPER PARATHYROIDISM IN DEVELOPING COUNTRIES? - A PROSPECTIVE STUDY OF 126 PATIENTS

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Introduction: Minimally invasive Parathyroidectomy (MIP) is the standard of care in majority of patients with concordant sestamibi (MIBI) and ultrasonography (USG) imaging in primary hyperparathyroidism (PHPT). Multiglandular disease (MGD) is higher in younger age and the utility of MIP is not studied in younger patients. This prospective study evaluated the role of MIP versus Bilateral neck exploration (BNE) in patients of young age in a developing country.

Materials & Methods: A prospective study of 126 PHPT patients undergoing consecutive parathyroidectomy over 5 years (June 2011–June 2016). Group I (age ≤ 40 years) underwent BNE irrespective of imaging concordance and Group II (>40 years) underwent MIP, if concordant or else BNE if discordant or non-localised.

Results: Group I (n=68) was comparable with Group II (n=58) with females comprising 73.7% in Group I and 64.7% in Group II (p=0.4). Group I included 12 cases of multiple endocrine neoplasia type 1 (MEN 1) & 3 cases of neonatal severe hyperparathyroidism (NSPHPT). Mean serum 25OH vitamin D was comparable in both groups (A=12.9 ng/dl and B=10.2 ng/dl, p=0.9). Presenting complaints (bone disorders, renal calculus, pancreatitis), alkaline phosphatase, family history were not statistically significant (P>0.05). Of great importance are 7 cases in Group A with concordant USG and MIBI scan, but had double adenomas in 4 and four gland hyperplasia in 3 patients (p<0.05). With a mean follow up of 28.6+/−8(6-60) months all the patients were normocalcemic.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Group I (n=68)</th>
<th>Group II (n=58)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age in years</td>
<td>27.9+/−8.4(0.2-40)</td>
<td>59.2+/−9.2(42-78)</td>
<td>0.01</td>
</tr>
<tr>
<td>Preop Sr Calcium(mg/dl)</td>
<td>13.3+/−4.1(11.2-30.3)</td>
<td>12.8+/−3.1(10.8-20.1)</td>
<td>0.56</td>
</tr>
<tr>
<td>Sestambibi sensitivity</td>
<td>66.2%</td>
<td>79.4%</td>
<td>0.15</td>
</tr>
<tr>
<td>USG sensitivity</td>
<td>55.3%</td>
<td>81.2%</td>
<td>0.03</td>
</tr>
<tr>
<td>Surgical approach</td>
<td>BNE-100%</td>
<td>BNE-23%, MIP77%</td>
<td>0.01</td>
</tr>
<tr>
<td>Additional procedures</td>
<td>Thymectomy -34.2%,</td>
<td>Hemithyroidectomy- 3.2%</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>Hemithyroidectomy 5.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of parathyroids involved</td>
<td>2.26+/−1.4(1-5)</td>
<td>1.18+/−0.57(1-4)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Ectopic location</td>
<td>15.8%</td>
<td>5.2%</td>
<td>0.10</td>
</tr>
<tr>
<td>Mean size (cm)</td>
<td>2.4+/−0.8(0.8-4.9)</td>
<td>2.9+/−1.2(0.8-7.2)</td>
<td>0.01</td>
</tr>
<tr>
<td>Mean weight(gms)</td>
<td>5.2+/−2.8(0.6-12.6)</td>
<td>7.2+/−4.2(2.2-21)</td>
<td>0.02</td>
</tr>
<tr>
<td>Mean peak fall of postop calcium</td>
<td>3.3+/−0.9(2-6)</td>
<td>2.8+/−0.7(2-5)</td>
<td>0.04</td>
</tr>
<tr>
<td>Histopathology</td>
<td>Single adenoma 60.1%</td>
<td>Single adenoma 91.3%,</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td></td>
<td>Double adenoma 7%,</td>
<td>double adenoma 3.6%,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hyperplasia 32.9%</td>
<td>hyperplasia-4.1%,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>parathyroid carcinoma-1%</td>
<td></td>
</tr>
</tbody>
</table>
Conclusion: Majority of patients were of younger age at presentation. In patients younger than 40 years of age MGD was predominant. Parathyroid imaging may not accurately localize in this younger age group and BNE may be considered

References:

Disclosure of Interest: None declared
PARATHYROID CARCINOMA; COULD IMMUNOTHERAPY BE A THERAPEUTIC OPTION?

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Introduction: Current primary treatment of both primary and recurrent parathyroid carcinoma (PC) is limited to surgical resection; both chemotherapy and radiotherapy have limited efficacy. In recent years, there is a growing interest in the use of immunotherapy in different types of solid tumors. Four distinct tumor microenvironments have been proposed based on the existence of tumor-infiltrating lymphocytes (TILs) and programmed death-ligand 1 (PD-L1): type I (TILs+/PD-L1+), type II (TILs-/PD-L-), type III (TILs-/PD-L1+), and type IV (TILs+/PD-L1-). This immunogenic subtypes may predict response to these therapies. We aim to investigate the predictive significance of these immune subtypes in parathyroid tumors.

Materials & Methods: The immunohistochemical expression of TILs (CD3 and CD8), macrophages (CD68) and PD-L1 in PCs and atypical parathyroid neoplasm (AN) treated at the MD Anderson Cancer Center from 1996 to 2016 were evaluated. Intratumoral Digital image analysis was performed using the Aperio Image Toolbox and Genie™ (Leica Microsystems). PD-L1 H score was based on a sum of predominant staining intensity levels, using the following formula [1×(%cells 1+)+2×(%cells 2+)+3×(%cells 3+)], and TILs were quantified as cells/mm2. P value 0.05.

Results: We evaluated 31 tissue samples (18 PC, 13 AN). All locoregional recurrences (n=6), distant metastases (n=5), and deaths due to disease (n=3) occurred in the PC group. AN samples had no vascular or adjacent tissue invasion. There was no difference in median PD-L1 H score between the two groups (p=0.69). Four PC cases had H score ≥1 associated with CD3+ and CD8+ density, and two developed distant metastases. PC had a significantly lower median CD3+ density (p=0.04) and trend toward lower median CD8+ density (p=0.09) than did ANs. Median CD68+ density was similar between groups (p=0.17).

Table. Biochemical and Immunogenic features in PC and AN patients

<table>
<thead>
<tr>
<th>Group</th>
<th>PTH (pg/mL)</th>
<th>Calcium (mg/dL)</th>
<th>PD-L1</th>
<th>C D3</th>
<th>C D8</th>
<th>CD68</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC</td>
<td>507</td>
<td>13.3</td>
<td>0.6</td>
<td>31.7</td>
<td>24.4</td>
<td>216.0</td>
</tr>
<tr>
<td>AN</td>
<td>159</td>
<td>10.8</td>
<td>1.7</td>
<td>72.5</td>
<td>54.9</td>
<td>115.9</td>
</tr>
<tr>
<td>p value</td>
<td>0.01</td>
<td>0.01</td>
<td>0.69</td>
<td>0.04</td>
<td>0.09</td>
<td>0.17</td>
</tr>
</tbody>
</table>

* all median, PTH, parathyroid hormone.

Image:
**Conclusion:** PCs tend to display immune tolerance tumor microenvironment (type IV). Additionally, 22% of PCs had a pattern of PD-L1 and TILs expression in their microenvironment (type I) suggesting a potential benefit from immunotherapy. Thus, tumor microenvironment profiling could be useful to identify PC cases that could benefit from immunotherapy, and additional investigation is warranted.

**References:**

**Disclosure of Interest:**

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<table>
<thead>
<tr>
<th>Group</th>
<th>PD-L1</th>
<th>CD3</th>
<th>CD8</th>
<th>CD68</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AN</td>
<td></td>
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</table>

*p-value* 0.69 0.04 0.09 0.17

*Median expression level is shown for each marker evaluated: PD-L1 (median H-score); CD3, CD8, CD68 median density*
A NOVEL METHOD TO SAVE PARATHYROID GLAND DURING BABA ROBOTIC THYROIDECTOMY: SUBCAPSULAR SALINE INJECTION (SCASI)

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Introduction: To save parathyroid gland during thyroidectomy is challenging up to recent times. This study was to evaluate feasibility of novel method named subcapsular saline injection (SCASI) to save parathyroid gland during BABA robotic total thyroidectomy.

Materials & Methods: From January 2014 to March 2016, 81 PTC patients underwent BABA robotic total thyroidectomy with or without neck lymph node dissection at Seoul National University Bundang Hospital. All patients were devided into 2 groups: thyroidectomy with SCASI method (SC) and without SCASI methods (non-SC). Patients were checked serum PTH level, calcium level, and ionized calcium level at 1 day, 3 months, and 6~12 months after the operation. Transient hypoparathyroidism was defined as POD 1 day parathyroid hormone (PTH) <10.0pg/mL, and permanent hypoparathyroidism was defined as POD 6~12 months PTH <15.0pg/mL.

Results: Thirty one patients were underwent BABA robotic total thyroidectomy in SC group and 50 patients in non-SC group. The mean age of SC and non-SC were 35.3 ± 10.3 (19-56yrs) and 34.2 ± 10.0 (19-58yrs) years, respectively. There was no significant clinicopathologic difference between two groups. Transient hypoparathyroidism was developed in 5 patients (5/31, 16.1%) in SC group and 22 patients (22/50, 44%) in non-SC group, respectively (p=0.019). Permanent hypoparathyroidism was developed in 0 patient in SC group and 2 patients (2/50, 4%) in non-SC group, respectively (p=0.699).

Table 1. Postoperative outcome

<table>
<thead>
<tr>
<th></th>
<th>SC (n=31)</th>
<th>Non-SC (n=50)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>POD#1 day lab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTH (pg/mL, 15~65)</td>
<td>17.9±10.8 (4.4-43.5)</td>
<td>13.0±8.96 (3.5~48.2)</td>
<td>0.51</td>
</tr>
<tr>
<td>Calcium (mg/dL, 8.8~10.5)</td>
<td>8.26±0.46 (7.2-9.5)</td>
<td>8.11±0.49 (7.3-9.3)</td>
<td>0.38</td>
</tr>
<tr>
<td>iCa (mmol/L, 1.035~1.250)</td>
<td>1.103±0.084 (0.929-1.330)</td>
<td>1.078±0.073 (0.922-1.236)</td>
<td>0.57</td>
</tr>
<tr>
<td>Transient hypoparathyroidism (PTH &lt;10 pg/mL at POD#1d)</td>
<td>5 (16.1%)</td>
<td>22 (44%)</td>
<td>0.01</td>
</tr>
<tr>
<td>POD#6~12 months lab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTH (pg/mL, 15~65)</td>
<td>29.9±14.0 (16.7-70.6)</td>
<td>26.8±12.8 (10.0-64.0)</td>
<td>0.17</td>
</tr>
<tr>
<td>Calcium (mg/dL, 8.8~10.5)</td>
<td>8.71±0.49 (7.4-9.5)</td>
<td>8.65±0.49 (7.0-9.6)</td>
<td>0.31</td>
</tr>
<tr>
<td>iCa (mmol/L, 1.035~1.250)</td>
<td>1.156±0.074 (0.927-1.258)</td>
<td>1.148±0.099 (0.883-1.294)</td>
<td>0.61</td>
</tr>
<tr>
<td>Permanent hypoparathyroidism (PTH &lt;15 pg/mL at POD#3~12m)</td>
<td>9 (0.0%)</td>
<td>2 (4.0%)</td>
<td>0.69</td>
</tr>
</tbody>
</table>

Conclusion: This study demonstrated that SCASI was a feasible and safe method to save parathyroid gland during BABA robotic total thyroidectomy.


Disclosure of Interest: None declared
Introduction: Hypocalcemia is the most common complication following total thyroidectomy. Few factors may relate with increased risk of post-operative hypocalcemia. Pre-operative vitamin D values have been evaluated in different studies, but reports present conflicting data. This retrospective cohort study evaluates the association of pre-operative vitamin D values and hypocalcemia following total thyroidectomy.

Materials & Methods: Starting from November 2012 and until November 2015, we evaluate all patients undergoing total thyroidectomy for different pathologies. Exclusion criteria were: need of associated central neck dissection, re-do surgery, unilateral procedure and incomplete pre-operative assessment of calcium homeostasis.

Results: A total number of 368 patients fulfilled all criteria of the study. Mean age of patients was 56.2 years (± 14.0) and sex ratio (F: M) was 4.3:1. Sixty-four patients (17.4%) had pre-operative vitamin D insufficiency (x < 25 nmol/L), 138 patients (37.5%) vitamin D deficiency (25 - 50 nmol/L). Following total thyroidectomy for both benign and malignant pathology, 66 patients (17.9%) had symptomatic hypocalcemia (x < 2.0 mmol/L) requiring medical treatment (Group 1), 64 patients (17.4%) biochemical hypocalcemia (2.1 - 2.5 mmol/L, Group 3). No statistical correlation between post-operative serum calcium and pre-operative vitamin D values (R = -0.001, p = 0.9849) was found nor association was found regarding age, sex, type of thyroid disease or BMI of this group of patients.

Conclusion: Preoperative vitamin D levels do not relate with the risk of hypocalcemia following total thyroidectomy in our cohort of patients.

Disclosure of Interest: None declared
Introduction: The value of thyroid lobectomy to remove a missing parathyroid gland during parathyroid surgery remains controversial due to low success rates and concerns over increased complications. We hypothesize that benefits of empiric thyroid resection for an intrathyroidal parathyroid gland after an unsuccessful comprehensive neck exploration are outweighed by higher rates of postoperative complications.

Materials & Methods: We retrospectively reviewed all patients who underwent parathyroidectomy for primary hyperparathyroidism at a single institution from 2004-2010.

Results: Of 942 patients undergoing surgery for primary hyperparathyroidism, thirty-six patients (14.2%) underwent empiric thyroid resection after surgeons were unable to identify all four parathyroid glands. Pathology results revealed intrathyroidal parathyroid glands in only 10 patients (27.8%). The positive predictive value of preoperative ultrasound for the identification of an intrathyroidal parathyroid was only 6.25% with a sensitivity and specificity of 39%. The major complication rate of patients undergoing thyroid resection for a missing parathyroid was 25.0%, with 3 (8.3%) injuries to recurrent laryngeal nerves, and 5 (13.9%) patients who developed permanent hypocalcemia. The major complication rate of patients undergoing parathyroidectomy alone was 2.0% (P-value 0.0045, as compared to all patients undergoing concomitant thyroidectomy).

Conclusion: When an experienced surgeon has performed an extensive neck exploration and cannot find the remaining parathyroid gland, thyroid lobectomy rarely results in successful parathyroid localization or cure of hyperparathyroidism. Additionally, performing a thyroid lobectomy substantially increases the risk of nerve injury and permanent hypocalcemia. Consequently, we do not recommend empiric thyroid resection for a missing parathyroid gland.

Disclosure of Interest: None declared
PE077
CAN PREOPERATIVE CALCIUM AND PTH LEVELS PREDICT PARATHYROID GLAND VOLUME OR PRESENCE OF MULTIGLAND DISEASE IN PRIMARY HYPERPARATHYROIDISM?
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1Endocrine Surgery, The Cleveland Clinic Foundation, Cleveland, United States

Introduction: Historical data have suggested a linear relationship between calcium (Ca) and parathyroid hormone (PTH) which may potentially correlate with disease process (single vs multigland) to guide operative exploration. It is unclear whether this relationship exists in the current patient population with modestly elevated Ca and PTH values. This study evaluated the relationships between disease process, total abnormal gland volume, pre-operative Ca and PTH values in a modern cohort of patients.

Materials & Methods: Prospective data from 1624 patients with primary HPT was analyzed to seek a relationship between disease type and gland volume, calculated as an ellipsoid. Additionally, relationships between immediate pre-operative Ca and PTH vs gland volume and Ca vs PTH were then studied, all stratified by disease.

Results: Markedly similar mean total gland volumes were noted between the three disease processes (single adenoma: 1333.8 cc, double adenoma: 1440.0 cc, hyperplasia: 1483.8 cc). Mean Ca levels were: 11.13 mg/dL (95% CI: 11.08-11.18), 11.00 mg/dL (10.91-11.09), 10.90 mg/dL (10.81-10.99), (p < 0.05). Mean PTH levels were: 155.78 pg/mL (146.60-164.90), 135.24 pg/mL (119.72-150.76), 154.74 pg/mL (137.10-172.38), (p < 0.05). Comparing Ca with gland volume stratified by disease revealed a clinically insignificant correlation (R²: 0.08, 0.05, 0.02). Similarly, when comparing PTH values with gland volume as stratified by disease, a minimal correlation was noted (R²: 0.09, 0.11, 0.27). PTH levels also correlated poorly with Ca values across disease processes (R²: 0.12, 0.13, 0.07). Constraining the data to a 95% sample range to exclude Ca < 12.4, PTH < 324 did not alter the results significantly.

Conclusion: Aggregate gland volume is essentially unchanged in patients with single and multi-gland parathyroid disease. This may indicate a critical mass at which primary HPT becomes clinically significant. In multi-gland disease, this implies that individual glands are smaller, impairing the ability of pre-operative studies to localize them. After evaluating other pre-operative factors that correlate with gland volume, Ca and PTH values correlate poorly with disease process. Despite historical data describing a correlation between PTH and Ca levels, a strong correlation was not noted in this modern series of over 1600 patients. While the hope would be to have pre-operative values predictive of single vs multi-gland disease, neither PTH nor Ca level appear to be useful.

Disclosure of Interest: None declared
THE ROLE OF SIMULTANEOUS FOUR-DIMENSIONAL COMPUTED TOMOGRAPHY (4D-CT) WITH MIBI-
SPECT/CT IN GUIDING A FOCUSED PARATHYROIDECTOMY IN PATIENTS WITH LOW BIOCHEMICAL
PROFILE PRIMARY HYPERPARATHYROIDISM
C. McManus1, R. Yeh1, A. Fingeret1, J. A. Chabot1, J. A. Lee1, J. H. Kuo1,*
1Columbia University Medical Center, New York, United States

Introduction: Preoperative imaging has a pivotal role in surgical planning for patients with parathyroid disease. Recently, 4D computed tomography and single photon emission computed tomography (4DCT and MIBI-SPECT/CT) combined has gained popularity. The ability of 4DCT and MIBI-SPECT/CT combined in precisely localizing abnormal parathyroid glands among patients with low biochemical profile primary hyperparathyroidism has not been fully evaluated.

Materials & Methods: We conducted an IRB approved single institution retrospective cohort study of 151 patients who were referred for surgical evaluation of primary hyperparathyroidism from June 2013 to September 2014. All patients underwent preoperative localization with 4DCT and MIBI-SPECT/CT combined. Glands were defined as precisely localized if the abnormal quadrant(s) on imaging correlated to abnormal gland(s) on pathology. Age, sex, preoperative calcium, and precise localization of abnormal glands among 4DCT and MIBI-SPECT/CT combined, 4DCT alone and MIBI-SPECT/CT alone were compared for patients with a low biochemical profile and patients with classic primary hyperparathyroidism. The Mann Whitney U test was used for continuous variables and Fisher’s Exact Test for categorical variables.

Results: Among 151 patients, 42 had a low biochemical profile, including normal hormonal (n=23) and normocalcemic (n=19), and 109 had a classic profile. Patients with a low biochemical profile were older (mean age 65 ± 1.95 versus 59 ± 1.65, p =0.04), and had lower preoperative calcium levels (10.3±0.12 mg/dl versus 11.1±0.08 mg/dl, p<0.001).

When comparing imaging modalities to localize the abnormal parathyroid gland(s) among patients with a low biochemical profile to those with a classic profile, 4DCT and MIBI-SPECT/CT combined was not significantly different (85.7% versus 88.9%, p=0.58) and 4DCT alone was not significantly different (78.6% versus 84.3%, p=0.47). However, there was a significant difference between groups in the ability of the MIBI-SPECT/CT alone to localize the diseased gland(s) (47.6% versus 65.7% p=0.04).

Conclusion: 4DCT and MIBI-SPECT/CT combined and 4DCT alone did not perform significantly better in patients with low biochemical profile versus a classic profile. However, MIBI-SPECT/CT alone performed significantly worse in patients with a low biochemical profile. Thus, 4DCT and MIBI-SPECT combined or 4DCT alone may be more useful than MIBI-SPECT/CT alone in the preoperative localization of the abnormal gland(s) in patients with a low biochemical profile.

Disclosure of Interest: None declared
AN ADDITIONAL 20 MINUTE INTRAOPERATIVE PARATHORMONE MEASUREMENT MINIMIZES UNNECESSARY BILATERAL NECK EXPLORATION DURING PARATHYROIDECTOMY

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Introduction: Parathyroidectomy (PTX) guided by intraoperative parathormone (ioPTH) monitoring for primary hyperparathyroidism (pHPT) confirms removal of all hyperfunctioning parathyroid glands. A >50% ioPTH drop criterion at 10 minutes after abnormal gland excision predicts operative success in 98% of patients. However, ioPTH levels may be influenced by gland manipulation and PTH half-life variability between patients. This study evaluates the utility of an additional 20 minute ioPTH measurement when a 10 minute value has not dropped by >50% during PTX in patients with pHPT.

Materials & Methods: A retrospective review of prospectively collected data of 739 patients with pHPT confirmed by elevated serum calcium and PTH levels who underwent ioPTH monitoring guided PTX at a single institution was performed. When a >50% ioPTH drop from the highest either pre-incision or pre-excision level was achieved after 10 minutes, PTX was completed. If this criterion was not met, however, bilateral neck exploration (BNE) was performed or an additional 20 minute ioPTH measurement was obtained. Operative success was defined as eucalcemia ≥6 months whereas recurrence was defined as calcium and PTH levels above normal range >6 months after successful PTX. Multigland disease (MGD) was defined as persistently elevated PTH and calcium levels despite removal of one hypersecreting gland at the initial operation, or when removal of a single gland resulted in operative failure.

Results: Of 739 patients with a mean follow up of 41 months, overall operative success was 98.5% with a recurrence rate of 1.1%. Within this group, 79 (11%) patients did not meet the >50% PTH drop at 10 minutes criterion. Of these patients, 63% (50/79) patients underwent further exploration, while a 20 minute PTH measurement was drawn in 37% (29/79). There were no significant differences in preoperative calcium, PTH or creatinine in these two groups. Of patients with a 20 minute PTH level, 38% (11/29) had a >50% PTH drop at 20 minutes and 62% (18/29) did not. Of the 79 patients who had a ≤50% ioPTH drop at 10 minutes, there was a statistically significant lower rate of BNE in the group with a 20 minute PTH level compared to the group without (38% 11/29 vs. 64% 32/50, p<0.05). By obtaining a 20 minute level, BNE was avoided in 38% (11/29) of patients that had a ≤50% PTH drop at 10 minutes.

Conclusion: A 20 minute ioPTH value is useful in preventing unnecessary BNE in patients with a delayed >50% ioPTH drop.

Disclosure of Interest: None declared

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total n = 739 (%)</th>
<th>10 minute &gt;50% drop n = 656</th>
<th>10 minute ≤50% drop 20 minute level not measured n = 50</th>
<th>10 minute ≤50% drop 20 minute level measured n = 29</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>724 (98.5)</td>
<td>654</td>
<td>44</td>
<td>26</td>
</tr>
<tr>
<td>Failure</td>
<td>11 (1.5)</td>
<td>2</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Recurrence</td>
<td>8 (1.1)</td>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>BNE</td>
<td>79 (11.2)</td>
<td>36</td>
<td>32</td>
<td>11</td>
</tr>
<tr>
<td>MGD</td>
<td>45 (6.0)</td>
<td>6</td>
<td>25</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 1 Parameters of study population, comparing patients with and without a 20 minute ioPTH level

Bold indicates statistical significance

Conclusion: A 20 minute ioPTH value is useful in preventing unnecessary BNE in patients with a delayed >50% ioPTH drop.

Disclosure of Interest: None declared
Introduction: Sleeping disturbances seem to belong to the nonspecific symptoms of primary hyperparathyroidism and they have a tendency to improve after surgery as we recently reported. The aim of this study was to analyze the improvement of sleeping disturbances and to examine the sleeping quality in patients operated for nontoxic goiter.

Materials & Methods: In a prospective case control study we analyzed sleeping quality in patients with primary hyperparathyroidism (N=30) and patients with nontoxic goiter (N=30) before and six month after surgery. Sleeping quality was assessed by four different tests: The Landecker Inventar, the Epworth sleeping scale, the Berlin questionnaire and the PSQI. The data were compared with biochemical data.

Results: In patients with primary hyperparathyroidism sleeping quality improved postoperatively: Testing sleeping quality by using the PSQI, 8 patients with PHPT had a pathological result preoperatively, 5 patients postoperatively. Using the Berlin Questionnaire test to check the risk of having an obstructive sleep apnea syndrome, 14 patients had a pathological result before and 13 patients after surgical treatment. Testing the risk to be tired at daytime by Epsworth sleeping scale, 10 patients showed a higher risk before and 11 patients after operation. With the Landecker Inventar we tested the probability for different sleeping disturbances: 7 patients with primary hyperparathyroidism presented a risk for narcolepsy, which persisted in two patients postoperatively. 7 patients had risk for insomnia before and 5 patients after surgical treatment.

A risk for SBAS was shown in 3 patients before and 2 patients after surgery, for restless leg syndrome was presented in 2 patients and persisted. In patients with nontoxic goiter sleeping quality was unchanged after surgery. There was no correlation between the grade of sleeping disturbances and serum calcium or parathyroid hormone level.

Conclusion: Sleeping disturbances tend to improve after surgery in patients with primary hyperparathyroidism in the categories sleeping quality and insomnia. Therefore we should screen for primary hyperparathyroidism by measure the serum calcium level in all patients with sleeping disturbances. In patients with nontoxic goiter sleeping quality is not influenced by surgery.

Disclosure of Interest: None declared
Introduction: Surgical treatment of primary hyperparathyroidism relies on accurate localization of adenomas with preoperative imaging. Endocrinologists, radiologists, and surgeons often have differing opinions on the ideal workup. We aimed to assess the best possible imaging protocol by comparing the accuracy and concordance of office ultrasound (OU), sestamibi-SPECT, 4D-CT scan, and pre-incisional ultrasound (PIU) in localizing the correct side and quadrant of parathyroid adenomas.

Materials & Methods: A retrospective review was performed on 284 patients with primary hyperparathyroidism and a single adenoma removed between 2013-2015. Operative and pathology reports were compared to ultrasound, CT-scan, and Sestamibi reports to establish accuracy and concordance of the different imaging modalities.

Results: PIU and CT both showed comparable high levels of sensitivity (91.1% and 91.0%, respectively) in lateralization. CT was significantly better at localization than Sestamibi (p=0.001) and OU (p<0.001). PIU was superior in localization than OU (p=0.002), but not statistically different from CT (p=.388) or sestamibi (p=0.388). Concordance was highest between PIU/Sestamibi (76.5%), and notably lower between CT/Sestamibi (59.6%) and between OU/CT (64.4%).

Conclusion: CT and PIU were the most accurate in localizing single adenomas. Given that the sensitivity of PIU is biased by it being performed after all other imaging tests and the fact that most surgeons seek to confirm diagnosis with gland localization prior to deciding to operate, 4D-CT would likely be of more use than PIU for diagnostic purposes. The low rate of concordance between CT/Sestamibi and CT/OU indicates CT is useful in workup of patients with nondiagnostic results on OU or sestamibi.

References: Figure: Different preoperative image modalities showing their sensitivity to detect and lateralize a single parathyroid adenoma

Disclosure of Interest: None declared
Introduction: While most papillary thyroid cancers (PTC) can be treated adequately with surgery and adjuvant radioactive iodine treatment, the 10-year recurrence rate remains about 20-30%. Recent studies indicate that cancers will often have deregulated metabolic pathways. We hypothesized that lipidomic profiling of PTCs can identify new biomarkers that can be developed for novel therapeutic targeting of these tumors.

Materials & Methods: 28 patient thyroid samples (7 normal, 21 PTC) were obtained under an approved IRB. Validated human PTC lines (TPC1 and WRO) were grown in standard culture. Sanger sequencing from genomic DNA isolated from paraffin embedded tissue sections verified BRAF mutational status. Lipidomic profiling was carried out using LC MS/MS. Principal component analysis (PCA) identified differentially regulated metabolites with clear separation between PTC and normal thyroid samples. Quantitative RT PCR analyzed expression levels of CHKA, CHKB, ETNK1 and ETNK2 in patient samples and cell lines. Following CHKA inhibitor(CK37) treatment, functional therapeutic targeting was evaluated for apoptosis (Caspase 3/7 assay followed by Western blot confirmation by PARP cleavage/caspase 3 activation) and cell migration/invasion as measured by Boyden chamber assay.

Results: Lipidomic profiling to delineate the metabolism involved in malignant transformation revealed highly increased expression levels of phosphatidylcholine (PC) and phosphatidylethanolamine (PE) with down regulation of triglycerides (p<0.05 and independent of BRAF status, stage, age and gender). Expression levels of the enzymes involved in PC and PE pathway by RT PCR indicated 5.9-11, 7-13.9, 2.9- 4.0, 3-4.6 fold up regulations of CHKA, ETNK1, CHKB and ETNK2 respectively in tumor samples compared to normal tissues (p <0.001), while TPC1 showed significantly higher expression levels than WRO (p<0.05). Dose-dependent increases in Caspase3/7 activity after CK37 treatment was noted in TPC (5.6 fold) and WRO (7 fold) cells (p<0.01 vs control). Invasion was blocked by 90% (10mM CK37) while migration was blocked by 50% (40mM CK37) in both cell lines.

Conclusion: Irrespective of BRAF mutational status or patient characteristics, PC and PE are highly up-regulated in PTCs while triglycerides are down-regulated. Inhibition of the novel biomarker CHKA induced apoptosis and blocked cell migration/invasion supporting future studies to evaluate its role as a new therapeutic target in PTC.

Disclosure of Interest: None declared
Introduction: Japanese clinical guideline has suggested appropriate surgical strategy by risk-classification of PTC. According to its strategy, lobectomy and central node dissection is recommended for low risk PTC, total thyroidectomy (+ lateral neck dissection) is demanded for high risk PTC. However, there is not specific recommendation for “Gray zone”.

The purpose of this study is to verify the Japanese risk classification. Furthermore we focus on prognostic factor in “Gray zone” group for the choice of surgical methods.

Materials & Methods: We conducted retrospective study. From 2000 to 2004, 467 patients of PTC were underwent surgery as an initial operation. A retrospective chart review was performed to collect following factors: risk classification (low risk, Gray zone, and high risk), recurrence, and survival. For the inspection of a prognosis of Gray zone, we add the data such as age, tumor size (cm), lymph node metastasis(N), and extra thyroid invasion (Ex). Kaplan-Meir method was used recurrence/survival rate and compared by log-rank test. To investigate prognostic factors in Gray zone, Kaplan-Meir method compared by log-rank test as a univariate analysis and Cox proportional-hazards model as a multivariate analysis were used. The cut off value of age (55) and tumor size (4cm) were calculated by ROC curves.

Results: Ten years survival/recurrence rate (95% CI) in each risk group (low/Gray/high) were as follows: 99.3% (95-99.9)/ 95.8% (90.3-98.3) in low risk, 99.0% (96-99.7)/89.9% (84.4-93.6) in Gray zone, and 83.6% (71.1-91.3)/67.4% (53-79.2) in high risk group. For the prognostic factor of Gray zone, Both of tumor size and age were statistical significance in both of recurrence (p=0.0016/0.0107) and survival (p=0.0133/0.0225) by univariate analysis. Surgical Ex2 was statistical significance in recurrence in univariate analysis (p=0.0099). Cox proportional-hazards model revealed that age and tumor size were associated with both of survival (p=0.0205/0.0129) and recurrence (p=0.0064/0.0129).

Conclusion: The risk classification of PTC of Japanese clinical guideline were very appropriate. In Gray zone, we may undergo total thyroidectomy (along with iodine ablation) on the patients who is older than 55 years or have a tumor beyond 4cm in a diameter.

Disclosure of Interest: None declared
ACTIVATED PEROXISOME PROLIFERATOR-ACTIVATED RECEPTOR GAMMA (PPAR GAMMA) INCREASES THE EXPRESSION OF SODIUM/IODIDE SYMPORTER AND INHIBITS THE CELLULAR GROWTH IN THYROID CANCER

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Introduction:
The major treatment for thyroid cancer is surgical intervention followed by radioiodine (RAI) therapy. Sodium/iodide symporter (NIS) can actively accumulate iodide into thyroid follicles and had a critical role in RAI therapy. Peroxisome proliferator-activated receptor gamma (PPARγ) is best known for its role in adipogenesis and insulin sensitization. Activation of PPARγ with agonist inhibits the growth of cancer cells, and cellular invasion. The activated retinoid X receptor (RXR) will heterodimerize with PPARγ and induce the expression of target genes. The synergetic activation of PPARγ and RXR may redifferentiate thyroid cancer cells and increase the NIS expression.

The purpose of this study was to investigate the activation of PPARγ on thyroid tumors related with NIS expression and related Epithelial-mesenchymal transition (EMT) mechanism involved. The results would help us to evaluate the potential treatment role of PPARγ and redifferentiation of NIS on thyroid cancer.

Materials & Methods:
Two different thyroid cancer cell lines (BcPAP for papillary thyroid carcinoma and FTC-131 for follicular thyroid carcinoma) were cultured. In vitro, Rosiglitazone (an agonist of PPARγ, RGZ) and Bexarotene (a selectively activator of RXRs) were applied to the study alone or together under normoxia or hypoxia condition. Cellular viability and proliferation were checked with MTT assay. The extracted proteins are analyzed for the expression of HIF-1α, PPARγ, and NIS expression with western blotting assay. Besides, related EMT markers, such as E-cadherin, N-cadherin, Snail, et al. were also studied in the redifferentiation process.

Results:
Rosiglitazone inhibited cellular growth in BcPAP and FTC-133 cell lines in dose dependent manner. Upregulation of NIS was also noted with the application of 0, 10, 50μM RGZ on thyroid cancer cells for up to 72 hours. EMT markers, such as N-cadherin, and Snail were also noted fell after the treatment of RGZ on BcPAP and FTC-133 cancer cells at the concentration of 0, 10, 50μM for 24, 48, and 72 hours. The treatment of RGZ combined with Bexarotene had the synergetic effect to suppress the growth of two cancer cell lines, and to increase the NIS expression.

Conclusion:
In this research, we found that PPARγ agonist inhibited the cellular growth of papillary and follicular thyroid cancer cells under normoxia and hypoxia condition along with the increased expression of NIS. Besides, the activation of RXR and PPARγ had the synergetic effect on the NIS expression.
References:


Disclosure of Interest: None declared
THE SAFETY OF THE FOCUS HARMONIC SCALPEL DURING THYRODECTOMY IN TERM OF POSTOPERATIVE SWALLOWING DISORDERS.

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Introduction: Swallowing disorders can affect uncomplicated thyrodeectomy. Two studies showed that these disorders are correlated to a constant decrease of the Upper Esophageal Sphincter pressure (pUES). Moreover, a recent study showed that the Focus Harmonic Scalpel (FHS) in thyroid surgery reduces the incidence of voice disorders. Aim of the present study is to evaluate if the use of the FHS can also influence the incidence of swallowing disorders.

Materials & Methods: An institutional prospective randomized study was carried out from 2014 and 2016. 20 patients underwent conventional knot tie thyroidectomy (group A), 24 FHS thyroidectomy (group B). The patients were evaluated preoperatively and one month after the thyrodeectomy by the Swallowing Impairment Score (SIS), the High Resolution Esophageal Manometry (HREM) for recording the UES pressure and the Residual Basal one (RBP). Moreover, they underwent a postoperative videofluorography, performed with the aim of identifying the presence of the following swallowing alterations: hyoid elevation and epiglottic tilting alterations; stasis of the bolus in the pharynx, valleculae and/or pyriform sinuses; cricopharyngeal contraction and gastroesophageal reflux in the middle/upper esophagus provoked with a water siphon test. Both groups were comparable in terms of age, sex, thyroid volume, preoperative SIS, pUES and RBP and the findings of the videofluorography.

Results: Table 2 shows that no statistically significant differences concerning the data evaluated were found between the two groups.

<table>
<thead>
<tr>
<th></th>
<th>Group A (20)</th>
<th>Group B (24)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postoperative UES pressure</td>
<td>66.50 ± 10.89</td>
<td>68.54 ± 10.78</td>
<td>0.5</td>
</tr>
<tr>
<td>∆ pUES (pre/postoperative) *</td>
<td>27.75 ± 12.72</td>
<td>21.88 ± 7.63</td>
<td>0.06</td>
</tr>
<tr>
<td>Postoperative SIS</td>
<td>5.60 ± 5.94</td>
<td>3.46 ± 5.29</td>
<td>0.2</td>
</tr>
<tr>
<td>Postoperative Residual Basal Pressure</td>
<td>11.95 ± 3.46</td>
<td>12.92 ± 3.56</td>
<td>0.36</td>
</tr>
<tr>
<td>∆ SIS (pre/postoperative) **</td>
<td>6/14</td>
<td>4/20</td>
<td>0.4</td>
</tr>
<tr>
<td>Hyoid elevation/epiglottic tilting alteration</td>
<td>11/9</td>
<td>12/12</td>
<td>0.7</td>
</tr>
<tr>
<td>Stasis of bolus (valleculae/sinus piriformis)</td>
<td>11/9</td>
<td>13/11</td>
<td>1.0</td>
</tr>
<tr>
<td>Cricopharyngeal contraction</td>
<td>6/14</td>
<td>6/18</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Table 2: results

* Comparison of differences of the preoperative and postoperative UES pressures. ** Ratio of worsening/unchanged or improved scores (Fisher’s exact test for categorical variables)

Conclusion: The FHS did not worsen the parameters evaluated. Its use gives some advantages, first of all the reduced operative time, with no increase of complications. The present study demonstrate that these advantages do not pay a price in terms of increase of swallowing complaints.

Disclosure of Interest: None declared
**Introduction**: Anti-platelet therapy and anti-coagulant are commonly used in patients undergoing thyroidectomy. The perceived risk of post-operative neck hematoma was higher in these patients. However, there were limited studies reporting the incidence. On the other hand, it is unclear if their use leads to poor surgical outcomes.

**Materials & Methods**: From January 2006 to December 2015, 3061 patients undergoing thyroidectomy in our center were included. Demographics, pre-existing medical condition, use of anti-platelet agent & anti-coagulant, indication for surgery, operation detail, and surgical outcomes were prospectively collected. Surgical outcomes were compared [I] between patients with anti-platelet (AP group) and patient without anti-platelet therapy (non-AP group), and [II] also between patients with anti-coagulant (AC group) and without anti-coagulant (non-AC) group.

**Results**: 565 male and 2496 female patients with median age of 51 were included. 135 (4.4%) and 29 (0.9%) patients were taking anti-platelet agent and anti-coagulant respectively. Patients were older, male predominant and had a higher prevalence of cardiovascular disease in AP and AC groups (p<0.05). Despite the increased medical risk, rate of non-surgical related complication were comparable between AP and non-AP group (0.7% vs. 0.7%, p=0.973), and AC and non-AC group (0.7% vs. 3.4%, p=0.080). There was no increased risk in developing post-operative neck haematoma in patients taking anti-platelet agents (0.7% vs. 0.7%, p=0.937) or anti-coagulants (0.7% vs. 0.0%, p=0.653). Comparing to the non-AP group, there were increased the risk of overall (24.8% vs. 32.6%, p=0.042) and permanent hypocalcemia (2.9% vs. 7.4%, p=0.003) in AP group. Similarly, overall (24.9% vs. 48.3%, p<0.001) and permanent hypocalcemia (3.0% vs. 10.3%, p=0.023) were higher in AC group than non-AC group. Use of antiplatelet agents was the independent risk factor for the development of overall hypocalcemia (OR 1.56, p=0.041) and permanent hypocalcemia (OR 2.57, p=0.008), while the use of anti-coagulant was the independent predictor of overall hypocalcemia (OR 3.04, p=0.011).

**Conclusion**: Use of anti-platelet agents and anticoagulants were not associated with increased risk of neck hematoma in experienced hands. However, there is an increased risk of overall and permanent hypocalcemia. For patients taking anti-platelet agents or anti-coagulants, day surgery should not be recommended and monitoring of post-operative calcium level should be mandatory.

**Disclosure of Interest**: None declared
Introduction: The North American Thyroid Cancer Survivorship Study (NATCSS) indicated an unexpected quality of life (QoL) burden on thyroid cancer patients similar to survivors of cancers with lower five-year survival & more morbid treatment (e.g., colon & breast) (1). These initial findings identified several risk factors for decreased QoL, including female gender, younger age, and lower levels of education. Building on the initial NATCSS findings, we aim to identify the specific factors and phenomena responsible for the observed disparity in quality of life among women and younger patients after thyroid cancer treatment using information about other demographic markers, open response descriptions of patient-family and patient-physician dynamics, and a newly-deployed survey assessing media usage and caretaking burden among NATCSS participants.  

Materials & Methods: Thyroid cancer survivors were recruited from a multicenter collaborative network of clinics, national survivorship groups, & social media. Participants completed a validated QoL assessment tool with 55 items measuring 4 domains: physical, psychological, social, & spiritual. Data were collected on participant demographics, medical comorbidities, tumor characteristics, & treatment modalities.  

Results: The current NATCSS database has results from 2269 participants, 90.5% of whom are female with an average age of 48 years. The mean total QoL score from the NATCSS survey was 5.39 (standard deviation/SD 1.55). The mean total QoL score for women was 5.31 (SD 1.53) versus 6.24 (SD 1.45) for men (p <0.001). Younger age was correlated with a lower overall QoL score (p <0.001). When split into 4 groups by age (<45 years versus ≥ 45 years) & gender, younger women had significantly lower overall QoL scores than older women, whose QoL scores were significantly lower than both cohorts of men; within the male NATCSS cohort, younger men had non-significantly lower total QoL than older men (table 1).  

Conclusion: Within the NATCSS cohort, we observe trends towards lower quality of life in female & younger patients after treatment for thyroid cancer.  


Disclosure of Interest: None declared
SENTINEL LYMPH NODE BIOPSY IN MEDULLARY THYROID MICROCARCINOMAS AFTER METHYLENE BLUE DYE MAPPING – A PILOT STUDY

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Introduction: Serum calcitonin level is a precise marker for medullary thyroid carcinoma. However, lymph node (LN) metastases can be found in lower serum calcitonin levels. Further, preoperative ultrasound examination is not reliable enough for assessment of regional LNs. The aim was to analyze usefulness of sentinel LN biopsy of jugulo-carotid regions after methylene blue dye mapping for selection of clinically N0 patients with medullary thyroid microcarcinomas (MTMC) and lateral LN metastases for one-time modified radical neck dissection (MRND).

Materials & Methods: From 2007 to 2016th, 15 patients were operated in our institution due to MTMCs with serum calcitonin levels lower than 1000pg/ml, tumors under or 10mm in size and clinically negative regional LNs. Total thyroidectomy with central neck dissection was done in all patients. Sentinel LN mapping was performed by injecting 0.2-0.5ml of 1%-methylene blue dye in the thyroid lobes, just beneath the capsule. Levels II and III were explored on both sides, blue stained sentinel LNs were removed and examined by frozen section analysis. In case sentinel LNs were benign, additional surrounding non-colored LNs were removed for more precise evaluation on standard pathological analysis. If sentinel LNs were positive on frozen section, one-time MRND was performed.

Results: One patient had hereditary form of medullary thyroid carcinoma, with bilateral subcentimeter tumors, while others had sporadic, unilateral MTMC. Sporadic MTMCs showed neither central nor lateral LN metastases on bilateral sentinel LN biopsy, with no indication for MRND. Hereditary MTMC had central LN metastases, with positive sentinel LNs on both sides, thus one-time bilateral MRND was performed. This patient had metastases in other dissected LNs, as well, and serum calcitonin level of 221 pg/ml. Frozen section and definite pathological analysis were 100% match.

Conclusion: Sentinel LN biopsy after methylene blue dye mapping can be precisely used for intraoperative assessment of lateral neck LNs. It optimizes surgery of MTMCs, selecting clinically N0 patients with metastases on frozen section for one-time MRND. This pilot study is the first reported experience with sentinel LN biopsy of jugulo-carotid regions in medullary thyroid carcinomas using methylene blue dye, focusing on the subgroup of microcarcinomas.

Disclosure of Interest: None declared
GLOBAL METABOLOMIC ANALYSIS OF PAPILLARY THYROID CARCINOMA

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Introduction: Molecular profiling of thyroid tumors for genetic markers in thyroid cancer diagnostics has only begun to explore our limited understanding of underlying genetic drivers; however, its current limitations suggest that underlying mechanisms beyond genetic drivers are at play. Currently, metabolomic analysis is not a standard diagnostic tool for papillary thyroid carcinoma (PTC) leading to a poor understanding of global metabolic alterations in tumor metabolism and metastatic progression. Comprehensive molecular studies of tumor metabolism in the thyroid are necessary to overcome this challenge.

Materials & Methods: We have performed a pilot global metabolomic profiling of archived thyroid tissues (Papillary thyroid carcinoma localized to thyroid gland, L-PTC, N=10; metastatic, M-PTC, N=10; normal thyroid, N=8) to assess for target metabolites (Metabolon, NC). Principle Component Analysis (PCA) and Hierarchical Clustering (HC) were used to compare similarities and differences between metabolites in tumors and controls. Paired comparisons were performed between groups (p≤0.05, ≥2-fold change in metabolite concentrations) for statistical significance. Univariate analysis using Wilcoxon rank-sum tests were used to validate two-group comparisons.

Results: Global metabolomic profiling of tissues identified 757 metabolites. PCA and HC demonstrated differentiated clustering of normal thyroid tissue from PTC tumors; statistically significant differences in 172 metabolites (all PTC v control) were identified, 25 of which displayed differences in metabolite levels between PTC groups (M-PTC v L-PTC). Global tumor metabolic shifts revealed a pattern of enhanced antioxidant activity, overall increase in energy, biosynthetic and transmethylation pathways, and most notably, a series of over-represented dipeptides.

Conclusion: Our results suggest that PTC tumor metabolic signature is significantly distinct from control, and reveal metabolite differences between localized and metastatic PTC tumors that have not been previously described. This study demonstrates as a proof of principle that metabolomics can be used for thyroid cancer diagnostics and prognostics. Further comprehensive analysis of tumors and biofluids will help identify fundamental metabolic differences and underlying molecular mechanisms that drive tumor metabolic support and progression. Exploiting tumor metabolic vulnerabilities may offer new therapeutic targets for PTC treatment.

Disclosure of Interest: None declared
Introduction: Well-differentiated thyroid carcinoma in children is rare, but it shows aggressive behavior. Gross lymph node metastases and distant metastases are common on first clinical presentation. The aim was to present our experience in the management of well-differentiated thyroid carcinomas in patients under the age of 21 by analyzing clinical features, effectiveness of surgical approach and long-term outcome.

Materials & Methods: During 35 years (1981-2016), at the Institute of Oncology and Radiology of Serbia 38 children were operated due to well-differentiated thyroid carcinoma. Mean age was 12 (range 9-16) years. At the time of diagnosis, 6.45% patients had lung metastases. Total thyroidectomy or completion of thyroidectomy was performed in all cases, followed with central neck dissection and frozen section examination of the jugulo-carotid compartments. Radioiodine 131 therapy was applied in 22 (57.89%) patients and postoperative external beam radiotherapy in 2 (5.26%). Median follow-up was 11.6 (range 0.69-33.05) years.

Results: Median tumor size was 20 (range 2-60) mm. Papillary thyroid carcinoma was found in 96.77%, while follicular and Hurte cell carcinoma in 1.61% patients, each. Multifocal tumors were found in 50% and capsular invasion in 59.7% of cases. Lymphonodal metastases in either central or lateral neck compartments were found in 72.6% of patients. Median disease-free interval has not been reached and overall survival rate was 100%.

Conclusion: Well-differentiated thyroid carcinoma in children is characterized with high rate of locoregional aggressiveness, multifocality, capsular invasion, lymph node metastases and distant metastases at the time of diagnosis. Extensive surgical approach should be performed in both primary and recurrent disease in young patients with well-differentiated thyroid carcinomas in order to achieve locoregional disease control and long disease-free survival.

Disclosure of Interest: None declared
THE CURE RATE IN FIRST LINE TREATMENT OF GRAVES' DISEASE IN SWEDEN 7-9 YEARS AFTER DIAGNOSIS

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Introduction: The incidence of hyperthyroidism was 27.1/100000 inhabitants (children included) / year in a prospective study 2003-2005 with a catch up area of 40% of the Swedish population of 9 million inhabitants. 2916 patients were included and this cohort has been studied 7 – 9 years after the diagnosis with the intent to evaluate the long-term outcome. Sweden is considered iodine sufficient.

Materials & Methods: 2916 patients were included in the original cohort (see figure 1:1) After 7-9 years from diagnosis 2430 were contacted for follow-up by questionnaires, Fifty-nine percent (1423 patients) agreed to participate. Patients answered three questionnaires at home and returned them by mail. There were two quality of life questionnaires (SF-36 and Thyr-Pro) and one which gave information about recurrence of hyperthyroidism, final treatment regime, symptoms and treatment of TAO, smoking habits and comorbidity.

Results: 1423 patients have been evaluated where 83.1% had Graves disease (GD) and 16.9% had Toxic Multinodular Goitre (TMNG). The outcome of first line treatment of the GD patients are reported in table 1. 633/747 patients (84.7%), who started with an ATD course, were cured permanently with one or two treatments. During the follow up a total of 464 patients (40.6%) had their thyroid activity ablated with radioiodine and 251 patients (22.0%) received a thyroideectomy. 19 (1.7%) had a complicated disease that required both radioiodine and surgery.

<table>
<thead>
<tr>
<th>1:st treatment</th>
<th>Total</th>
<th>Cured</th>
<th>Change of therapy due to insufficient effect of 1:st choice</th>
<th>Cured by 1:st treatment included treatment change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%) of total</td>
<td>n (%) of total</td>
<td>n (%) of total</td>
</tr>
<tr>
<td>ATD</td>
<td>747 (100)</td>
<td>339 (45.4)</td>
<td>178 (23.8)</td>
<td>496 (66.4)</td>
</tr>
<tr>
<td>Radioiodine</td>
<td>313 (100)</td>
<td>255 (81.5)</td>
<td>0 (0)</td>
<td>255 (81.5)</td>
</tr>
<tr>
<td>Surgery</td>
<td>52 (100)</td>
<td>50 (96.2)</td>
<td>0 (0)</td>
<td>50 (96.2)</td>
</tr>
<tr>
<td>Conservative</td>
<td>31 (100)</td>
<td>25 (80.6)</td>
<td>0 (0)</td>
<td>25 (80.6)</td>
</tr>
<tr>
<td>Total</td>
<td>1143 (100)</td>
<td>669 (58.5)</td>
<td>178 (15.6)</td>
<td>826 (72.3)</td>
</tr>
</tbody>
</table>
Conclusion: In this prospective study 669/1143 (58.5%) patients with Graves’ Disease were cured with one treatment period. More than a quarter received surgery as a part of their treatment. Only 45% was cured by one ATD course, and a quarter changed treatment strategy during the treatment course. The 663 individuals that did not respond the questionnaires will be studied to exclude recruitment bias. 

Disclosure of Interest: None declared
LONG-TERM TREATMENT RESULTS OF STAGE IV-C DIFFERENTIATED THYROID CARCINOMA: HAVE TKI DRUGS BEEN ABLE TO IMPROVE THE TREATMENT OUTCOMES?

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Introduction: The standard treatment of differentiated thyroid carcinoma (DTC) with distant metastasis is complete total thyroidectomy and lymph node dissection, followed by radioactive iodine (RAI) ablation therapy for metastatic lesions. However, in the last three years, sorafenib and lenvatinib have been approved for the treatment of RAI-refractory advanced thyroid cancer in Japan. This long-term retrospective study aimed to evaluate how tyrosine kinase inhibitor (TKI) drugs have contributed to the treatment of stage IV-C DTC.

Materials & Methods: Among the patients currently followed-up in outpatient clinics, 97 patients who underwent surgery in our hospitals and were diagnosed as stage IV-C DTC were included. These patients comprised 35 men and 62 women, with a mean age of 69.0 (range, 33-91) years. The histological types were 81 papillary carcinomas and 16 follicular carcinomas. Sixty-five patients (67.0%) only treated with RAI therapy remained as stable disease (SD group). Their mean observation period was 8.7 years. The other 32 patients (33.0%), diagnosed with progressive disease (PD group) during the follow-up, were treated with sorafenib and/or lenvatinib. Their mean period from initial surgery to TKI treatment was 9.0 years. These two groups were compared and studied.

Results: The mean maximum tumor size of the SD group was 11.5 mm, whereas that of the PD group before TKI treatment was 29.7 mm (see figure). The treatment results after TKI therapy in the PD group were 7 (21.9%), 8 (25.0%), 9 (28.1%), and 8 (25.0%) cases of PR (partial response), SD, NE (not evaluable), and deaths due to PD or an adverse event. The disease control rate (PR+SD) was 15/32 (46.9%).

Conclusion: Among the analyzed stage IV-C DTC patients, approximately two-thirds remained as SD for an average of 8.7 years, while the other one-third developed PD. Our results suggest that TKI treatment can improve the prognosis of stage IV-C DTCs with PD.

Disclosure of Interest: None declared
ACCURACY OF PREOPERATIVE DIAGNOSIS IN PATIENTS WITH NON-FOLLICULAR THYROID CANCER: A MULTI INSTITUTIONAL EUROPEAN STUDY

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Introduction: Accurate diagnosis of thyroid cancer is essential for correct treatment according to guidelines and to avoid reoperations

Materials & Methods: Indication for surgery and outcome of preoperative fine needle aspiration (FNA) for cytology or biopsy were investigated in patients with a histopathological diagnosis of thyroid cancer registered 2015-2016 in EUROCRINE®, an international Endocrine Surgical Registry funded by the EU, and in the Scandinavian Quality Register for Thyroid, Parathyroid, and Adrenal Surgery (SQRTPA). Patients with papillary cancer stage pT1a, patients with follicular cancer, lymphoma and metastasis to the thyroid gland, were excluded from final analysis, as were patients without reported pT stage

Results: The background cohort consisted of 6320 patients undergoing thyroid surgery, with a median age of 51 years. A postoperative histopathological diagnosis of malignancy was registered in 1660 (26.6 %) patients with a median tumour size of 13 mm. After exclusion criteria, the final analysis included 869 patients with a median reported tumour size of 20mm; papillary cancer 742 (85.4%), medullary cancer 82 (9.4%), anaplastic cancer 18 (2.1 %), poorly differentiated cancer 23 (2.6%) and unspecified cancer (UNS) 4 (0.5%). The indication for surgery in these patients was malignancy 529 (60.9%), exclude malignancy 254 (29.2%), compression symptoms 66 (7.6%), thyrotoxicosis 13 (1.5%), and other indications 7 (0.8%). FNA was not performed in 133 (15.3%) patients. In 736 patients with FNA, results were missing in nine patients (1.2%), and cytology, graded according to the Bethesda classification (I-VI), showed malignancy (VI) in 359 (48.8%), suspicious for malignancy (V) in 152 (20.7%), benign cytology (II) in 67 (9.1%), non-diagnostic (I) 27 (3.7%). Cytology was graded as Bethesda III and IV in 43 (5.8%) and 79 (10.7%) patients, respectively. In 573 (78.8%) patients with available cytology, FNA was guided by ultrasonography (US), which resulted in a decrease in benign cytology (II) and an increase in suspicious for malignancy (V) compared to FNA without US (p<0.01). Core biopsy showed malignancy in further 11 patients. Total thyroidectomy was performed in 594 (68.4%), and lobectomy in 164 (18.9%) patients. Compartment oriented lymph node dissection was performed in 505 (58.1%) patients

Conclusion: Accuracy of preoperative diagnosis of non-follicular thyroid cancer was lower than expected potentially leading to inadequate first time surgery

Disclosure of Interest: None declared
Introduction: Surgery for thyroid cancer is often described as straightforward and well-tolerated when discussing the operative course and recovery period with patients. Many inquire about recovery time after surgery and the anticipated changes to daily life, including speculation about how soon they will “return to normal.” We sought to characterize patient experiences with post-operative changes after total thyroidectomy.

Materials & Methods: This qualitative study included 47 patients with papillary thyroid carcinoma enrolled in an ongoing clinical trial. Semi-structured interviews were conducted at 5 time points (pre-operatively and 2 weeks, 6 weeks, 6 months, and 1 year post-operatively). We used grounded theory approach to thematically code 149 interview transcripts with NVivo11.

Results: Patients experienced a variety of post-operative changes after total thyroidectomy, and the expectation of complete recovery or returning to baseline differed among individuals. Many patients felt that return to true baseline took much longer than anticipated, where >50% of patients were still reporting symptoms at the 6-week time point.


At 6-month and 1-year time points, a majority of patients reported symptom resolution or adjustment to a “new normal.” The most frequently persisting symptoms were low energy and decreased stamina, as well as subjective voice changes.

Participant: “…My voice is a way that I always express excitement…it’s hard to get my students excited when it doesn’t sound like I’m excited. I really want that back.”

Occasionally, issues relating to swallowing or incisional concerns were noted. Patients were surprised at the number of post-operative symptoms and ultimate time to resolution.

Participant: “The doctor said [it] is a very simple surgery and … you can be normal within a week… but I don’t think [anyone] can do that actually.”

Conclusion: Though many post-operative symptoms and complaints required no additional clinical intervention, patients felt that “getting back to normal” took longer than anticipated. Post-operative counseling should refrain from generalizations about symptoms and expectations, and in particular should not trivialize effects from surgery. As one patient eloquently noted, “my normal is not somebody else’s normal.”

Disclosure of Interest: None declared
Introduction: Recently the early diagnosis of PTC has resulted in the improved clinical outcomes. But shifting trends of MTC over time remain controversial. The present study was designed to evaluate the changes of the clinicopathological features and surgical outcomes in patients with MTC in recent years.

Materials & Methods: From August 1982 to December 2013, a total of 150 MTC patients underwent thyroidectomy in Yonsei University Hospital. Among them, 123 (82%) patients with complete clinical data and sustained follow-up were enrolled in this study. Clinicopathologic features and surgical outcomes were analyzed by retrospective medical chart review. Mean follow up duration was 81.57±58.30 months.

Results: In this study, the primary tumor size significantly decreased over time ($p<0.001$) and the proportions of extrathyroidal invasion, central LN metastasis and lateral LN metastasis significantly decreased over time ($p<0.001$, $p<0.001$ and $p=0.035$, respectively). The level of postoperative serum calcitonin dramatically decreased over time ($p=0.002$). Regarding primary tumor size, tumors sized $\leq 1.0$cm were seen in 41 (33.3%) patients and tumors sized $> 1.0$cm in 82 (66.6%) patients. Patients with tumor sized $\leq 1.0$cm significantly increased over time ($p=0.003$) and showed better clinicopathological features regarding to extrathyroidal invasion, central LN metastasis, lateral LN metastasis and postoperative serum calcitonin level compared to patients with tumor sized $> 1.0$cm ($p=0.001$, $p<0.001$, $p<0.001$ and $p<0.001$, respectively). Recurrence rates and disease-specific mortality rates were significantly decreased over time ($p<0.001$ and $p=0.001$, respectively) and disease-free survival rate of patients was improved over time ($p<0.001$).

Conclusion: In conclusion, we demonstrated that primary tumor size and extent of cervical LN metastasis in patients of MTC decreased significantly in recent years. Furthermore, the prognosis of MTC significantly improved over time.

Disclosure of Interest: None declared
THYROID SURGERY IN OBESE PATIENT’S POPULATION (BMI>30): IS IT A SAFE SURGERY?

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Introduction: The aim of the study was to evaluate if thyroid surgery in obese patients (BMI > 30) is a safe procedure or it carries a higher risk of complications compared to the general population.

Materials & Methods: A retrospective review of a prospectively maintained database of patients who underwent thyroid surgery between January and December 2016 was performed. Patients were divided regarding their BMI. Patients with BMI>30 kg/m² were considered obese. Item evaluated and compared between groups were: post-operative bleeding, hypocalcemia, laryngeal nerve palsy, infectious complications and post-operative stay.

Results: In the study period 462 patients underwent thyroid surgery. Four hundred twelve patients (89.2%) had a BMI< 30 kg/m² (G1), while 50 patients (20.7%) had a BMI> to 30 kg/m² (G2). Population of study was comparable in terms of mean age and type of disease: 50.4 years in G1 (range 13 – 88) and 56.3 years in G2 (range 26 – 82) (p=0.07) and 47/412 cancer in G1 (11.4%) and 5/50 on G2 (10.0%) (p=0.76). Mean BMI in G2 was 34.8 (range 30.1 – 47). Thyroid lobectomy was performed in 117 patients of G1 and 11 of G2 respectively. Overall nerves at risk (NAR) were then 707 for G1 and 89 for G2. Post-operative laryngeal nerve palsy was observed in 20 out of 707 NAR in G1 (2.8%) and 5 out of 89 NAR in G2 (5.6%) (p=0.16). Hypocalcemia was reported in 40 patients in G1 (9.7%) and 4 in G2 (8.0) (p=0.70). Neither bleedings nor infections were reported in G2, while there were 3 hematoma and 2 wound infections in G2 (p= 0.55 and p=0.62 respectively). Mean post-operative stay was 1.05 days (range 1 -7) in G1 and 1.56 days in G2 (range 1 – 6) (p=0.006). Thus overall hospitalization costs rose from 800€ to 1200€ in G2. Analysis of subgroups for obese patients (30>BMI<34.9 kg/m², n=28) versus morbid obese patients (BMI > 35kg/m², n=22) reported no differences in hypocalcemia or nerve palsy in between groups (p= 0.80 and p=0.27, respectively). Comparing finally G1 with obese and morbid obese subgroups, differences in hypocalcemia and nerve palsy rate were not significant (p=0.90 and p=0.12).

Conclusion: Thyroid surgery in obese patients is more challenging due to their physical habit. Nevertheless no higher complication rate is associated to thyroid surgery in obese or morbid obese patients compared to general population. Increase in post-operative stay for obese patients raised overall hospitalization costs.

Disclosure of Interest: None declared
Introduction: Hashimoto’s thyroiditis (HT) is characterized by a lymphocytic infiltrate and chronic inflammation. This inflammation may alter the diagnostic accuracy of thyroid fine-needle aspiration biopsy (FNAB) and impact clinical decision-making. This study compares FNAB accuracy in patients with and without HT.

Materials & Methods: In this study, 972 patients underwent thyroidectomy between 2008 and 2016 at a tertiary referral center by a single endocrine surgeon. Patients were excluded if no FNAB results were available, if the pre-op FNAB was non-diagnostic, or showed atypia of undetermined significance (n=229). Diagnosis of HT was determined by final surgical pathology. Accuracy was determined by correlating benign, suspicious, and positive for malignancy FNABs with histopathology of the corresponding nodules. Chi-square and Student’s t-test were used to calculate significance.

Results: There were 199 patients with HT and 544 without. Mean age was 48.8 and 50.6 years, respectively (p=0.16). Women accounted for 84.9% of the HT group and 76.5% of the non-HT group (p=0.01). The mean maximum diameter of thyroid nodules was 2.56 cm with HT and 2.80 cm without HT (p=0.09). In HT patients, FNAB results were: 68 benign (34.2%), 26 suspicious for malignancy (13.1%), 49 positive for malignancy (24.6%), and 56 follicular or Hürthle cell neoplasms (FN) (28.1%). In patients without HT, FNAB results were: 196 benign (36.0%), 72 suspicious for malignancy (13.2%), 103 positive for malignancy (18.9%), and 173 FNs (31.8%). These results were not significantly different (p=0.38). The final histopathology for FNs also did not differ significantly: the HT group had 10 papillary thyroid carcinomas (PTC) (17.9%), 10 follicular thyroid carcinomas (FTC) (17.9%), and 36 benign (64.3%); the non-HT group had 35 PTC (20.2%), 28 FTC (16.2%), 2 poorly differentiated carcinomas (1.2%), and 108 benign (62.4%) (p=0.83). In the HT group, sensitivity for malignancy was 83.1%, compared to 94.2% in the non-HT group (p=0.006). Specificity in the HT group was 83.3%, compared to 87% in non-HT (p=0.45). The diagnostic accuracy of FNAB in the HT group was 83.2%, compared to 90% in the non-HT group (p=0.03).

Conclusion: The overall diagnostic accuracy of thyroid FNAB is diminished by the presence of Hashimoto’s thyroiditis. Therefore, clinicians who are ordering and performing these biopsies should notify their cytology departments of the underlying Hashimoto’s diagnosis, which may aid with the cytologic analysis.

Disclosure of Interest: None declared
Introduction: In thyroid cancer, mediastinal lymph node metastasis are extremely rare. But the invasiveness of the disease leads often to significant morbidity and also to frequent cause of death. The aim of this study is to evaluate the effectiveness of surgical management and safety of mediastinal lymph node dissection.

Materials & Methods: From October 2000 to November 2016, 195 patients who underwent mediastinal dissection for thyroid cancer metastasis were retrospectively analyzed. Clinical characteristics including extent of surgery, pathologic features and prognosis were reviewed.

Results: There were 80 male (41.0%) and 115 female (59.0%) patients with a mean age of 49.9 ±15.1 years. Synchronous mediastinal metastasis was found in 118 patients (60.5%). The most common thyroid cancer type was papillary thyroid cancer (165 patients, 84.6%). In 35 patients (18.3%) there was distant metastasis observed at time of surgery, whereas 13 (6.7%) developed distant metastasis during follow-up. In 46 cases, combined resection of either trachea (8, 4.1%), lung (5, 2.6%), major vessel (12, 6.2%) or nerve (21, 10.8%) was performed. Transcervical approach was the most common (126 cases, 64.6%), followed by full sternotomy (40, 20.5%) and partial sternotomy (24, 12.3%). Median follow-up was 40.6 months [18.8; 64.9] with overall survival of 91.3% of the patients. In 17 (8.7%) patients, disease related death occurred. Recurrence was observed in 47 (24.1%) patients with median time to recurrence of 19 month [8.4; 31.7].

Conclusion: Aggressive surgical treatment for locally advanced thyroid carcinoma may offer improved local control of disease, prolonged palliation and opportunity for cure in selected patients.

Disclosure of Interest: None declared
A SWITCHING INTERVAL THERAPY OF LENVATINIB AND SORAFENIB MAY ESCAPE RESISTANCE IN PROGRESSIVE THYROID CANCER

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Introduction: In the past 10 years, several tyrosine-kinase inhibitor have been tested for the treatment of progressive thyroid cancer. At present, two different TKIs (Lenvatinib and Sorafenib) were recently approved by both US FDA and European Medicine Agency. Sorafenib is able to inhibit C-RAF, B-RAF, RET, c-KIT, PDGF-R and VEGF-R, whereas Lenvatinib has the ability to inhibit FGF-R, representing an effective drug in those cases in which a resistance to VEGF/VEGF-R inhibitors is developed. Until now, the duration of TKI response is not durable and resistance will arrive sooner or later. The goal of this study was to investigate the effect of a new treatment regimen, where a switching interval treatment between levantinib and sorafenib is given.

Materials & Methods: Three progressive thyroid cancer cell lines (Sorafenib resistant cell line, aggressive PTC cell line, cell lines from a patient with 10 times recurrence) were exposed to Sorafenib and then switched to Lenvatinib in a 5 days interval. This treatment was repeated twice. Cell viability was determined by MTT assay.

Results: In Sorafenib resistant cell line, Lenvatinib treatment, given after Sorafenib treatment, was effective in controlling tumor growth. A repeated treatment with Lenvatinib after an interval of Sorafenib treatment, efficacy was observed second time. In refractory cell lines compared to control cell lines, Sorafenib could inhibit cell growth, and switching to Lenvatinib showed bigger treatment effect. Repeating Sorafenib treatment, a slower cell growth than in control cell lines was observed. Another switching to Lenvatinib interval treatment showed that cells were still affected by Lenvatinib treatment.

Conclusion: There may exist a pathway to escape resistance to TKI- inhibitors. A switching interval therapy of both Lenvatinib and Sorafenib may effect in progressive thyroid cancer, which enables to escape resistance mechanism in tyrosine kinase pathway.

Disclosure of Interest: None declared
Introduction: Thyroid cancer is the most common malignancy encountered by the endocrine surgeon. Most patients present with thyroid nodule which are treated by thyroidectomy alone. A minority of patients with differentiated thyroid cancer (DTC) present with locally advanced disease requiring modified radical neck dissection. Although the prognosis of such patients is excellent after treatment, recurrence and the need for long term follow-up is a necessity. The aim of the study is to identify the patients at risk of disease recurrence in those presenting with nodal metastases and predict their long-term outcome.

Materials & Methods: This is a retrospective analysis of a prospectively collected database of all patients operated for DTC in a University hospital. We included all patients with differentiated thyroid cancer who underwent lateral neck dissection in the study. In September 2016, each patient was classified as cured (unmeasurable thyroglobulin (TG) and negative scans) or having biochemical recurrence (TG detectable) or radiological recurrence (positive scans).

Results: Between May 2000-July 2015, unilateral (n=81) or bilateral (n=9) modified radical neck dissection(levels II-V) was performed in 90 patients(32M:58F) with papillary (n=86) or follicular (n=4) thyroid cancer at the time of presentation (n=71) or at median 3-years after initial treatment. The mean lymph node yield was 19, of which metastasis was present in 5, resulting in metastatic lymph node ratio of 0.27. Thyroglobulin (TG) levels at 12 months were unmeasurable in 70.5% of those who presented with nodal metastasis. After a median follow up of 60 months, only 1 out of the 43 patients with unmeasurable TG level at 12 months had disease recurrence, the rest remained disease free. Conversely, of those who had a measurable TG level at 12 months, majority (71.4%) had either biochemical or radiological recurrence.

Conclusion: Thyroglobulin level at 12 months post treatment is a useful predictor of disease recurrence in patients with differentiated thyroid cancer presenting with nodal metastases.

Disclosure of Interest: None declared
Introduction: Perioperative process of care affects outcome such as recurrence rate and survival in patients with medullary thyroid carcinoma (MTC). This study aims to determine the association between hospital volume and variation in process of care in MTC.

Materials & Methods: The National Cancer Data Base was queried from 2004 to 2014 for patients with T1-4 M0 MTC. Hospitals were classified as low, medium or high volume based on yearly thyroid surgery volume below the 50th, between 50th and 89th, or 90th percentile and above, respectively. The association between hospital volume, and process of care was determined by Chi-Square, ANOVA and logistic regression analyses.

Results: Of 3986 patients treated at 824 different hospitals, 48.4%, 40.2%, and 11.4% were treated at high, medium, and low volume hospitals, respectively. 57% of patients had preoperative diagnosis by biopsy, 92% underwent total thyroidectomy (TT), 75% had cervical lymph node dissection (LND) whereas 73% patients had both TT with LND. Mean tumor size was 2.6 ± .6 cm (±SEM). Increased hospital volume was significantly associated with increased preoperative biopsy diagnosis, TT, TT with LND, and TT with LND and negative margins (all P <0.001). Multivariable analysis adjusted for sociodemographic, tumor and treatment factors showed that hospital volume was a significant predictor for preoperative biopsy diagnosis, TT, LND, TT with LND, and TT with LND and a negative tumor margin (Table 1).

Conclusion: Higher hospital volume is significantly associated with improved process of care in MTC including preoperative biopsy diagnosis, TT, LND, TT with LND, TT with LND and negative resection margins. Improving process of care at low volume hospitals may improve outcomes in MTC.

Disclosure of Interest: None declared
THE BETHESDA SYSTEM FOR REPORTING THYROID CYTOPATHOLOGY: A REVIEW OF 1443 THYROID NODULES

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Introduction: To stratify the risk of malignancy in thyroid nodules in a tertiary care hospital using the Bethesda system.

Materials & Methods: From January, 2012 to December, 2014, a retrospective analysis was performed among 1188 patients (15-90 years old) who had 1433 thyroid nodules and fine needle aspiration (FNA) at Prince Sultan Military Medical City (PSMMC), Riyadh, Saudi Arabia. All thyroid cyto-pathological slides and ultra sound reports were reviewed and classified according to the Bethesda System for Reporting Thyroid Cytopathology (BSRTC). Age, gender, cytological features and histological types of the thyroid cancer were collected from patients' medical chart and cytopathology reports.

Results: There were 124 total cases of malignancy on resection, giving an overall surgical yield of malignancy of 33.6%. Majority of the thyroid cancer nodules (n=57, 46%) in Bethesda VI category followed by Bethesda IV (n=25, 20.2%) and Bethesda V (n=18, 14.6%). Almost 40% of the cancer nodules in 31-45 age groups in both sex. Papillary Thyroid Carcinoma (PTC) was the most common form of thyroid cancer among the study population (111, 89.6 %) followed by 8.9% of follicular thyroid carcinoma (FTC), 0.8% of medullary carcinoma and 0.8% of anaplastic carcinoma. Among the Bethesda IV category 68% thyroid nodules were PTC and 32% FTC

Conclusion: The malignancy percentages obtained in our research were constantly and comparable with other published data in regard to risk of malignancy. For patients with follicular neoplasm/suspicious for follicular neoplasm (FN/SFN) and suspicious of malignancy categories, total thyroidectomy are indicted because of the substantial risk of malignancy


Disclosure of Interest: None declared
Introduction: Histological variants of PTC are well recognized which often display different aggressive behavior in the spectrum between well differentiated conventional PTC (cPTC) and insular variant carcinoma. One of them is FVPTC which displays distinct clinical heterogeneity which can be explained by differences at molecular level. However, the underlying molecular alterations have not been well defined.

Materials & Methods: 30 FVPTC (22 infiltrative and 8 encapsulated) were reviewed and included in the study. DNA and RNA from samples were isolated. DNA was used to screen BRAF and RAS mutations by using RFLPPCR and sequencing methods, while the expressions of iodine metabolizing genes were checked from RNA by using real time PCR. Further the mutations status, expression levels of iodine metabolizing genes and clinic-pathological features of the patients were correlated with each other using statistical tools.

Results: Infiltrative subtypes showed 40.9% (9/22) BRAF mutations and none of encapsulated had BRAF mutations. Encapsulated subtypes showed 37.5% (3/8) RAS mutations while infiltrative subtypes had 4.5% (1/22). Iodine metabolizing genes were expressed significantly lower in BRAF positive than BRAF negative group. More lymph node metastasis, higher incidence of distant metastasis and a higher degree of risk were noted in infiltrative variant.

Conclusion: Our study supports the argument that FVPTC can be separated into two subtypes; infiltrative subtype which has a molecular profile close to Conventional Papillary Thyroid Cancer, while encapsulated types have a molecular profile similar to follicular adenoma or Follicular Thyroid Cancer. Following hemithyroidectomy those who harbor BRAF mutations may be offered a completion thyroidectomy, because they show decreased expression of iodine metabolizing gene which confers a tendency to lose RAI avidity and further recurrence of the tumor.

Disclosure of Interest: None declared.
WHAT MAKES THYROIDECTOMY DIFFICULT - THE PATIENT, THE THYROID AND/OR THE SURGEON?

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Introduction: Thyroidectomy when performed under optimal conditions within a milieu of sound anatomic and physiologic knowledge combined with meticulous surgical skills, complication is minimal. Yet thyroidectomy can be difficult and complications can be life threatening. The factors that predict difficult thyroidectomy can be patient, thyroid or surgeon related. We evaluated the above three factors in this study.

Materials & Methods: Prospective study, performed in a tertiary care centre during September to December 2016. We developed a 56 point validated modified Thyroidectomy difficulty scale (TDS), with 10 items. Preoperatively the height, weight, neck length etc was recorded. Following surgery, performa for the modified TDS was filled by the surgeon and assistant, blinded to each other’s responses. The minimum score was 19 and maximum 54. The surgeons baseline heart rate was monitored throughout the procedure using a pulse oxymeter probe, that was OTG compatible. The probe was placed over the ear lobule/pinna of of the surgeon and was connected to the android phone which was comfortably placed in the surgeon's pocket inside the gown. An application USB SPO2, marketed by Berry used for recording the pulse rate.

Results: 28 thyroidectomies (Hemi and total) were included in this study. All had Benign FNAC (Colloid -71.42%). 56 Thyroid Difficulty scale filled by the operating surgeon and Assistant was analysed. The pulse rate of the operating surgeon as measured by pulse oxymeter was recorded in 16 surgeries. The stress was evaluated by modified Karvonen formula (severe stress-12.5%, moderate stress- 81.25% and mild stress- 6.25%). The Maximum heart rate observed during Supr pole ligation in 10 (61.25%) and the second was RLN dissection (18.75%). There was interobserver agreement in most domains of TDS Questionnaire (table1). The minimum score -19, Max -37 and the mean score 25.17±5.09.

<table>
<thead>
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<td>Neckcontour</td>
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<td>Thyroid Remnant</td>
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<td>Total score*</td>
<td>25.18±5.10</td>
<td>25.86±4.22</td>
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</tbody>
</table>
Conclusion: Difficulty of thyroidectomy correlates with the modified TDS, surgeon's heart rate, surgeon's experience and patient factors and it is a moderate stress for majority of surgeons.

Disclosure of Interest: None declared
Introduction: The recurrent laryngeal nerve (RLN) and the external branch of the superior laryngeal nerve (EBSLN) innervate the intrinsic laryngeal muscles and are at risk during thyroid surgery. Nerve integrity can be checked by intra-operative nerve monitoring (IONM) after visualisation. The aim of this study is to determine the prevalence and nature of voice dysfunction following thyroid surgery with IONM. A secondary aim was to assess the impact of strap muscle division during thyroidectomy on voice outcome.

Materials & Methods: One hundred and two consecutive patients undergoing elective thyroid surgery were included. Thyroidectomies were performed with routine division of strap muscles and use of IONM to confirm RLN and EBSLN integrity post dissection. All patients were assessed for vocal function pre-operatively and 1 and 3 months post-operatively by an independent laryngology clinic, which included Voice Handicap Index-10 (VHI-10), maximum phonation time (MPT), fundamental frequency (f0RP), pitch range (f0LOW and f0HIGH), harmonic to noise ratio (HNR), cepstral peak prominence (CPPRP) and smoothed cepstral peak prominence (CPPS). Pre-operative voice evaluation served as the control for post-operative voice outcome measures.

Results: Of 102 patients 68% underwent total thyroidectomy and 32% hemithyroidectomy, which resulted in a total of 172 EBSLNs and RLNs at risk. All nerves at risk were identified during surgery, however 23.3% of EBSLNs and 5.2% RLNs required the assistance of IONM above visualisation alone. Nerve integrity was confirmed intra-operatively for 98.8% of EBSLNs and 98.3% of RLNs. There were no differences between pre- and post-operative VHI-10 scores. Acoustic voice assessment showed no clinically significant changes post-operatively (table 1). Subgroup analysis for malignant versus benign pathology, hemi- versus total thyroidectomy and lymphnode dissection showed no effect on voice outcome.

Conclusion: Thyroidectomy with IONM confirmation of post dissection RLN and EBSLN function and routine division of strap muscles results in no clinically significant voice change for participants as measured by an independent laryngology clinic.

Disclosure of Interest: None declared
PARATHYROID SPLINTING IMPROVES OUTCOME OF POSTOPERATIVE HYPOCALCEMIA AFTER TOTAL THYROIDECTOMY

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Introduction: Medical treatment of hypocalcemia after total thyroidectomy has aimed traditionally at keeping the serum calcium concentrations in the low-normal range to stimulate the failing parathyroid glands. Recent studies, however, suggest that the opposite strategy (parathyroid splinting) may result in higher rates of long-term recovery of the parathyroid function. The aim of the study was to determine the relationship between serum calcium levels achieved during the first month of medical treatment of post-thyroidectomy hypocalcemia and the risk of permanent hypoparathyroidism.

Materials & Methods: Prospective observational multicenter study of consecutive patients undergoing first-time total thyroidectomy and developing postoperative parathyroid failure defined as serum calcium <8 mg/dl within 24h and/or PTH <10 pg/ml 4h after surgery. Calcium salts and calcitriol were administered to all patients according to local protocols. Serum calcium and iPTH concentrations were determined before thyroidectomy, 24h after surgery and then periodically until recovery or permanent hypoparathyroidism was diagnosed after at least one year follow-up.

Results: Some 145 patients were included. Hypocalcemia recovered within 30 days in 91 (63%) patients and 54 (37%) developed protracted hypoparathyroidism (mean iPTH of 5.8±4 pg/ml at 1 month), of whom 32 recovered within one year and 22 developed permanent hypoparathyroidism. The prevalence of protracted hypoparathyroidism was related inversely with the number of parathyroid glands remaining in situ (not transplanted nor resected) after thyroidectomy: 88% for PGRIS 1, 46% for PGRIS 2; 21% for PGRIS 3 and 30% for PGRIS 4 (P<0.001). The serum calcium concentrations (mg/dl) one month after thyroidectomy correlated positively with the rate of recovery (percent) from protracted hypoparathyroidism: <8.5 (20%); 8.5-9 (29%); 9.1-9.5 (70%); 9.6-10 (89%); >10 (83%) (P=0.013). Serum iPTH (7.3 vs. 3.7 pg/ml; P=0.002) and calcitriol) serum concentrations (41 vs 34 pg/mL; P=0.07) at one month were higher in patients recovering from protracted hypoparathyroidism.

Conclusion: Medical treatment of post-thyroidectomy hypocalcemia should aim at keeping the s-Ca concentrations above 9 mg/dl.

Disclosure of Interest: None declared
Introduction: Presence of lymph node metastases increases the risk of recurrence, but whether to perform prophylactic central neck node dissection for patients with mPTC is controversial. We aim to find the clinical predictors of central lymph node metastases (CLNM) in CN0 mPTC patients.

Materials & Methods: We retrospectively reviewed the clinicopathological and genetic characteristics of 1304 patients with CN0 mPTC operated at the First Hospital of Jilin University between January 2013 and May 2016, all underwent thyroid lobectomy or total thyroidectomy with uni/bilateral prophylactic central neck dissection. Univariate and multivariate analysis were used to identify the predictors of CLNM in CN0 mPTC patients.

Results: 30.7 % of CN0 mPTC patients had CLNM. Univariate analysis found CLNM to be associated with age(≤45), gender(male), tumor size(>0.5cm), multifocality, bilaterality, capsular invasion, lymphovascular invasion and extrathyroidal infiltration, but not associated with BRAF mutation, tumor location, preoperative TSH and anti-thyroglobulin level. Multivariate logistic regression showed age≤45 years(p<0.001, OR=2.05), male gender(p<0.001, OR=1.94), tumor size>0.5cm(p<0.001, OR=1.87), bilaterality (p=0.003, OR=1.86)and capsular invasion (p=0.013, OR=1.49) to be independent predictors for CLNM in CN0 mPTC patients.

Conclusion: Prophylactic central neck dissection has higher yield for CN0 mPTC patients with age≤45 years, male gender, tumor size>0.5cm, bilaterality and capsular invasion. BRAF mutation is not a predictor for CLNM in CN0 PTMC patients.

Disclosure of Interest: None declared
Introduction: Pregnancy at early age is the most significant modifiable factor which consistently decreases lifetime breast cancer risk. However, the underlying mechanisms haven’t been conclusively identified. Studies in mice suggest a reduction in progesterone-receptor (PR) sensitive epithelial cells or PR positive epithelial cells as well as a downregulation of the Wnt signaling pathway as being one of the main mechanisms for the protective effect of early pregnancy. The aim of our study was to validate these findings in humans.

Materials & Methods: We collected benign breast tissue of 123 women who had been stratified according to age at first pregnancy and the occurrence of subsequent breast cancer, and performed immunohistochemistry for PR, Wnt4 and the Wnt-target Versican.

Results: The number of PR positive epithelial cells was significantly lower in the group of women with early pregnancy and no subsequent breast cancer compared to the group of nulliparous women with subsequent invasive breast cancer (p=0.017). In women with early pregnancy, expression of Versican and Wnt4 was significantly lower compared to nulliparous women (p=0.0064 and p=0.0156 respectively), and Versican expression was also significant lower compared to women with late pregnancy (p<0.0001).

Conclusion: Our results confirm prior observations in mice and suggest a role of downregulation of epithelial Wnt signaling in the protective effect of early pregnancy in humans. This results in a decreased proliferation of stem/progenitor cells; therefore, the Wnt signaling pathway may represent a potential target for breast cancer prevention in humans.

Disclosure of Interest: None declared
TO EVALUATE P-GLYCOPROTEIN EXPRESSION IN RELATION TO MOLECULAR SUBTYPES AND PREDICTING RESPONSE TO NEOADJUVANT CHEMOTHERAPY IN BREAST CANCER – A STUDY FROM A TERTIARY CARE CENTER IN INDIA

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Introduction: Neoadjuvant chemotherapy is an integral part in management of breast cancer. Chemoresistance is an important factor determining the response of tumor to neoadjuvant chemotherapy (NACT). P-glycoprotein (P-gp) expression-mediated drug efflux is one of the mechanisms responsible for multi-drug resistance. Our study was aimed to determine the role of P-gp expression as a predictor of response to NACT in locally advanced breast cancer (LABC) patients and relation with clinicopathological characteristics.

Materials & Methods: Between August 2013 and July 2014, n=49 patients with LABC were enrolled after ethical approval. Clinicopathological data of each patient was recorded. Trucut biopsy was taken from the breast tissue before starting NACT and repeated post 3 completed NACT cycles for studying the P-gp expression in breast tissue using CD243/Glycoprotein P Monoclonal Antibody on immunohistochemistry. Response to adriamycin-based regimen was assessed using WHO criteria before and after NACT. Statistical analysis was done using SPSS 17.0 software.

Results: Increased number of patients stained positive for P-gp after receiving chemotherapy especially in patients showing stage III and stage IV disease (p=0.02). With relation to molecular subtypes, P-gp was increased more in post NACT period in Her2neu and triple negative LABC (p=0.01). With relation to response higher expression was significantly associated with stable or progressive disease (p=0.01).

Conclusion: Detection of P-gp expression status before initiation of chemotherapy can be used as a predictive marker for NACT response in different biological subtypes and will also aid in avoiding the toxic side effects of NACT in non-responders.

Disclosure of Interest: None declared
PE110
LOCAL HEAT PRECONDITIONING TO PREVENT WOUND BREAKDOWN AND SKIN NECROSIS: A RANDOMIZED STUDY IN BILATERAL REDUCTION MAMMAPLASTY
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Introduction: Successful wide dissections or flap transfer require sufficient tissue perfusion, particularly within randomly perfused skin and muscle areas distant to the vascular inflow. Inadequate tissue perfusion is associated with wound breakdown and skin necrosis of up to 68% respectively 45%. Tissue preconditioning (PC) strikingly mimics “surgical delay”, an effective but invasive and long lasting approach to reduce ischemia-induced flap-morbidity as previously shown in skin sparing mastectomy (1, 2). This translational study aims at analysing the efficacy of preoperatively applied local heat PC in reduction mammoplasty (RMP).

Materials & Methods: Prospective randomised trial including 34 patients (mean age: 42years; mean BMI: 26kg/m²) undergoing bilateral RMP. Local heat-PC initiated ~18hrs prior to surgery, using a pliable water-cuff heated to a constant 43°C and moulded to the breast for three 30-min cycles, interrupted by 30-min passive cooling to room temperature. The contralateral breast remained un-heated and served as control. Tissue perfusion (laser Doppler), rate of wound breakdown (% of total number of breasts), total healing time (days) and expression of Heat Shock Protein in skin samples (HSP)-70 (ELISA) were assessed. “Prolonged healing-time” was defined as incomplete re-epithelialization of the surgical wound at day 14 postoperatively.

Results: No burns were induced by local heat-PC. Mean resection weight of both breast was comparable (left: 575g; right: 612g). Local heat-PC resulted in reduction of wound breakdown from 35% to 10% (p<0.05). Tissue PC was associated with an up-regulation of HSP-70 (p<0.05). Tissue perfusion was only increased directly after heat application when compared to the un-heated contralateral breast and not before surgery the next day. Mean postoperative drainage-volume was similar in both breast (left: 33ml vs. right: 34ml).

Conclusion: Local heat-PC of the skin is a simple, non-invasive and effective method to counter ischemia-induced complications, including prolonged healing-time and wound breakdown. This procedure can potentially be applied before many different surgical procedures and is therefore not limited to plastic and reconstructive surgery. The tissue protective effect of local heat-PC is associated with an induction of HSP-70 that increases ischaemic tolerance rather than maintaining tissue perfusion.


Disclosure of Interest: None declared
Introduction: Most women with early breast cancer have a choice between Mastectomy and Breast conservation surgery (BCS), and the decision making is a complex process both for the patient and the surgeon. BCS has two aspects oncological clearance and aesthetic preservation. Surgeons play an important role in the decision making. We aimed to study Indian surgeon’s perspective regarding breast conservation surgery.

Materials & Methods: We developed closed end questionnaire with 20 questions regarding various aspects of BCS. The Questionnaire was developed by two endocrine and Breast surgeons trained in Questionnaire development. The link to the questionnaire was sent by emails to various general surgeons, oncosurgeons and breast surgeons around India and they filled the questionnaire at www.sgpgibreast.in Website. The authors had access to the responses once the questionnaire was submitted.

Results: 81 surgeons from all over India participated. Demographic details are provided in Table 1.

<table>
<thead>
<tr>
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<td>31-40</td>
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<td>41-50</td>
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<tr>
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Chi square test and Fisher test was used for analysis. When Female and Male surgeons were compared there was no significant (<0.05) difference in any of the response for 20 questions. When superspecialists were compared with specialists there was significant (<0.05) in 18 responses except do you take into consideration the patients economic condition and Do you routinely excise skin during BCS. When young surgeons were compared with old surgeons there was significant (<0.05) response difference in 14 questions.

Image:
Conclusion: There are considerable differences among surgeons’ perspective depending on the level of training and facilities available in their institution. It is an ongoing study and final results are awaited.

Disclosure of Interest: None declared
**Introduction:** China is the most populated country in the world; its diverse ethnicity and regional disparity resemble an excellent model for breast cancer epidemiological study. It is known that breast cancer occurs earlier in China than the Western counterpart but the reason is largely unknown. The University of Hong Kong is currently running clinical services in both Hong Kong and Shenzhen, China. The two cities are in close geographical proximity but with very different cultural and socioeconomic structure due to historical reasons. This study aims to review and compare all breast cancers treated in Hong Kong and Shenzhen from September 2013 to August 2016.

**Materials & Methods:** Clinical data were retrieved from a prospectively-maintained database, risks factors for breast cancers were evaluated with multivariate analysis. Chi-square test and Fisher-exact test were used for evaluation of significance of correlation.

**Results:** 805 patients were treated for breast cancer between September 2013 and August 2016, 251 patients were from Shenzhen. Median age of diagnosis in Shenzhen was 46 (Range 23 – 85). 76 (43.4%) patients were <= 40 years-old. These young patients (<= 40 years old) have significantly lower mastectomy rate (58.9% vs. 72.6% \( P = 0.027 \)). They tend to come from poorer areas in China with lower Gross Domestic Product (GDP) (\( P = 0.002 \)) and have significantly poorer nuclear grade (\( P = 0.01 \)). However, the tumor histotype, hormonal-receptor status, HER2-status, molecular subtypes, nuclear grade, KI-67 index and TNM staging were comparable to patients >40 year-old (\( p > 0.05 \)).

During the same period of time, 554 patients were treated in Hong Kong. The median age of diagnosis was 55 (Range 22 – 103). 76 (13.7%) were <= 40 years-old, which is significantly lower than that in Shenzhen (\( P < 0.001 \)). Baseline demographic features including personal and family history of breast cancer, use of exogenous hormones and smoking history were comparable between Hong Kong and Shenzhen. Tumor biology and staging were also comparable (\( p > 0.05 \)). Environmental factor may therefore play an important role, leading to the early onset of breast cancer in mainland China.

**Image:** Map showing the locations of Hong Kong and Shenzhen, China

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**Conclusion:** Breast cancer occurs younger in China than in Hong Kong, these patients have similar personal, familial and hereditary background. Environmental factor may play an important role in causing young breast cancer onset in China.

**Disclosure of Interest:** None declared
Introduction: With the recent introduction of biological matrices [acellular dermal matrix (ADM)] there is an overall increase in implant based breast reconstruction globally. However, the cost of ADM is beyond the reach of many patients in low and middle income countries (LMIC). We present our experience of implant based breast reconstruction using vicryl mesh as a low cost alternative to ADM.

Materials & Methods: Between January 2015 and October 2016 a total of ten patients with early breast cancer not suitable for breast conservation surgery (BCS) were taken up for implant based reconstruction using vicryl mesh. Following skin sparing mastectomy a sub-pectoral pocket was created and vicryl mesh was fixed between pectoralis major and chest wall infero-laterally to secure the silicone implant (Mentor) of appropriate size. Post operative morbidity, cosmetic outcomes and cost factor analyzed.

Results: The surgical procedure could be accomplished successfully in all patients and we did not encounter any problems in fixing vicryl mesh. During post-operative period one patient developed seroma and one patient had a wound dehiscence and rest all had uneventful post operative course. Explantation was required in one patient with wound dehiscence. Overall cosmetic outcomes were excellent in nine out of ten patients. Two patients also received post operative radiotherapy. The cost of 6x12 cm ADM is approximately 2500 USD while 15x15 cm vicryl mesh costs approximately 40 USD.

Conclusion: Results of our initial experience indicate that vicryl mesh can be used successfully as a substitute for ADM in patients undergoing implant based reconstruction. Vicryl mesh is widely available and 50 times cheaper than ADM making it a better alternative to ADM in resource constrained setup.


Disclosure of Interest: None declared
PE114
BREAST CANCER SURVIVAL IN LOW AND MIDDLE INCOME COUNTRIES (LMIC): EXPERIENCE FROM TERTIARY CARE CENTER IN INDIA
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Introduction: Wide disparity has been reported in breast cancer survival between high income countries (HIC) and low-middle income countries (LMIC). The aim of present study is to analyze relapse patterns and survival outcomes following protocol based multimodality management including quality control surgery in breast cancer patients from a tertiary care cancer center in India (LMIC).

Materials & Methods: A retrospective analysis of computerized prospective clinical database of breast cancer patients treated consecutively during January 1994 to December 2012, in the department of Surgical Oncology, Institute Rotary Cancer Hospital, All India Institute of Medical Sciences, New Delhi, India was performed. All nonmetastatic, unilateral, invasive female breast cancer patients were included for analysis. The AJCC/TNM (2010) staging system was referred for staging purpose. All patients were offered protocol based trimodality therapy (Systemic therapy + Surgery + Radiotherapy). Follow up patterns, compliance to treatment, relapse patterns and survival outcomes were analyzed.

Results: A total of 2336 patients qualified for final analysis. 45% patients constituted the clinically diagnosed early breast cancer (stage I+II) group while 55% patients belonged to locally advanced breast cancer group (stage III). Final AJCC/TNM staging is depicted in figure 1. Breast conservation surgery and mastectomy were performed in 343 and 1993 patients respectively. In EBC group approximately 30% patients underwent BCS. Median pathological tumor size was 3.5 cm (range 0.5-8 cm). Overall pathological nodal positivity was 59%. Overall 85% received systemic chemotherapy. Adjuvant hormonal therapy was given in 62% and adjuvant radiotherapy was given in 61% patients. After a median follow up of 37 months, 75.85% patients were alive and disease free. Overall 5 year disease free survival (DFS) and overall survival (OS) were 69% and 89% respectively. Five year DFS and OS were 86.25% and 93.47% for EBC and 54% and 74.7% for LABC respectively. Stage specific DFS and OS are depicted in figure 2.

Conclusion: Present study highlights that excellent outcomes comparable to international standards can be achieved with quality control surgery and multidisciplinary care in resource constrained low middle income countries like India. The main reasons for poor outcomes are lack of access to quality care treatment and suboptimal care at peripheral institutes in LMICs.

Disclosure of Interest: None declared
Introduction: Fungating breast carcinoma according to AJCC classification is termed as T4 which by no means explains the spectrum of disease and their outcome on patients. NCCN guidelines on breast carcinoma published in 2015 does not include the word “fungating” breast carcinoma. Guidelines published by well-established breast cancer societies fail to give a standard algorithm for treatment of fungating breast carcinoma. Resection as a palliation is one of the accepted treatment options worldwide however, toilet mastectomies in such groups leave a large skin defect.

Materials & Methods: All patients presenting with locally advanced carcinoma breast were included in the study. We are reporting a series of 23 cases of such patients who had locally advanced breast carcinoma where latissimus dorsi flap was used to close the defect primarily, since the defect after surgery was large and could not be closed primarily. The outcome was determined in terms of flap survival, patient satisfaction, time for initiation of chemotherapy and recurrence rate under the flap.

Results: 23 patient (21 females, 2 males) with an mean age of 43.22 years were included in the study. Most of the cases were in stage IIIIC. Indication for surgery was mainly large fungating carcinoma with either bleeding (n= 9/23) or foul smelling discharge (n= 19/23) cases. Ulcerative growth larger than 15 cm, where primary closure was not possible without tension in the suture line. Average blood loss was 265 ± 87 ml & mean operative time 162 ± 24.6 min. Tumor recurrence (n=2/23) Wound infection (n=3/23) and Partial flap necrosis (n=1/23) cases were the common complications. All patients were subjected to adjuvant chemotherapy. All local recurrence cases were managed successfully by local exploration and resection of recurrent lump. Disease specific mortality at 5 years in n= 4/ 21 as two patients have lost to follow up.

Conclusion: We have found the procedure very useful in improving quality of life of patient and reducing bleeding, foul smelling discharges and able to start local chemoradiation due to muscle mass available on the tumor area. Longest surviving patient with stage IIIC invasive ductal carcinoma is 9 years.

Disclosure of Interest: None declared
Introduction: In India, breast cancer is diagnosed at an advanced stage compared to Western countries. Nevertheless, the perceived barriers to delayed presentation have been poorly examined. Additionally, available breast cancer awareness data are lacking. The aim of this study is to evaluate the level of breast cancer awareness and perceived barriers among literate and professional Indian women, using a questionnaire.

Materials & Methods: We conducted a cross-sectional survey of female employees of a pharmaceutical company using a self-administered questionnaire to investigate participants' awareness and knowledge of breast cancer. A total of 52 employees successfully completed the survey.

Results: Out of 52 women who responded, 44% had a master's degree and the rest had completed their graduation. Only 42% had previously read about breast cancer. Only 58% have heard about BSE, and only 15% practiced it. 1/3rd of them knew nothing about the symptoms of breast cancer, however, 82% answered that they will consult a doctor if they find a painless lump in the breast. 96% preferred to consult a lady surgeon in case of breast problems. 88% of them had no idea about the tests for diagnosing breast cancer. 90% responded that they were aware that treatment is possible in breast cancer and knew about surgery, chemotherapy, and radiation as a part of treatment, however, more than 50% didn't know about hormonal therapy. 54% of them thought that it was essential to remove the complete breast as part of treatment.

Conclusion: We are reporting a major gap in breast cancer awareness and several logistic and socio-cultural barriers to seeking medical care among adult professional Indian women. The current findings emphasized the critical need for an effective national breast cancer education program to increase public awareness and early diagnosis.

Disclosure of Interest: None declared
CAN WE AVOID AXILLARY DISSECTION WITH POSITIVE SENTINEL NODES IN EARLY STAGE BREAST CANCER?

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Introduction: Sentinel node biopsy (SLNB) is the current gold standard of care as an alternative to axillary lymph node dissection for nodal staging in surgical therapy of early stage breast cancer. Due to early diagnosis, the number of cases where sentinel node is the only positive axillary node has increased. In this group of patients axillary dissection doesn't bring any additional staging information. Results of study ACOSOG Z0011 has confirmed the feasibility and safety of omission of axillary dissection after sentinel node positivity. We have performed retrospective studies valuating the proportion of patients with a positive SLNB where axillary dissection has followed and this didn't show any additional positive lymph nodes.

Materials & Methods: SLNB were performed in 536 breast cancer patients at the Department of Surgery Hospital Atlas Zlin between January 2004 and December 2009. The sentinel node biopsies were performed with Patentblue and Radiocolloid. A maximum of two positive sentinel nodes were found in 49 cases which were further evaluated in this study. Axillary node dissection followed sentinel node biopsy in all of these patients.

Results: Conservative saving surgery with SLNB was performed in all patients included in the study. The size of the tumor was T1 in 30 cases and T2 in 19 cases. Grade: I in 1x, II in 15x and III in 8x. Ki-67 over 25% was found in 6 patients. 1x positive sentinel node was found in 37 patients and two positive nodes were found in 12x. Non-sentinel nodes were negative in 29x and positive in 20x. One or two positive non-sentinel node was found in 12x, three or more positive non-sentinel nodes were found in 8x. When treatment outcomes were evaluated there was one local breast recurrence and two patients with distant metastatic recurrence. Nine patients died during follow up, including one patient with local relapse and one patient with regional axillary relapse. In these nine deaths, five were patients with three or more positive non-sentinel nodes and the other deaths were in patients with minimally affected axilla.

Conclusion: Our retrospective study has confirmed that about forty percentage of early stage breast cancer patients undergoing sentinel node biopsy had metastasis in non-sentinel lymph nodes. Risk of metastatic nodes left in the axilla when axillary dissection will be omitted in our file is high. But only five of the deaths were in patients with three or more positive non-sentinel nodes. Appropriate examination of the axilla before surgery is necessary.

Disclosure of Interest: None declared
Introduction: Breast cancer had become the leading cancer among Thai women and the number has increased during the past decades. Although breast conserving therapy (BCT) intent to improve body image and quality of life (QoL) for breast cancer patients, it still cause breast deformity and impair patients’ psychological and physical functions. Different of culture and way of life between Asian and westerner may result in different QoL and perception among patients. Aiming to improve standard of care for Thai breast cancer patients, we investigate QoL and body image in patients who underwent both BCT and mastectomy.

Materials & Methods: QoL and body image of 60 breast cancer patients who underwent either mastectomy or BCT and completed course of chemo-radiation at HRH Princess Maha Chakri Sirindhorn Medical Center were evaluated by using Thai version of EORCT QLQ-C30, EORCT QLQ- BR 23 and body image scales (BIS).

Results: Mean age of 60 patients was 55 years which ranged from 33 to 78 years. Thirsty patients underwent mastectomy while the other received BCT. Forty-eight patients received chemotherapy and 47 patient received radiation while 50 patient took hormonal treatment. Patients’ QoL were shown in graph 1. Comparing between mastectomy and BCT group, there was no statistical difference in BIS score and EORCT QLQ-C30 results. However, sexual functioning (SRSEF), sexual enjoyment (BRSEE) and future perspective (BRFU) in functional scales of QLQ-BR 23 were lower in BCT group which were statistical significant comparing to mastectomy group; p=0.003, p=0.012 and p=0.028 respectively. Younger patients; age less than 50, also showed lower QoL score in physical functioning, role functioning, social functioning of QOL-C30 and SRSEF, BRSEE, BRFU and upset by hair loss scales of QOL-BR 23 significantly (p<0.05).

Conclusion: Body image and QoL in both BCT and mastectomy patients had similar results except BCT group had lower score of symptom scales in QLQ- BR 23. Moreover, younger breast cancer patients also showed poorer QoL than older patients.

Disclosure of Interest: None declared
THE IMPACT OF INTRAOPERATIVE RADIOTHERAPY ON EARLY BREAST CANCER DETECTION: A CLINICAL REVIEW FROM A DEVELOPING COUNTRY

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Introduction:
The fast pace of urbanization in many developing countries coupled with the imposed changes in life style has resulted in many alterations in disease patterns. The lack of structured breast cancer awareness programs (BCAP) in developing countries coupled by the scarcity of radiation oncology centers limit surgical options. The aim of this study is to Probe the use Intraoperative radiotherapy (IORT) treatment as a stem to initiate positive impact on early disease detection and propagate breast conserving surgery (BCS).

Materials & Methods:
This observational review was undertaken at King Fahd hospital of the university, Alkhobar, Eastern province of Saudi Arabia between 2012-2016. All patients diagnosed with breast cancer were reviewed. Strict recruitment criteria were adopted for patients to receive IORT. Selected candidates where only those who were eligible and consented to undergo BCS and IORT. Special emphasis was placed on demographic data, tumor size at the initial presentation, post Neo-adjuvant chemotherapy response, post-pathology cavity size and applicator size used.

Results:
The total number of patients diagnosed with breast cancer were 330 out of which 70 (21%) patient were eligible for IORT. Age ranged from 31-75 years with the Median age 50 years. Applicator sizes used ranged from 2.0-5.0. Tumor size ranged between 0.6-4.0 centimeters. 1 (1%) was post pathology case with excision performed two weeks prior to presentation. Tumor size reported between 0.6-4.0 centimeters 0-1 in 9 (112%), 1.1-2 in 23 (32%), 2.1-3 in 24 (34%), and 3.1-4.0 in 15 (21) patients.

7 (10%) patients received Neo-adjuvant chemotherapy with positive response and were included. The applicator sizes available ranged between 1.5-5.0 centimeters.
Applicator sizes used were: size 2.0 in 2 (3%), size 2.5 in 10 (14%), size 3.0 in 18 (25%), size 3.5 in 17 (24%), size 4.0 in 10 (14%), size 4.5 in 6 cases (9%) and size 5.0 in 7 cases (10%). Smaller applicator sizes 2.0-3.5 centimeter in diameter were used in 46 (66%) of cases suggesting that smaller lesions are currently been diagnosed.

Conclusion: The introduction of Intraoperative radiotherapy (IORT) intended as boost therapy is a break through treatment of early breast cancer in developing countries. Its use propagated the promotion of BCS thus, bracing a positive impact on early detection strategies.

References:
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Abdel hadi M, Al Ratrout H, Al Wadaani H. Rethinking: Ideal Screening Age for Breast Cancer in Developing CountriesTh e journal of breast health 2015; 11 (3), 110-114


Disclosure of Interest: None declared
Introduction: Sentinel lymph node biopsy (SLNB) is considered as the alternative to axillary lymph node dissection (ALND) for early breast cancer patients with pN1mi(sn) and pN1(sn). The ASCO guideline recommends no further ALND for such patients who receive adjuvant therapy and regional node irradiation (RNI). However, it remains uncertain whether RNI must be performed or not. We conducted a multicenter study to validate prognosis of patients treated with no ALND.

Materials & Methods: This is a retrospective registry (UMIN000016888). The eligible patients had unilateral T1-3N0M0 breast cancer at the UICC version 8.0. They underwent breast surgery and SLNB between 2008 and 2011. Lymph node sampling in addition to SLNB was included. Sentinel lymph node (SLN) was diagnosed with pathological examination or one-step nucleic acid amplification (OSNA). This work was supported by a grant from the scientific committee of the Japanese Breast Cancer Society. It was approved by the IRB at participating institutes.

Results: As of December 2015, 140 patients were registered consecutively from 11 institutes: 82 patients had stage I, 56 stage IIA and 2 stage IIB. SLNB was performed with dye and radioisotope in 113 patients, dye in 25 and dye and fluorescent dye in 2. In addition to SLNB, one lymph node was sampled in 17 patients, 2 lymph nodes in 15 and 3 or more lymph nodes in 26. Breast-conserving surgery was done in 101 patients, total mastectomy in 30 and subcutaneous mastectomy in 9. One micrometastasis in SLN was found in 101 patients, 2 micrometastases in 4 and one macrometastasis in 35. One hundred twenty-three cases were classified into luminal type, 7 cases luminal-HER2 type, 8 cases triple negative type and 1 cases HER2 type. Most patients received adjuvant therapy and radiation therapy, but only 14 patients did RNI. At the median follow-up of 60 months, 129 patients were disease-free and 11 relapsed: regional node recurrence was observed in 5, local recurrence in 1 and distant organ metastases in 7. Only 4 patients were dead: 3 died of breast cancer and 1 of lung cancer. From a univariate analysis, negative progesterone receptor, nuclear grade 3 and no endocrine therapy were significant factors of 5-year disease-free survival. Nuclear grade 3 was only a poor prognostic factor of 5-year overall survival.

Conclusion: There were several limitations in this analysis, but patients with limited disease in SLN had favorable prognosis despite no RNI.

Disclosure of Interest: None declared
THE INFLUENCES OF PERITUMORAL LYMPHATIC INVASION AND VASCULAR INVASION ON THE SURVIVAL AND RECURRENCE ACCORDING TO THE MOLECULAR SUBTYPES OF BREAST CANCER

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Introduction: We aimed to compare the influences of peritumoral lymphatic invasion (LI) and vascular invasion (VI) on the survival and recurrence according to the molecular subtypes of breast cancer.

Materials & Methods: Data of 820 consecutive primary breast cancer patients were retrospectively analyzed. The overall survival (OS) and disease free survival (DFS) according to LI and VI were assessed using the Kaplan-Meier estimator. Independent prognostic significance was analyzed using Cox proportional hazards model.

Results: Both positive LI and VI showed inferior OS and DFS compared to negative LI and VI, respectively (all \( p < 0.001 \)). Both positive LI and VI revealed the higher local, regional, and distant recurrence rates (\( p = 0.002 \) for regional recurrence of VI, \( p < 0.001 \) for all the others). Although LI was a significant independent prognostic factor regarding OS (HR: 1.927; 95\% CI: 1.046-3.553; \( p = 0.035 \)) and DFS (HR: 1.815; 95\% CI: 1.063-3.096; \( p = 0.029 \)), VI was not by multivariate analyses. Regarding OS, both positive LI and VI showed worse survival rates in the luminal A (\( p = 0.016 \), \( p = 0.024 \), respectively) and triple negative subtypes (both \( p < 0.001 \)). Regarding DFS, LI was a significant prognosticator in the luminal A and triple negative (both \( p < 0.001 \)) subtypes. VI was a significant prognosticator across all molecular subtypes while the prognostic impact was most prominent in the luminal A subtype (\( p < 0.001 \)).

Image:
Conclusion: Both peritumoral LI and VI were significant unfavorable prognostic factors of OS and DFS especially in the luminal A and triple negative subtypes of breast cancer. Although LI was a significant independent prognosticator regarding OS and DFS, VI was not by multivariate analyses.


Disclosure of Interest: None declared
Introduction: Our initial pilot study reported on the reliable assessment of sentinel lymph nodes using OSNA. This series reviews our institution’s early experience following the implementation of OSNA into routine clinical practice, and the influence on decisions around management of the axilla.

Materials & Methods: From September 2014 to September 2015, 93 patients were evaluated intra-operatively with OSNA. The OSNA results and other lymph nodes histologically examined (non-sentinel nodes) are reported.

Results: Of the 93 patients, 70 (75.3%) had negative OSNA results, 11 (11.8%) had macrometastasis, 10 (10.8%) had micrometastasis and 2 (2.2%) were deemed positive but unable to differentiate between micrometastasis and macrometastasis. Results were indeterminate in these patients as the copy numbers were close to the cut-off that the machine was calibrated against, and the machine was not able to differentiate whether it was micrometastasis or macrometastasis.

All 11 patients with macrometastasis had immediate axillary surgery at the index operation, and 5 of these patients were found to have other positive non-sentinel lymph nodes. Seven of the 12 patients with micrometastasis/indeterminate results by OSNA underwent axillary clearance (AC) on the basis of adverse primary tumour features eg. Large tumour size, high grade disease. Four AC were performed immediately and three were delayed following multidisciplinary. Three of the seven patients who had AC done had further macrometastatic disease. One of them had a 11mm grade 1 IDC tumour, with 2 out of 13 lymph nodes positive. The other patient had a 32mm grade 2 mucinous carcinoma, with extensive lymphovascular invasion, and 2 out of 8 lymph nodes that were positive. The last patient was a post-neoadjuvant chemotherapy patient, whose final histology showed a 30mm grade 2 IDC, with 7 out of 35 lymph nodes positive.

Conclusion: Axillary treatment for macrometastasis on OSNA is a prudent strategy. Our early experience suggests that axillary dissection may have utility in patients with micrometastasis.


Disclosure of Interest: None declared
Introduction: Breast conservation surgery (BCS) is now standard of care for management of early breast cancer (EBC). The margin positivity and re-excision rates range between 3 to 35% in literature. Routine cavity shave at the time of wide excision has a potential to decrease margin positivity and re-excision rates. We present the results of a prospective single arm study of BCS with a quality controlled routine cavity shave.

Materials & Methods: A prospective single arm study was planned with a quality controlled and standardized surgical protocol for BCS, along with routine cavity shaves. All patients received adjuvant treatment as per the standard guidelines. After palpation guided wide excision, cavity shave was performed by excising 3 to 5 mm slice of tissue from medial, lateral, superior, inferior and deep surfaces and specimens sent separately for histopathological assessment. Final margin status was determined on the basis of cavity shave margins. Patients with positive cavity shave margin were taken up for re-excision. Results were analysed for margin positivity rates, re-excision rates and local recurrence patterns.

Results: From January 2000 to December 2012, a total of 266 early breast cancer patients underwent BCS with routine cavity shave. Overall margin positivity rate was 2.65%. Invasive tumor was identified in cavity shave margin in five (1.9%) and DCIS in two patients (0.75%). Re-excision was performed in 5 patients (1.9%) and the remaining two with focal microscopic margin were managed with additional radiation boost. At a median follow up of 46 months local recurrence in breast conservation surgery group was seen in only 10 patients (3.8%).

Conclusion: Results of the study indicate that it is possible to achieve excellent surgical and oncologic outcomes by routine cavity shave following breast conservation surgery. The overall margin positivity, re-excision and local recurrence rates were on the lower side of figures being quoted in literature for breast conservation surgery without cavity shave.

Disclosure of Interest: None declared
A SURVEY ON BREAST CANCER AWARENESS AMONG MEDICAL, PARAMEDICAL AND GENERAL POPULATION IN NORTH INDIA USING SELF DESIGNED QUESTIONNAIRE-A PROSPECTIVE STUDY

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Introduction: Breast cancer (BC) has become the most common cancer in urban women. In resource limited countries like India, we do not have screening/ awareness programs, most women present with locally advanced BC. Aim of our study is to identify present status of awareness about BC prevention, early detection and management in urban and rural Indian women (medical, para-medical and non-medical) and to assess whether education and socio-economic strata have any role in better awareness or not.

Materials & Methods: We did a prospective cross sectional observation study among medical, para-medical and non-medical women in north India. We designed questionnaire keeping in mind 3 domains about BC- knowledge (questions 1-25 include risk factors, genetics, life style changes, hormones, associated cancers and modes of presentation), skills of self examination (questions 25-37) and attitude to prevention and early detection (questions 38-44). We asked how many do Breast self examination (BSE) and what are 3 main factors responsible for late presentation and 3 mains ways to increase awareness. Likert scale was used. We analyzed data using SPSS

Results: Out of 220 women, 270 completed questionnaire and 26.4% were medical, 20.9% para-medical and 52.7% non-medical. Most women were educated (82.7%) and married (65%). 59.5% women resided in urban areas and rest 40.5% were from rural areas. Figure 1 shows comparison of knowledge, skills of BSE and attitude to prevention and early detection in all 3 sub-groups, among rural and urban women, these 3 domains were not different significantly. The 3 main factors responsible for delayed presentation were shyness, not doing regular BSE, ignorance about BC and social stigma and financial constrains. The 3 main ways to improve breast cancer awareness suggested were: to have more advertisements on social media, campaign road side and in colleges along with group discussions and at grass root level to involve anganwadi workers.

Image:

Figure 1: Comparing knowledge, skills of BSE and attitude to prevention and early detection among all 3 groups (medical, para-medical and non-medical) and in rural versus urban women.
Conclusion: Breast cancer knowledge and awareness was less among nonmedical women compared to medical and para-medical, skills of BSE and attitude to prevention and early detection were suboptimal in all 3 groups. Rural or urban dwellings did not make much a difference in BC knowledge, skills of BSE and attitude to prevention. More awareness regarding BC and BSE need to be addressed with more information dissemination via social media, campaigns and involvement of para-medics and social workers.

Disclosure of Interest: None declared
PE125
HISTOMORPHOLOGICAL CORRELATION OF HER2/NEU STATUS OF BREAST CANCER WITH DIGITAL MAMMOGRAPHY AND DIGITAL BREAST TOMOSYNTHEIS IN SELF-DETECTED TUMOURS
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Introduction: Patient detected lumps are the most common presentation of breast cancer in India and other developing countries. Digital mammography (DM) and digital breast tomosynthesis (DBT) features of these tumors can be different from screen detected tumors. In this prospective study, we correlated the DBT features with HER2/neu status of the tumors, which is an important prognostic factor.

Materials & Methods: Between January to May 2016, consecutive patients undergoing breast imaging had their DM and DBT reviewed separately by two radiologists independently, who were blinded of the cytology/histology of the lumps and the original DM/DBT reporting. Out of these, breast cancer patients with self-detected lumps were recruited for this study, and their DM and DBT findings were compared, and were correlated with HER2/neu status (scores 0 to 3+).

Results: Sixty three patients were included in this study. DBT significantly changed forced BIRADS scoring (p=.000), lesion morphology (p=.000) and margin status (p=.000) compared to DM. Lesion morphology varied significantly on DBT with HER2/neu score (p=.032). HER2-0 tumors mostly presented as a mass without microcalcifications (93.8%) whereas HER2-3+ tumours were equally likely to present as mass with (46.2%) or without (46.2%) microcalcifications. Margins of mass didn’t vary significantly with HER2 scores, though frequency of spiculated margins increased with increasing intensity of HER2. Forced BIRADS scores varied significantly (p=.000), with more intense HER2 immunostaining being more frequently associated with BIRADS 5 score. HER2 status did not vary significantly with cT, cN stages, histology type, grade, presence of DCIS or LVI.

On sub-group analysis, there were 11 triple negative breast cancers (TNBC) with HER2-0 score. All of these presented as masses without microcalcifications (lesion morphology- p=.014) and more commonly had well defined (27.3%) margins (margin variability p=.001) compared to other subtypes. They had lesser BIRADS 5 presentation than other subtypes (p=.000). When TNBCs with HER2-0 and 1+ scores were clubbed together, lesion morphology was no longer significantly different from other molecular subtypes (p=.347).

Conclusion: The DM and DBT features vary with the intensity of HER2 immunostaining and though HER2-0 and 1+ are clubbed together as HER2/neu negative cancers, they differ in the tumor morphology.

Disclosure of Interest: None declared
Introduction: Axillary dissection in breast cancer patients with positive sentinel lymph node (SLN) might be omitted with no inferior outcome in selected cases. Total tumor load (TTL) in SLN expressed by cytokeratin 19 (CK19) mRNA, detected by automated molecular technique – one-step nucleic acid amplification (OSNA), reflects tumor burden in SLN and might help in determination of non-SLN (NSLN) status. This study aimed to evaluate the significance of TTL in the discrimination of NSLN status and define the cut off level of CK19 mRNA copy number.

Materials & Methods: Breast cancer patients were recruited at Division of Head Neck and Breast Surgery, Department of Surgery, Siriraj Hospital, Mahidol University, Thailand from November 2015 to December 2016. The patients with invasive breast cancer T1-T3, clinically negative axillary lymph node and able to give informed consent underwent SLN biopsy assessed by OSNA. The patients with positive SLN underwent axillary lymph node dissection. Correlations between TTL, clinicopathological parameters and NSLN status were analyzed by chi-square statistic and logistic regression. Model discrimination was evaluated using receiver-operating characteristic (ROC) analysis.

Results: Sixty-seven patients were enrolled. Mean age at diagnosis was 54.54±11.16 years. Among 207 SLNs examined, 48 nodes were positive for metastasis (18 micrometastasis and 30 macrometastasis). Twenty-nine patients had positive SLNs. NSLNs were positive in 14 patients. Presence of macrometastasis in SLN and lymphovascular invasion were correlated with positive NSLN (p=0.035 and 0.001, respectively). Total tumor load expressed by CK19 mRNA copy number can discriminate NSLN status with the area under ROC curve of 0.881 (95%CI 0.758-1.000). At the cut off level at 6550 copies/μL, sensitivity, specificity, and negative predictive value were 85.7%, 73.3%, and 84.6%, respectively.

Conclusion: Intraoperative SLN evaluation by OSNA technique can determine NSLN status and help in decision for axillary lymph node dissection.

Disclosure of Interest: D. Sa-Ngwanraksa Grant/Research Support from: Sysmex Corporation, A. Kulprom: None declared, P. Pisamturakit: None declared, S. Chuthapisith: None declared, P. Rushatamukayanunt: None declared, W. Imruetaicharoenchoke: None declared, V. Lohsiriwat: None declared, P. O-charoenrat: None declared
Introduction: Local symptoms control is the usual indication for palliative resection of the primary breast tumour in patients with metastatic breast cancer. In our centre, we also performed palliative resection in selected group of patients, including those with good systemic response after chemotherapy and patients with non-visceral metastasis only. Previous meta-analysis has shown improved survival in selected patients with palliative resection of the primary breast tumour. (1) Here we retrospectively review the survival of selected patients with palliative resection of the primary breast tumour comparing to patients receiving systemic therapy alone in a regional hospital in Hong Kong.

Materials & Methods: Patients with metastatic breast cancer were identified from the prospective cancer registry in Kowloon East Cluster Breast Cancer in United Christian Hospital in Hong Kong between 1 Jan 2009 to 31 Dec 2015. Demographic data, tumour characteristics, disease staging, treatment modalities and date of death were collected. Results were statistically analysed.

Results: A total of 105 patients were identified to have metastatic breast cancer on presentation. 51 patients received systemic therapy only while 54 patients had palliative breast surgery. Comparison of the demographic and clinical parameters was made (Table 1). The median follow-up time is 26 months (1-98 months). The overall survival is 39 months for patients with surgery and 21 months for patients with systemic therapy alone (p=0.001). There is significant difference in survival rate at 1, 2 and 3 years respectively (89% vs 71% at 1 year, p=0.019; 74% vs 47% at 2 year, p=0.005; 46% vs 16% at 3 years, p=0.003).

<table>
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<th>Demographics</th>
<th>With Surgery (n=)%</th>
<th>Without Surgery (n=)%</th>
<th>Significance (p-value)</th>
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<td>Age (mean, years)</td>
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<td>Tumour Characteristics</td>
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<td>Clinical T3 or T4 tumour</td>
<td>(30) 55.6%</td>
<td>(33) 64.7%</td>
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<td>ER/PR +</td>
<td>(35) 64.8%</td>
<td>(40) 78.4%</td>
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<td>HER-2 +</td>
<td>(17) 31.5%</td>
<td>(13) 25.5%</td>
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<td>(7) 13.7%</td>
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<td>One site of metastasis only</td>
<td>(30) 55.6%</td>
<td>(11) 21.6%</td>
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<td>Isolated bone metastasis only</td>
<td>(17) 31.5%</td>
<td>(9) 17.6%</td>
<td>0.10</td>
</tr>
</tbody>
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Image:
**Conclusion:** Survival benefit is observed in selected group of patients with metastatic breast cancer undergoing palliative resection of the primary breast tumour, although selection bias may play a significant role in this retrospective study. The impact of palliative resection on the survival in patients with metastatic breast cancer may need further delineation by randomized controlled trial.

**References:**

**Disclosure of Interest:** None declared
Introduction: One-step nucleic acid amplification (OSNA) system is a new immunohistochemical technique which consent a quick intra-operative detection of sentinel lymph node metastases by the amplification of cytokeratin (CK) 19 mRNA. Our study aims to evaluate the OSNA method in comparison with frozen section (FS) and definitive histological examination of sentinel lymph node biopsy among early breast cancer patients.

Materials & Methods: In this study we included all women who underwent SLNB for breast cancers classified as TNM stage I and II in our center between January 2009 and January 2014, and follow up was collected up to July 2014. We divided patients among three groups based on SLNB evaluation: definitive histological examination, intra-operative FS or OSNA. Main outcomes were overall survival (OS), disease-free survival (DSF), cumulative local and distant metastases rate. Statistical analysis was performed using R, considering significant p<0.05.

Results: We included 1283 SLNBs: 450 by definitive histological examination, 427 by FS and 406 by OSNA. ITCs were found in 3.4% of cases, micrometastasis in 7.2%, and macrometastases in 15.4%. Among 289 CALND, 198 were performed for macrometastases, 79 for micrometastases, 1 for ITCs, and 11 cases because of sentinel node detection failure. In addition, CALND was not performed in 42 patients with ITCs and 14 with micrometastases. No significant differences have been observed among the three groups for what concerns OS, DSF, cumulative local or distant metastases.

Conclusion: The OSNA system had a lower cumulative local recurrence rate, despite no statistical significance. However, this data suggests its better capability to detect micrometastasis, the prevalence of which resulted in fact significantly higher in the OSNA group.

Disclosure of Interest: None declared
Introduction: Fungating breast cancer (FBC) is a rare entity in developed nations. But such phenomenon is not uncommon in our country. The aim of this study is to review clinico-pathological profile and outcome of FBC in developing country.

Materials & Methods: This is retrospective review of prospective data of Breast cancer (BC) patients managed at our institute (Jan 2005 - Dec 2015). Clinico-pathologic profile management details and outcome were analyzed. Kaplan Meier method was used to determine overall survival (OS). Log rank test was performed to compare survival in various subgroups.

Results: Seventy nine patients were detected to have FBC constituting 3.3% of BC and 24.8% of T4b lesions. Mean age of patients was 55 ± 11 years. 96% were women and 67 % belonged to rural areas. 75 % women were postmenopausal. Mean duration of lump was 16±11 months. The mean tumor size was 8± 2 cm. 87 and 40 % of patients had axillary lymph node and distant metastases respectively. TNM stage distribution was- IIIB: 55.7, IIIC:2.5, and IV:41.8%. Histology was infiltrating duct carcinoma in all, Grade I- 3%, II- 45%, and III- 52 %. Hormone receptor (HR) positivity was noted in 44% and HER2/neu over-expression in 39 % tumors, whereas 32% were triple negative. Overall 95% patients received combination chemotherapy (anthracyclins and taxanes). 86 % received upfront chemotherapy, (stage III- 45 and Stage IV- 41%) whereas 9% received after breast surgery. 48 and 11% patients receiving neoadjuvant chemotherapy had partial and complete response respectively. Five patients (6.3%) died during chemotherapy remaining all completed the prescribed chemotherapy cycles. Almost all had reduction in ulcer size following chemotherapy. Overall 91% patients underwent breast surgery, 9% had upfront surgery and remaining after chemotherapy. 76% received loco-regional radiotherapy 5% before and 71% after surgery. 97% HR positive cases received adjuvant hormonal therapy (letrozole- 66, tamoxifen- 31%). Median follow-up was 16 (2-93) months. Median survival was 36 months and 5 year OS was 40%. Survival in Stage III (53%) was significantly better (p=0.005) than IV (22%). Age (p=0.90), menopausal status (p=0.91), grade of tumor (p=0.18), HR positivity (p=0.1), and HER2neu over expression (p=0.43) were not found to be significant for OS.

Image:
Conclusion: Multimodality therapy in FBS results in good symptom palliation and comparable survival to those Stage III and IV patients not having fungating tumors.

Disclosure of Interest: None declared
ONCOTYPE DX GENOMIC TEST IN DECISION MAKING OF ADJUVANT CHEMOTHERAPY IN EARLY BREAST CANCER: THE EXPERIENCE OF 46 CASES IN OUR BREAST UNIT.
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Introduction: In early-stage breast cancer the likelihood of recurrence and identifying patients who might benefit most from adjuvant chemotherapy have long been challenging clinicians. The aim of this study is to present our experience with the use of Oncotype DX Breast Recurrence Score Assay in clinical decision making.

Materials & Methods: We retrospectively studied 46 patients with early-stage breast cancer treated in our Breast Unit from January 2015 until September 2016 for whom an Oncotype genomic test was performed. Patients were divided in 3 recurrence score-based risk categories (low, intermediate, high) according to the classification proposed by the Saint Gallen consensus.

Results: One (2%), 36 (78%) and 9 (20%) patients presented with a low, intermediate and high risk of recurrence respectively. From the 36 patients with an intermediate risk, 17 (47%) were not selected for adjuvant chemotherapy based on a low Oncotype score (less than 18), whereas 16 (44%) were treated having a higher Oncotype score (equal or greater than 18). Six (17%) patients were not offered chemotherapy based on other clinical characteristics or individual's preference. Among patients with a high risk of recurrence only 3 (33%) were selected for adjuvant chemotherapy.

Conclusion: The Oncotype DX Breast Recurrence Score Assay is a very useful tool which, in addition to the widely implemented clinical criteria, may help prevent unnecessary treatment, especially for patients with an intermediate and high risk of recurrence in early-stage breast cancer. In our opinion the Saint Gallen classification should be replaced by the extended use of genomic profiling.

Disclosure of Interest: None declared
**PE131**

**INVASIVE CARCINOMA. TUMOUR HISTOPATHOLOGY CORRELATIONS WITH LYMPH NODES METASTASIS.**

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**Introduction:** Breast cancer remains the leading cause of morbidity and mortality among women in developing countries. For patients with breast carcinoma, tumor size and regional lymph nodes status are biological markers of tumor aggressiveness and are independent prognostic factors for survival after diagnosis. The result among the factors that affect the tumor histopathology and lymph nodes metastasis are still controversial. In this retrospective study, we are correlating the relation of histopathology of invasive carcinoma tumors and regional lymph nodes metastasis among patients who seek treatment in Hospital Kuala Lumpur in 2014-2015.

**Materials & Methods:** All female patients with invasive carcinoma whom have undergone breast surgery and axillary clearance demographic data and histopathology data were retrospectively collected for the year 2014-2015 in Hospital Kuala Lumpur.

**Results:** A total of 107 patients whom diagnosed with invasive carcinoma and underwent surgery in 2014-2015 at HKL, 85 patients (79.4%) will come with T2, followed by T1c with 11.2%, T1b 4.7% and T1a 4.7%. Pathologic axillary lymph node involvement was present in 46% of all patients, with N1 (36.2%), followed by N2 (8.6%) and N3 (5%). The risk of lymph node involvement was not significantly different for those patients with tumors size 2.5-5.0mm (T2) compared with patients with tumors size <2.5mm (T1).

**Conclusion:** Tumor size is an important predictor for the number of lymph nodes metastasizes. However, there are a lot of factors that are affecting the regional lymph nodes metastasis, whether it be the aggressiveness of the tumor or histopathologic data of the tumor.

**References:**


**Disclosure of Interest:** None declared
BARRIERS TO EARLY DETECTION AND TREATMENT INITIATION IN PATIENTS OF CARCINOMA BREAST IN A RESOURCE POOR SETTING

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Introduction: Breast cancer (BC) is the commonest cancer amongst women worldwide. Diagnostic and treatment delays arising out of patient and system related factors are the main cause of late presentation. Patient delay (PD) has been defined >3 months between discovery of symptoms and 1st consultation. Provider delay (PRD) is the delay >1 month that takes place between 1st consultation and beginning of treatment.

There are limited studies looking into factors delaying BC treatment in India. This prospective questionnaire based study aims to study the factors leading to delayed presentation and initiation of treatment in a resource poor setting.

Materials & Methods: This was a prospective cross sectional descriptive study of patients BC patients presenting at a tertiary medical center in north India. A interview with self designed questionnaire incorporating knowledge about BC, clinical presentation, psycho social factors and patient/ system delay factors was undertaken with consenting patients. The data was analysed using SPSS ver 19.

Results: A total of 171 of 200 patients completed the interview. 66% of patients were not aware about BC and 6% had ever practiced breast self examination. 51.5% had PD. Older patients were more likely to present late (56%). Education, socio economic status had no effect on presentation. Lump was the commonest symptom and 42% of patient sought consultation only on worsening of symptoms. The commonest reason for PD was belief that symptom would subside on its own (69.5%). Rural patients had more delay but was statistically insignificant. Private practitioner was the first contact in 69%. 55% of patients never had any investigation at the first consultation and incorrect diagnosis was made in 66% of patients. The commonest reason for PD was belief that symptom would subside on its own (69.5%). Rural patients had more delay but was statistically insignificant. Private practitioner was the first contact in 69%. 55% of patients never had any investigation at the first consultation and incorrect diagnosis was made in 66% of patients. 48% sought alternative treatment. 44% of patient reached a tertiary center without a diagnosis being reached. There was PRD in 75.4% of the patients. Misdiagnosis, lack of information about available health care facilities, financial constraints, prolonged waiting periods at treatment facilities were the commonest perceived barriers to treatment.

Conclusion: A significant patient and provider delay exists leading to higher stage at presentation and adverse prognosis. Many of these perceived barriers are modifiable with sustained efforts and may better the prevailing epidemic of BC burden.


Karla Unger-Saldaña (2014); Challenges to the early diagnosis and treatment of breast cancer in developing countries. World J Clin Oncol; 5(3): 465-477

Disclosure of Interest: None declared
Introduction: The purpose of our study is to document our findings on the clinical, histological, biological and therapeutic characteristics of the patients included in our study in order to determine the prognostic factors specific to our population as well as the result of the rate of recurrence and survival.

Materials & Methods: It is a descriptive, analytical and prospective, monocentric study conducted over a period of 60 months, from January 2010 to January 2015, of 200 women, operated for invasive breast cancer in the general surgery department of The military regional university hospital of Constantine. The results were analyzed according to the Epi-Info 3.3.2 software and expressed in percentages and in frequency tables. Kaplan-Meier survival curves were plotted for each group, and an equality test of Log-Rang survival functions was applied to each group. The p value of less than 0.05 was found to be significant.

Results: 200 patients, the average age is 52 years, the average tumor size is 43.3mm, 11% classified in T1, T2 without lymph node invasion (N0). 89% of stage T1, T2, T3 and T4 with lymph node invasion. Grades SBR II and III were the most frequent in 63% and 34% respectively. 82 cases had neoadjuvant chemotherapy, the total lymphatic response found in 19 patients, estrogen receptors are positive in 53% of cases, progesterone receptors are positive in 47% of cases, and HER2 oncogene is expressed in 57 cases. The molecular subtypes, Luminal A is the most frequent in 43.5% of the cases, the triple negative subtype in 27.5%, the HER2 subtype in 15% and the luminal B in 14% of cases. The surgery carried out in all our patients was radical in 96% of the cases. During the 5-year course, the rate of recurrence and metastasis was found in 41% of cases, 11% of which were loco-regional recurrence whereas metastatic disseminations were found 85 times, the latter being associated in the same patient in 6.5% of cases. Overall survival is evaluated at 69%.

Conclusion: The study of the characteristics of our population has made it possible to highlight the frequency of the factors of bad prognosis which are essentially delayed diagnosis, hence the need to carry out desensitization actions and to set up screening programs in order to promote Screening and early care.

Disclosure of Interest: None declared
**Introduction:** Achieving negative surgical margins is critical to minimizing the risk of tumor recurrence in patients undergoing breast conservation surgery (BCS) for a breast malignancy. Intraoperative ultrasound guidance (IOUS) has been shown to improve surgical accuracy for BCS. BCS is associated with tumor-involved margins in up to 41% of cases and excessively large excision volumes. Ultrasound-guided surgery has taken care of both of these problems while improving surgical accuracy. We aim to compare the positive margin rate in 1 cm and 2 cm margin of excision, using a technique of “USG guidance, blue dye delineation and immobilization of the tumor within the breast”, with respect to Positive margins and re-excision rates.

**Materials & Methods:** In this randomized controlled trial, 90 patients with palpable T1–T2 invasive breast cancers were recruited from 1st July 2012 to 31st October 2016. Eligible participants were randomly assigned to either 1 cm or 2 cm margin of excision. The tumor was immobilized within the breast using transparent adherent drape sheet (IOBAN, 3M, USA). Tumor margins were delineated by intra-operative ultrasound. Methylene blue (mixed with lignocaine jelly through a 26 G needle) was injected at the proposed margin of excision (1 or 2 cm based on randomization allocation). Specimen sonography after excision was performed to assess all margins and any margin less than 5 mm was revised and “cavity shave” was sent as a separate specimen for formalin fixed paraffin-Haematoxylin-Eosin based evaluation.

**Main Outcome of interest:** Positive margins of lumpectomy specimen on paraffin fixed Haematoxylin and Eosin based histopathology and re-excision rates. The definition of positive margin was no tumor at ink margin.

**Results:**

<table>
<thead>
<tr>
<th>Group</th>
<th>Positive margins</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1(45)</td>
<td>3(6.66%)</td>
</tr>
<tr>
<td>E2(45)</td>
<td>3(6.66%)</td>
</tr>
</tbody>
</table>

*E1 is excision with 1 cm margin, E2 is excision with 2 cm margin*

Fisher’s exact = 1.00

specimen margins were reported negative in 84(93.3%) of the cases. Six cases with positive margins (three patients in the 1 cm group and three patients in the 2 cm ) underwent re-excision.

**Conclusion:** USG guided, Blue dye delineated and IOBAN immobilized excision offers very low positive margin without requiring re excision of cavity shave.


Disclosure of Interest: None declared
PE135
SAFETY AND PRACTICALITY OF EARLY POST-MASTECTOMY DISCHARGE AND DOMICILIARY DRAIN CARE IN ILE-IFE, NIGERIA: A PRELIMINARY REPORT.
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Introduction: Early post-mastectomy discharge with home drain care is the practice in most developed countries. The safety and practicality of this has not yet been evaluated in our setting. This study aims to evaluate the practicality of early post-mastectomy discharge and home drain care and compare its outcome with the traditional long stay practice.

Materials & Methods: Consent ing patients undergoing mastectomy with favourable home circumstances, were discharged on the 3rd post-operative day after having been taught how to operate and empty the wound drains. Jackson Pratt drainage tubes connected to a 100millilitre bottle were utilized for the study. Those who for reasons of consent, social concerns and anticipated post-operative challenges remained on admission for drain removal served as the comparative group. Socio-demographic data, tumour characteristics and post-operative wound complications, primarily seroma were compared between the two groups. Those in the early discharge group were further interviewed using a seven item study specific questionnaire to assess their experience.

Results: Overall, there were 38 patients, 19 in each group with a mean age of 51±8.7 years, and a mean BMI of 26.9±6.2kg/m². The majority (52.6%) had stage 3B disease while 18.4% presented with ulcerated masses. These characteristics did not significantly differ between the two groups.

By design the early discharge group had shorter post-operative stay (3 days versus 11 days, p<0.01). Seroma rate did not differ between the two groups, 5/19 in the early discharge group and 7/19 in the long stay group (p=0.485). Flap necrosis and wound infection rates were also comparable (p=0.461, 0.703 respectively).

All 19 patients in the early discharge group, despite less than half (42.1%) of them having tertiary education all felt confident operating the drain. None of the patients would have preferred a longer hospital stay with dislike for the hospital environment and reduced cost being the commonest reasons cited for their preference. They were all willing to recommend early discharge to other patients.

Conclusion: Early post-mastectomy discharge and home drain care is practicable in our setting, acceptable to patients and is not associated with higher complication rate compared to the traditional long stay

Disclosure of Interest: None declared
BREAST WEIGHT AND VOLUME MEASUREMENTS: RELIABLE GUIDE TO SIZE OF BREAST IMPLANTS IN RECONSTRUCTIVE SURGERY

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Introduction: Reconstruction surgery is increasingly offered to women having mastectomies. Implant reconstruction with acellular dermal matrix is gaining popularity in recent years. There is no general consensus as to what is the best and most accurate method of assessing the size of implant used to achieve best outcome. Some surgeons use volume of mastectomy specimen, believing the volume of implant replacing the volume of breast tissue removed is a logical way of thinking. Some surgeons use the weight of mastectomy specimen, on presumption that a mixture of fat and fibroglandular tissue will give overall density of 1.0g/cm3. There are very few published review on this topic.

Materials & Methods: Data was collected prospective on patients who underwent mastectomy on the breast weight, volume measurement and size of implant used in cases with immediate reconstruction. Patients were under the care of two senior breast surgeons from January 2014 to December 2016. The exclusion criteria included patient with mastectomy specimen weighted more than 2000 gram or other logistic reason that measurements could not be obtained. The volume of breast tissue was measured by volume displacement method. The weight of breast tissue was measured on a scale in grams.

Results: There were 278 mastectomy specimens. The mean age of the women was 48 years old, range 24 to 90. There were 150 right and 128 left breast specimens. 53 women had bilateral mastectomies. 239 mastectomies were with immediate reconstruction. There was strong correlation between weight and volume of breast tissue (R corration). Further analysis of subgroups show no significant difference between menopausal status, those with invasive cancer, versus DCIS only, versus no cancer as in risk reduction. 75% of reconstructions had implant size within 100 mls or gram of the mastectomy specimen.

Conclusion: Mastectomy specimen weight and volume have strong correlation. The presence of cancer, variation of breast density with menopausal status do not affect the correlation. Weight measurement alone is adequate as it is repeatable, more accurate and without inter observer error. Whereas the volume measurement is estimated to the nearest 25 to 50 mls to the best on the marking of container. However there are many other factors in deciding the type and size of implant in reconstruction. We need to consider the women wish for smaller or larger size, the width and height of the breast base, and the limit of the largest available commercial size of implant.

Disclosure of Interest: None declared
FEATURES OF TRIPLE-NEGATIVE BREAST CANCER
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Introduction: the breast Cancer, heterogeneous disease by the diversity of presentations, responses to treatments and prognosis. Triple-negative forms are defined by the negativity of (RO) estrogen receptors, progesterone (PR) and HER2. The objective is to determine the characteristics of clinical, histological, and therapeutic of the triple negative breast cancer.

Materials & Methods: It is a prospective study of 55 cases of cancer of the breast with hormone receptors and HER-2 negative followed between January 2010 and December 2014 at HMRUC level.

Results: this entity represents 27.5% of all breast cancer during the study period. The average age of patients was 52 years, 32% were less than 40 years old. The tumour size exceeded 50mm in 50% of cases, the SBR III was present in 47% of tumors, vascular embols were present in 65.5% of cases. 30 patients (54.54%) had received neoadjuvant chemotherapy and 20 patients adjuvant chemotherapy.

Radical mastectomy was the surgical treatment in the majority of cases. The lymphatic invasion was over 65% in the case of the first surgery, and the classification of SATTALOF showed 13.3% of total response to chemotherapy. During follow-up, 50.9% of the patients presented recurrences and metastasis. The 5-year survival was 58%

Conclusion: In our study, the triple negative breast cancer ranks second after the luminal, characterised by pejorative prognosis factors which combine the non-accessibility to Therapeutics targeted such as hormone therapy or trastuzumab therapy which makes their prognosis dark.

Disclosure of Interest: None declared
PE138
PREDICTORS OF AXILLARY LYMPH NODE INVOLVEMENT IN BREAST CANCER PATIENTS.

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Introduction: Lymph node involvement is the most important prognostic factor in breast cancer. The aim of this study was to identify clinical and pathological predictors for axillary lymph node involvement (ALNI) in patients with breast cancer.

Materials & Methods: We analyzed 576 breast cancer patients who were operated on in our hospital (2009-2011) due to invasive breast cancer. The tumour characteristics evaluated included: number of foci, histologic grade, location, tumour size, histologic subtype, lymphovascular invasion (LVI), estrogen-receptor (ER), progesterone-receptor (PR) and Her-2 status. Univariate and multivariate analyses were performed. Factors significantly associated with ALNI by univariate analysis plus histologic subtype were included in the multivariate analysis.

Results: By univariate analysis, the incidence of ALNI was significantly associated with the presence of multicentric tumor (P < 0.0001), tumour size large than 2 (P < 0.0001), triple negative breast cancer (P = 0.003), and upper lateral location in the breast (P < 0.0001), and tumour larger than 5 cm of any location. By multivariate analysis, ALNM was significantly associated with larger tumour size (P < 0.0001), upper outer tumour location in the breast (P = 0.0027) and the presence of multicentric tumour (P = 0.0233).

Conclusion: Tumour size more than 2 cm in outer upper quadrant is the the most powerful independent predictor of ALNI. Also, important predictors for ALNI are tumour larger than 5 cm of any location , multicentric and triple negative breast cancer. Further studies should evaluate the biology of the breast cancer regarding the earlier identification women with high risk.

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He ZY, Wu SG, Yang Q, Sun JY, Li FY, Lin Q, Lin HX.Breast Cancer Subtype is Associated With Axillary Lymph Node Metastasis: A Retrospective Cohort Study.Medicine (Baltimore). 2015 Dec;94(48):e2213

Disclosure of Interest: None declared
WHAT TREATMENT SHOULD BE SELECTED TO OBTAIN LONGER TIME TO TREATMENT FAILURE (TTF) IN METASTATIC BREAST CANCER: THE EVALUATION OF THE IMPACT OF AGENTS ON PROGNOSIS

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Introduction: Though emerging many kind of new agents for metastatic breast cancer have improved patient survival in recent years, there’s no confirmed way how to choose treatment within limited rest survival time. To improve overall survival (OS) remains the gold standard for the demonstration of clinical benefit, but we think time to treatment failure (TTF) is also important clinically because it is influenced by factors not only disease progression but also drug adverse effects and patient preference. The purpose of this present study is to investigate TTF and OS in each treatment with metastatic breast cancer therapy.

Materials & Methods: A retrospective study on 118 HER2 negative breast cancer patients who had received at least more than 1 regimen chemotherapy for advanced—disease at our institute between 2004 and 2013 was conducted. Correlation clinical characteristics, TTF (including the reason of treatment discontinuation), OS with each regimen was verified. In statistical analysis Kaplan-Meier method was used to estimate TTF and OS, and Log-rank test was also used to compare each treatment.

Results: The median age of total patients was 59 years (range 27-82 years). Cancer specific mortality was 57.9% of all. There were 8 regimens applied, that is Anthracycline based regimen, Docetaxel, Paclitaxel, Eribulin, Gemcitabine, Bevacizumab/Paclitaxel (Bev/Pac), TS-1, and Capecitabine. As to TTF, in univariate analyses patients who received eribulin or Bev/Pac showed longer treatment duration than who did not receive ($P<0.05$) and median TTF was 5.2 months and 3.8 months in eribulin group and Bev/Pac group, respectively. In the reason of treatment discontinuation, eribulin group showed disease progression only in spite of frequent afebrile neutropenia (71.4 % grade 3/4). On the other hand Bev/Pac group chiefly revealed patients complaint (Neuropathy of numbness caused by Paclitaxel). Concerning with OS, only eribulin group revealed significant longer survival time ($P<0.05$) and median OS was 66.3 months. In the subset analysis (Luminal A,B, or triple negative) there’s no apparent differences.

Conclusion: Treatment of Eribulin or Bev/Pac brought patients longer TTF. As to the discontinuation, adverse effect was influenced on TTF is remarkable in Bev/Pac. On the other hand, side effect of Eribulin did not prevent patients treatment continue. Only Eribulin caused prolonged OS in any subtype of HER2 negative MBC. Eribulin evaluated a candidate regimen to obtain longer survival in metastatic breast cancer in our study.

Disclosure of Interest: None declared
INTRODUCTION: Breast cancer is the most common cancer in females worldwide. Cytokines have been considered to play an important role in carcinogenesis. Cancer cells for distant metastases require invasion of extracellular matrix. For this invasion, proteases especially matrix metalloproteases (MMPs) are required. Elevated levels of MMP–9, MMP–1/MMP–7/MMP–11/MMP–13/MMP–14 are significantly associated with higher rates of distance metastasis in breast cancer. Production and activation of MMPs is dependent on various cytokines, including TNF–α and IL–1 secreted by tumor cells, fibroblasts and macrophages. IL–17 stimulates TNF–α and IL–1 production by monocytes, macrophages and upregulates MMP – 9 production from macrophages. Therefore, IL – 17 is a key cytokine that may be responsible for aiding metastasis in carcinoma breast patients and a prognostic marker for such patients.

MATERIALS & METHODS: This is a case-control prospective study with a sample size of 75 cases and 40 controls. 2 ml blood samples from breast cancer patients or healthy controls were collected in plain vials for serum separation and ELISA testing for IL – 17 levels. The level of IL – 17 was measured by using Human (IL – 17 A) ELISA Kit following manufacturing instructions.

RESULTS: Healthy control subjects had a mean IL-17A concentration of 2.67pg/ml (SE, 0.17). The level of IL-17A was significantly elevated in breast cancer patients (Mean:3.47±0.46pg/ml). So, our results demonstrate that level of IL-17A cytokine increases in breast cancer patient as compare to healthy control. We also studied IL – 17 A concentrations in metastatic cases versus non-metastatic cases. IL-17A levels showed significant increase in IL-17A levels in metastatic breast cancer as compared to non – metastatic breast cancer patients.

CONCLUSION: This study demonstrates that strong positive statistical significance exists for the level of IL – 17A in breast cancer patient as compared to healthy controls. The study also shows significant increase in IL – 17A levels in metastatic breast cancer patients as compared to non – metastatic patients.

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   Publications of the World Health Organization

DISCLOSURE OF INTEREST: None declared
SENTINEL LYMPH NODE BIOPSY USING BLUE DYE TECHNIQUE IN COMBINATION WITH FOUR NODE SAMPLING PROCEDURE IN BREAST CANCER PATIENTS.

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Introduction: Sentinel lymph node (SLN) biopsy is now considered a standard of care in early breast cancers without clinically involved axillary lymph nodes. The standard of SLN biopsy is double technique using blue dye and radioactive tracer. The aim of this study is to evaluate efficiency of the blue dye technique in combination with four node sampling procedure in order to assess axillary lymph node status in breast cancer patients.

Materials & Methods: One hundred and twenty-eight patients with invasive breast cancer and N0 axillary status who were operated in our University hospital between 2009 and 2012 were included in this study. They underwent sentinel lymph node localisation using 2 ml of methylene blue. Sentinel lymph nodes were examined by standard histopathology assessment. Patients underwent breast conservation surgery or mastectomy and sentinel node and four node axillary sampling clearance.

Results: The overall SLN identification rate was 92%. The overall false-negative rate was 5%. The SLN was not identified in 10 patients (8%). A median of 2 (range 1–4) SLNs were identified. A non-SLN was found to be positive for metastasis in six patients with negative SLNs. Axillary nodal recurrence developed in one patient. Skin necrosis occurred in one patient.

Conclusion: Sentinel lymph node biopsy using methylene blue and four node sampling is safe and effective technique predicts the axillary lymph node status in early breast cancer and it can be used successfully in centres without nuclear medicine facilities. The cornerstone of SLNB is to detect false negative sentinel lymph nodes because it can have a significant implication on further treatment.


Disclosure of Interest: None declared
LIPOSOMAL DOXORUBICIN COMBINED WITH CYCLOPHOSPHAMIDE AND PACLITAXEL WITH TRASTUZUMAB OR BEVACIZUMAB IN ADVANCED BREAST CANCER.
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Introduction: Achievement of pathologic complete response has been considered as a surrogate marker for disease-free and overall survival as there is an association with favorable long-term prognosis in breast cancer. It has been suggested that the use of a monoclonal antibody (bevazicumab or trastuzumab) in the neoadjuvant setting combined with chemotherapy might add a benefit for advanced breast cancer.

Materials & Methods: 11 premenopausal patients with locally/regionally advanced breast cancer received in an intention to treat 4 to 6 cycles of liposomal doxorubicin, cyclophosphamide, paclitaxel and bevazicumab (HER-2 negative) or trastuzumab (HER-2 positive) as neoadjuvant treatment. The rate of pathologic response was evaluated as primary outcome.

Results: Mean age of the study group was 48.7 years old. The mean Ki-67 value was 34%. All patients had Grade III disease. Complete pathologic response was observed in 3/4 (75%) patients in the trastuzumab group and partial response in 1/4 (25%) patient. Respectively, in the bevacizumab arm complete pathologic response was observed in 4/7 (57%) patients and partial response in 3/7 (42.8%) patients (Table 1). No cancer-related death was observed. All patients experienced no post-surgical complications. In the trastuzumab arm 3/4 patients experienced Grade 2 (2/4 patients) and Grade 3 (1/4 patient) neutropenia, 2/4 patients Grade 2 mucositis, 1/4 patient Grade 2 peripheral neurotoxicity, all patients Grade 2 (2/4 patients) and Grade 3 (2/4 patients) alopecia, while no signs of anaemia, thrombocytopenia and no palms soles syndrome were evident. In the bevacizumab arm 6/7 patients experienced Grade 2 (3/7 patients) and Grade 3 (3/7 patients) neutropenia, 4/7 patients Grade 2 mucositis, 6/7 patients Grade 2 (2/7 patients) and Grade 3 (4/7 patients) peripheral neurotoxicity, all patients Grade 3 (7/7 patients) alopecia, 2/7 patients Grade 2 palms soles syndrome, 1/7 patient Grade 2 anaemia and lastly 1/7 patient Grade 2 thrombocytopenia.

Conclusion: With regard to the literature the addition of bevacizumab to an anthracycline- and taxane-based chemotherapy increase cytotoxicity possibly more frequently than trastuzumab in the neoadjuvant with regard to the literature. Nevertheless, there are some encouraging results in terms of complete pathologic response but more clinical trials need to be conducted to examine whether disease free survival and overall survival are improved.

Disclosure of Interest: None declared
Introduction: Glycogen-rich clear cell carcinoma of the breast is a rare variant of primary breast carcinoma characterized by carcinoma cells containing an optically clear cytoplasm and intracytoplasmic glycogen.

Materials & Methods: A 41-year-old Greek female patient with a lump in the upper inner quadrant of the left breast, underwent a left radical mastectomy with sentinel lymph node excisional biopsy. The histopathological diagnosis revealed a pT3pN0cM0R0 Stadium IIB Luminal-HER2 glycogen rich clear cell invasive carcinoma of the breast.

Results: Microscopic examination of the tumor revealed a low differentiated invasive ductal adenocarcinoma, composed mainly of large polygonal cells with clear, empty or finely granular cytoplasm, arranging in a solid pattern. The clear cells occupied 60% of the tumor, the remaining 40% showing features of ductal adenocarcinoma not otherwise specified. The two components were intermingled. Clear cells were loaded with glycogen (PAS+/diastase -). Immunohistochemistry showed: ER(-), PR(+) 5%, cerbB-2 score 3+, p53<5%, partially positive GCDFP15 (gross cystic disease fluid protein), Ki-67 (90%), CK14(-), CK5/6(-), EGFR(-) (fig 2). The patient received adjuvant chemoradiation-4 cycles of cyclophosphamide + 5FU + epirubicin with Pegfilgrastim for white blood cell support and 4 cycles of Docetaxel + Trastuzumab, with one year Trastuzumab therapy and radiotherapy of the chest wall and lymph nodes within the axillary and supraclavicular regions (50 Gy). Moreover the patient received hormone therapy consisting of Tamoxifen and Goserelin. During the follow-up of the patient, a CT scan of the chest revealed 2 years and 7 months after the operation enlarged mediastinal, supraclavicular and cervical lymphnodes of the left side. FNA of the supraclavicular and cervical lymphnodes confirmed lymphnode metastases. After 3 cycles of additional chemotherapy with Pertuzumab, Trastuzumab and Docetaxel, a new CT scan of the chest showed no pathological enlargement of the lymphnodes. One year after the first disease recurrence there are no signs of a new disease recurrence.

Conclusion: The biological behavior of glucogen rich clear cell carcinoma is difficult to predict, while a gap in therapy might exist regarding it’s treatment. Larger studies should be performed in order to refute or confirm this hypothesis.

Disclosure of Interest: None declared
Introduction: There are inherent risks of complications in all surgical procedures. One of the more common complications faced by women post mastectomy are wound related. This includes infection, dehiscence, seroma or skin necrosis. PICO dressing is a new single use negative pressure wound therapy system developed by Smith and Nephew which aims to address this issue. It is designed to be applied for up to seven days and consist of a simple pump without bulky canisters or reservoirs which would allow patients to manage easily at home. There is a growing body of evidence that the new PICO system reduces post operative wound complications. It also has the added benefit of potentially reducing the need for treatment or interventional management of complications, making it a cost effective option.

Materials & Methods: This is a retrospective study assessing the use of PICO dressings in reducing the rate of wound complications post mastectomy, as compared to the standard comfeel dressings. 107 patients who underwent mastectomy at Fiona Stanley Fremantle Hospital Group between 2014-2015 under a single surgeon were identified. 57 patients underwent mastectomy in 2014 and received the standard comfeel dressing. 50 patients underwent mastectomy in 2015 and received the intervention PICO dressing. Data was collected from patients records look at rates of complications (SSI, haematoma, dehiscence, seroma). Secondary end points includes time take for complete wound healing and possible risk factors.

Results: All 107 patients indentified were included in the study. Incidence of haematoma was 5/57 in the comfeel group and 1/50 in the PICO group. X^2(1,N=103)=2.29,p=.129; SSI was 4/57 in the comfeel group and 3/50 in the PICO group. X^2(1,N=104)=0.0546,p=0.815; dehiscence was 1 in both groups, X^2(1,N=103)=0.0095,p=0.922; seroma was 38/57 in the comfeel group and 21/50 in the PICO group, X^2(1,N=105)=6.635,p=0.01.

<table>
<thead>
<tr>
<th></th>
<th>Comfeel</th>
<th>PICO</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haematoma</td>
<td>5 (9.1%)</td>
<td>1 (2.1%)</td>
<td>0.129</td>
</tr>
<tr>
<td>SSI</td>
<td>4 (7.2%)</td>
<td>3 (6.1%)</td>
<td>0.81</td>
</tr>
<tr>
<td>Wound dehiscence</td>
<td>1 (1.8%)</td>
<td>1 (2.1%)</td>
<td>0.92</td>
</tr>
<tr>
<td>Seroma</td>
<td>38 (67.9%)</td>
<td>21 (42.7%)</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Conclusion: PICO dressing may reduce rate of seroma following mastectomy


Disclosure of Interest: None declared
Introduction: The management of the axilla in breast cancer is becoming increasingly conservative. Patients identified with a low burden of axillary disease at sentinel node biopsy (SNB) are able to avoid completion axillary clearance (ANC). This study aimed to determine the proportion of patients with axillary disease on pre-operative ultrasound, which would fit low axillary burden criteria on sentinel node biopsy – if they had undergone it rather than being directed straight to ANC.

Materials & Methods: A meta-analysis of studies comparing axillary burden of breast cancer patients – on ANC histopathology specimens - identified as pre-operative ultrasound negative versus positive was performed. The primary outcome measure was the number of patients with 2 or fewer involved nodes (macrometastases only). The pooled odds ratio (OR), 95 per cent confidence intervals (CI), means and probabilities of identifying 2 or fewer involved nodes versus greater than 2 were calculated.

Results: Six studies reported data on the axillary burden in 3,860 patients (1,395 pre-operative ultrasound positive) who were either directed straight to ANC or completion ANC after SNB. There was a significantly greater axillary burden in the ultrasound positive versus negative groups (OR 5.95, 95 per cent CI 5.80 to 6.11) with mean nodal retrieval values of 3.0 (SE 0.2) and 1.6 (SE 0.2) nodes respectively. Cumulative probabilities identified 78.9 per cent of ultrasound negative and 43.2 per cent of ultrasound positive patients possessed low axillary burden (2 or less involved nodes) on pathology.

Conclusion: This study reinforces that pre-operative ultrasound positive patients have a significantly higher axillary burden. However, it also demonstrates that just under half of these patients do fit the criteria of low axillary burden and could be considered for omission of ANC. Further work needs to be performed in order to determine how best these patients can be identified to avoid overtreatment.

Disclosure of Interest: None declared
Introduction: FDG-PET/CT scan (PET) is used for preoperative assessment of invasive breast cancer in our hospital. PET is also comprehensively used for preoperative assessment of axillary lymph node (ALN) in addition to ultrasonography, but false negative results in detecting ALN metastases are often seen in PET. Objective is to examine the clinicopathological characteristics of the false negative ALN metastasis cases in FDG-PET/CT scan for invasive breast cancer.

Materials & Methods: A retrospective observational study was conducted. Subjects are 1,358 patients with invasive breast cancer who underwent surgery in our department from 2006 to 2015 (excluding patients who received preoperative chemotherapy and patients who did not have PET). ALN metastases were pathologically found in 334 out of 1,358 cases, and the diagnostic ability for ALN metastases with PET showed 35% sensitivity (117/334), 96.7% specificity (990/1024), and 81.5% accuracy. Among 334 cases with pN positive, we compared the clinicopathological characteristics between 117 cases with FDG accumulation in the ALN (group T; "T") and 217 cases without FDG accumulation (group F; "F").

Results: The median age was 60 years (33-84 years) in "T" and 56 years (31-84 years) in "F". "T" included 107 cases (91.5%) of invasive ductal carcinoma and 4 cases (3.4%) of invasive lobular carcinoma, while "F" included 190 cases (87.6%) and 14 cases (6.5%), respectively. The median number of ALN metastases was 3 (1-33) in "T" and 1 (1-39) in "F". Micrometastases of 2 mm or less were not observed in "T" while they were observed in 8 cases in "F". The median SUV max of the primary lesions was 5.68 (0-22.07) in "T" and 3.39 (0-16.8) in "F", and one case in "T" and 21 cases in "F" did not show accumulation in the primary lesion. The percentage of the cases with high Ki-67 index (>20%) of the primary lesion was 47.1% (24/51) in "T" and 1.4% (15/111) in "F". The percentage of the cases with HG 3 malignant primary lesion was 31.6% (37/117) in "T" and 11.1% (24/209) in "F". There was no significant difference in OS between the two groups (p = 0.0575), but DFS was significantly prolonged in "F" (p = 0.0038).

Conclusion: From the above results, it was found that the diagnostic ability for ALN metastases with PET was decreased in the cases with low proliferation ability or low malignancy of the primary lesion and the cases with small metastatic lesion. We report these findings with analysis of other pathological factors and literature review.

Disclosure of Interest: None declared
EVALUATION OF AWARENESS REGARDING BREAST RECONSTRUCTION & ONCOPLASTY AMONG BREAST CANCER PATIENTS
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Introduction: Breast cancer is the most common cancer amongst women worldwide. Mastectomy leads to a perceived loss of feminine attractiveness, altered body image perception, psycho sexual problems and depression. Breast conserving surgery, breast oncoplasty and breast reconstruction can assist these women in overcoming the psychosexual problems. However, majority of Indian women do not opt for these procedures as either they are unaware of these alternatives or have misconceptions about them. The aim of this study is to evaluate awareness regarding breast oncoplasty among breast cancer patients.

Materials & Methods: Cross sectional study using a predesigned questionnaire.

Results: Between December 2013 to October 2015, a total of 485 patients were interviewed about their awareness regarding breast reconstruction & oncoplasty. Mean age of patients was 47 years (range 18 to 82). Among all interviewed patients, 26% (126) were illiterate and 55% (266) received minimum secondary level education. Only 42 (9%) were working and 8 (2%) were unmarried. Majority of patient, 69% (333) were from urban background. 42% (202) of our patients belonged to lower and upper lower socio economic status.

Only about 15% (71) of our patients were aware about available breast reconstruction options. The most common source of information for these 71 patients regarding breast reconstruction was the internet. Amongst these, only 30% (21) patients actually had enough information regarding the reconstruction options to make an informed choice. Awareness regarding breast reconstruction was influenced positively by the education status, socio-economic status and profession of the patient. (p<0.001)

After awareness assessment and thorough counselling, patients were asked if they would like to opt for reconstruction if given the option. A remarkable 49% (239) of them gave an affirmative response. Among the 246 patients who denied reconstruction, 61% (149) patients gave old age as the reason of denial.

Conclusion: Awareness regarding breast reconstruction & oncoplasty is poor in India, and is directly affected by literacy level, marital status, professional status and socioeconomic status. However, with proper counselling about breast reconstruction & oncoplasty, a significant number of them seem to opt for these procedures.

Disclosure of Interest: None declared
Introduction: Hormone receptor determination plays an important role in the therapy and prognostication of breast cancer. Currently, the hormone receptor status determined from core biopsy prior to institution of any treatment, is used for taking management decisions. Controversy exists regarding the effect of neoadjuvant chemotherapy on hormone receptor status. Our Meta analysis aims at determining the magnitude of change in various directions induced by neoadjuvant chemotherapy.

Materials & Methods: Pub Med and Google based searches were employed to choose studies on the topic. Twenty seven articles were chosen after screening and 20 were selected for data extraction. Data was analysed using Stata 11.0 employing random effects model. All prevalences are reported in percentages.

Results: Overall, the conversion (in percentages) from positive to negative and negative to positive status for estrogen receptors were 17.2 and 21.8 respectively. For progesterone receptors, they were 37.7 and 15.3 respectively. The same were 21.2 and 4.9 respectively for HER2neu. The pattern of change was found to be different in groups using taxane as compared to those that did not.

Conclusion: The magnitude of change induced by chemotherapy is indeed high. Hence, we recommend that whenever possible, adjuvant hormonal & targeted therapy related decisions be taken after repeat measurement of receptor status after neo adjuvant chemotherapy.

Disclosure of Interest: None declared
ULTRASTRUCTURAL AND HISTOPATHOLOGICAL STUDY ENDOPLASMIC RETICULUM STRESS RESPONSE IN BREAST CANCER PATIENTS ON NEOADJUVANT THERAPY

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Introduction: One of the dominant paradigms leading to resistance to cancer therapy among breast tumors is the stimulation of molecular pathways that sustain cellular survival and proliferation mechanisms. The endoplasmic reticulum (ER) stress response, represents an adaptive mechanism to support cellular survival in response to adverse microenvironment conditions by accumulating misfolded proteins and leading to apoptosis of cells. GRP78 is a molecular chaperone that localizes to the ER lumen and plays a cytoprotective role in oncogenesis, confers drug resistance and increases the tendency to tumor metastasis. GRP78 has the potential to inhibiting apoptosis by blocking BAX activity and thereby switching off intrinsic apoptotic pathway. Correlation of GRP78 protein expression with ultrastructural changes seen in the ER may give a better understanding of tumor progression and resistance. Hence, in this study we looked at the changes in ER at ultrastructural level in tumor tissues and the expression of GRP78 protein and its correlation with apoptotic markers before and after neoadjuvant chemotherapy.

Materials & Methods: Twenty two breast cancer patients biopsies were obtained from the pathology department for EM and immunohistochemical(IHC) studies. From tumors 2-3mm sections were stored in glutaraldehyde and from these semithin and ultra thin sections were cut and viewed to delineate the cellular organelles architecture in transmission EM. Paraffin blocks were cut and the expression of GRP78, Bcl2 and Bax was observed under light microscope using IHC technique.

Results: In twenty-five of the tumor tissues an overtly dilated endoplasmic reticulum was seen under EM. Fifteen of the patients tissues showed over expression of GRP78 protein. Negative to moderate expression observed between the EM changes and GRP78 protein expression in all the 15 tissues.

Conclusion: The dilated ER with ribosomes explains the degree of stress encountered by neoplastic cells. Overexpression of GRP78 would help in future to target the UPR components for cancer therapy by developing new drugs that inhibit GRP78 protein to overcome drug resistance and synergistically enhance treatment outcome. In addition expression of this protein can be used as a biomarker prior to chemotherapy.

Keywords: Apoptosis, Drug resistance, Endoplasmic reticulum, GRP78 protein,


Disclosure of Interest: None declared
METAPLASTIC SQUAMOUS CELL CARCINOMA OF THE BREAST: DOES IT REALLY HAVE A POOR OUTCOME? REVIEW OF 2 CASES.
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Introduction: Squamous cell carcinoma (SCC) is a rare metaplastic primary tumour of the breast. It is associated with poorer prognosis compared to infiltrating ductal carcinoma. Very few case reports are available in literature.

Materials & Methods: We present two cases of rare primary squamous cell carcinoma of the breast, their presentation, diagnosis and treatment, along with the clinical outcomes.

Results: Case 1- A 48 year old postmenopausal married female, presented with history of a recurrent lump in the right breast for 8-10 months. Lump was rapidly increasing. She had undergone lumpectomy 1 year back. Histopathology was fat necrosis. Trucut biopsy revealed squamous carcinoma of the breast. Mammography was suggestive of BIRADS 4 lesion. FDG PET scan did not reveal any metastasis. Stage was T3 N0 M0. She was treated with Right modified radical mastectomy followed by adjuvant chemotherapy (AC followed by taxane) and external beam radiotherapy. Final histopathology was squamous cell carcinoma with 0/18 lymphnodes in the axilla. Immunohistochemistry was Tripple negative with Ki67 index of 20%.

Case 2- A 34 year old premenopausal married female, with history of left breast lump for 3 months. FNAC and Truct biopsy were suggestive of squamous cell carcinoma. Mammography was suggestive of BIRADS 5 lesion. FDG PET scan revealed radiotracer uptake in the ipsilateral axilla. No other metastatic lesion was present. She was treated with left modified radical mastectomy followed by adjuvant chemotherapy (AC followed by taxane) and external beam radiotherapy. Stage was T2 N1 M0. Immunohistochemistry was tripple negative.

Both patients are on follow up for 26 months and 14 months respectively and are disease free. Detailed clinicopathological profile and treatment would be discussed.

Conclusion: Primary metaplastic squamous cell carcinoma of the breast is a rare disease. Treatment in on the same lines as of infiltrating ductal carcinoma of the breast. Though literature suggests that they are associated with poorer outcomes, our two cases have not been associated with aggressive behaviour after a median follow up of 20 months.

Disclosure of Interest: None declared
“RANDOMIZED CONTROL TRIAL COMPARING REPEATED ULTRASOUND GUIDED ASPIRATION VS SUCTION CATHETER DRAINAGE IN BREAST ABSCESS”

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Introduction: Breast abscess is the most morbid complication of mastitis occurring mainly in lactating females. The age old treatment of surgical incision and drainage is now a days being advised only in a small subset of patients. The present study was conducted to assess the efficacy of ultrasound guided needle aspiration (Group I) and percutaneous placement of suction drain (Group II) in the management of breast abscess.

Materials & Methods: The present prospective, non-blinded, randomized control study was conducted in 80 patients of breast abscess randomized either in Group I or Group II. All the patients were followed on day 7 and 14 both clinically and radiologically. The primary outcomes were a combination of sonographic features and clinical signs and symptoms of resolution.

Results: The median age in each group was 30 years and 90% (72/80) of the patients were lactating. The most common isolated pathogen was Staphylococcus aureus (76.7 %, 61/80). Pain, as per visual analogue scale persisted for longer duration in group II as compared to group I (4.48±1.35 vs 3.50±1.32, p=0.002). Scar formation was observed in 77.5% (31/40) of the patients in group II in comparison to of 40% (16/40) in group I (p= 0.001). However, no significant difference was found in terms of fever, lump formation and residual volume.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Drain placement</th>
<th>Aspiration</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>30.35±8.79yr</td>
<td>30.05±9.28yr</td>
<td>0.45</td>
</tr>
<tr>
<td>Lactation</td>
<td>36/40</td>
<td>36/40</td>
<td>1</td>
</tr>
<tr>
<td>Fever (Fahrenheit)</td>
<td>99.58±1.54</td>
<td>99.08±1.67</td>
<td>0.16</td>
</tr>
<tr>
<td>Pain (VAS)</td>
<td>4.48±1.35</td>
<td>3.50±1.32</td>
<td>0.002*</td>
</tr>
<tr>
<td>Scar</td>
<td>77.5%</td>
<td>40.0%</td>
<td>0.01*</td>
</tr>
<tr>
<td>Residual volume (ml)</td>
<td>12.58±10.65</td>
<td>9.84±14.87</td>
<td>0.38</td>
</tr>
<tr>
<td>Lump (cm)</td>
<td>16.32±12.80</td>
<td>11.76±13.56</td>
<td>0.01</td>
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</table>

Conclusion: USG guided aspiration is a better alternative than drain placement in terms of pain and scar. Abscess <5cm were better managed by aspiration however suction drain was a better option for abscess >10cm size.

Disclosure of Interest: None declared
Introduction: Mastalgia is the commonest breast symptom experienced by 60 to 70% of women during their lifetime. A number of treatment options are available like vitamins, oil of primrose, tamoxifen, ormeloxifen and NSAID gel with each having their side effects and cost burden.

Materials & Methods: Female patients with mastalgia for more than a month attending Endocrine and Breast surgery OPD at Central Referral Hospital, Sikkim were enrolled. After ruling out overt pathology the patient was counselled and asked to complete a breast pain chart. Patient was put on local application of diclofenac gel. Patient was reviewed after 1 month and 3 months and the response was assessed using visual analogue scale (VAS) from score of 1 to 10.

Results: A total of 60 patients were enrolled for the study over a period of three months. The mean age of patients was 31.76 +/- 8.76. Majority of patients were premenopausal (95%). 75% had cyclical pain as discovered at 1 month evaluation. Median pain score at presentation was 5 as compared to 2 at one month and 3 months (p < 0.01) by Wilcoxon test. Diclofenac gel was found to have overall response rate of 85% (reduction of pain to <3 on VAS) at 4 weeks and 86% at 12 weeks. Complete response was achieved in 8% of patients at 1 month and 38% of patients at 3 months. No side effects were observed.

Conclusion: These results imply that local application of diclofenac gel is less costly, effective and with no side effects for treatment of mastalgia.

Disclosure of Interest: None declared
Introduction: The American Association for the Surgery of Trauma (AAST) has developed emergency general surgery grading systems for multiple diseases. These are designed to standardize classification of disease severity. The grading system for breast infections has not yet been validated. Our aim was to determine if the AAST Breast Infection grading system correlated with disease severity.

Materials & Methods: All patients (≥18 years) with breast related infection diagnoses from January 2015 to January 2016 were reviewed. Patient demographics, comorbidities, treatment, radiologic reports, complications and severity (Clavien-Dindo classification), and antibiotic utilization were reviewed. AAST breast infection grades (I (cellulitis), II (small abscess), III (multi-loculated abscess), IV (abscess with axillary extension), and V (abscess with chest wall involvement)) were assigned by two independent reviewers. Inter-rater reliability was measured using the agreement statistic (kappa). Final AAST grade was correlated with patient and treatment factors using Pearson’s correlation coefficient.

Results: A total of 183 patients (98.9% female) with breast infections were identified with a mean age of 35.6±13.7 years. At diagnosis, 123 (67.2%) patients were lactating, 106 (66.2%) were ≤6 months post-partum, and 20 (10.9%) had a past history of ipsilateral breast cancer. AAST grades were I in 83.1%, II in 9.8%, and III in 7.1%; no IVs or Vs were observed. The kappa statistic was 1.0, demonstrating 100% agreement between reviewers to assign AAST grade for all patients. Charlson comorbidity index, tobacco use, diabetes, systemic disease, body mass index, and hospital admission were not correlated to AAST grade (all p>0.05). Less severe breast infections and lower AAST grades received more oral antibiotics (correlation (-0.19, p=0.01)), but higher AAST grades received more intravenous (IV) antibiotics (correlation 0.15, p=0.04)). Increasing AAST grade was strongly correlated with need for procedural intervention (0.72, p<0.01).

Conclusion: The AAST breast infection grading system is a reliable and easy to use classification tool for patients presenting with low to moderate disease. It accurately predicts which patients will require medical intervention with either antibiotics or an invasive procedure. Further evaluation of a larger population is needed to validate this grading system for patients with severe disease (AAST grades 4-5).

Disclosure of Interest: None declared
**Introduction:** Thailand is classified by WHO as one of the 22 countries in the world with the highest TB burden. Thailand has about 93,000 new cases each year but breast tuberculosis is very rare and usually is secondary through haematogenous spreading from other infected organ. The exact incidence in Thailand is not known. There are only case reports. The incidence rate of this disease entity in the developed and industrialized nations range from 0.025-0.1%, increasing to approximately 4% in endemic countries.

**Materials & Methods:** We report a rare case of primary breast tuberculosis presenting with breast lump confirmed by pathology which completely resolved after six months of compliant treatment with anti-tuberculosis drug.

**Results:** A primary breast tuberculosis patient which completely resolved after six months of compliant treatment with anti-tuberculosis drug and no recurrence after 1 year follow-up

**Conclusion:** Primary breast tuberculosis is a rare disease even in endemic area. It is difficult to diagnose and may mimic carcinoma. Diagnosis can confirm by fine needle aspiration biopsy. Patients with breast tuberculosis can completely resolve after long term anti-tuberculosis drug and should not undergo a surgical removal.

**Disclosure of Interest:** None declared
Introduction: The association between histological subtypes classified by genetic profile, axillary lymph node involvement and sentinel node biopsy is still under discussion. Our aim was to check, in consecutive series of 2002 cases, the association between lymph node status, histological subtype and results of sentinel node biopsy.

Materials & Methods: The study was conducted on consecutive series of 2002 patients affected by breast cancer, from 2007 to 2014. It was featured by the 5 molecular subtypes (St Gallen 2011). They were obtained by biomolecular characterization of ER, PgR, MIB-1/Ki-67, HER2/NEU. The study of the axilla was conducted by SLNB and AD. The association between lymph node status, histological subtype and results of SLNB was studied by univariate and multivariate analysis.

Results: In our genomic classification, 1046 (52.24%) cases were Luminal A, 341 (17.03%) Luminal B/HER2 negative, 225 (11.23%) Luminal B/HER2 positive, 178 (8.89%) HER2 positive, 212 (10.59%) Triple negative. About the involvement of axillary lymph nodes, we had the following results: 64.78% axillary lymph node positive, 35.22% axillary lymph node negative. Conversely, on 705 sentinel node biopsies realized, in 18.43% of cases the sentinel node was positive and in 81.57% of cases it resulted negative. When we compared the percentage of metastatic axillary lymph nodes pathologically confirmed with the histological subtype, we found that the probability of the Luminal A subgroup to have positive axillary lymph nodes was significantly lower than the general population. In fact, only 58.6% was positive. Conversely, the other difference characterized the group of HER2 positive (not luminal): 137 cases resulted in the group with a significantly higher probability of axillary lymph nodes positive (76.96%). About the sentinel node biopsy, we found that the probability of the TNBC subgroup to have positive axillary lymph nodes was significantly lower than the general population. In fact, only 9.09% of cases resulted positive. Conversely, in the group of Luminal B/HER2 negative 30 cases resulted in the group with a significantly higher probability of sentinel lymph node positive at the sampling (30%).

Conclusion: Our results confirm the higher biological aggressiveness of HER2 positive on the axillary lymph nodes, the less aggressiveness of Luminal A and the same data will be seeking for the sentinel node, suggesting further studies of the profile of biological characterization of lymph nodes that may justify this different behavior of axillary lymph nodes.

Disclosure of Interest: None declared
NHL LOCALIZATION IN MALE BREAST: CASE REPORT.
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Introduction: The occurrence of male breast cancer accounts for 1% of all new diagnosis of breast cancer. Conversely, the localization of NHL to woman breast cancer is relatively frequent but only case reports have been already described for localization in male breast cancer.

Materials & Methods: Here we report our experience of diagnosis of NHL in male breast cancer seen at the Department of Breast Surgery of National Cancer Research Centre Istituto Tumori "Giovanni Paolo II" of Bari. A 68 year old male patient, sent to our equipe to be examined for suspected breast cancer. Medical history of previous primary testicular diffuse large B cells NHL, treated by surgery (right orchi-funicolectomy) and chemotherapy. Evidence of a large exophytic ulcerated neoplasia on right breast, without clinical and instrumental evidence of axillar involvement. Technical impossibility to histological staging.

Results: The treatment consisted of right total mastectomy “by necessity” with axillary dissection. The histopathological examination of the surgical specimen evidenced a rare multinodular mammary location of lymphoid malignant neoplasia, compatible with diffuse large B cells NHL of possible centrofollicular origin, without signs of involvement of removed lymphonodes.

Conclusion: A far as we know this is the first case reported of secondary localization of NHL in male breast. Further biological characterization of the disease in secondary localization with respect to the primar testicular cancer will be performed.

Disclosure of Interest: None declared
PE157
A REVIEW OF LOBULAR CARCINOMA IN-SITU (LCIS) IN BREAST PATIENTS IN QUEEN MARY HOSPITAL
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Introduction: LCIS is an uncommon but important breast condition associated with increased risk of breast cancer. It is often clinically occult with various imaging features and pathological findings. It also poses difficulty in management due to its sparsity.

Materials & Methods: Clinicopathological features of 13 patients with LCIS in excision specimen between January 2005 to January 2016 were reviewed after exclusion of 173 patients with co-existent invasive or in-situ carcinoma (DCIS).

Results: 11 (84.6%) patients presented incidentally during screening or workup for mastalgia or contralateral mass while 2 (15.4%) presented with a palpable mass. 5 (38.5%) had mammographic findings of microcalcifications while 10 (76.9%) had ultrasound findings of hypoechoic lesion in 6 (46.2%), having lobulated border in 7 (53.8%) and showing increased vascularity in 4 (30.8%). MRI was done on 3 patients and 1 (7.7%) showed type II/III enhancement curve. Only 5 (38.5%) showed LCIS in core biopsy. 1 showed pleomorphic LCIS with no microcalcifications on MMG. Regarding the management, 11 patients opted for surveillance, 1 chemoprevention and 1 mastectomy. With a median follow up of 28 months (range: 6-66 months), 1 (7.7%) developed DCIS 12 months after excision of LCIS and remained disease free at 38 months. Others do not have cancer development or LCIS recurrence.

Conclusion: LCIS is clinically occult and mammographic finding of microcalcifications is not a reliable feature. Ultrasound and MRI may show suspicious features. Core biopsy may not reveal the LCIS component. We recommend excision for definitive diagnosis to guide further management in view of its risk of cancer.

Disclosure of Interest: None declared
Introduction: Doppler guided hemorrhoidal artery ligation (DGHAL) is now well established technique for bleeding hemorrhoids. The most recent modification of selective hemorrhoidal artery ligation method, the rectoanal repair, combines DGHAL with plication of the prolapsed rectal mucosa, using the especially designed proctoscope. This procedure reduces enlarged hemorrhoids by ligation of hemorrhoidal arteries and restores anatomical position of prolapsed mucosa. Stapled hemorrhoidopexy, with use of a circular stapler, has emerged as a possible alternative to open hemorrhoidectomy in prolapsing hemorrhoids. In this study we compare the outcome of two procedures in prolapsing hemorrhoids.

Materials & Methods: Patients of grade II and III hemorrhoids (reducible prolapse, whether spontaneous or manual) were included in the study. Patients of grade I (no prolapse) and grade IV (not reducible) hemorrhoids were not included in the study. Total ninety patients were included in the study. Forty five patients underwent DG-HAL combined with rectoanal repair (RAR) and 45 patients underwent stapled hemorrhoidopexy. Patients were followed for a period of one year.

Results: There was no significant difference in requirement of analgesia and hospital stay after the two procedures. The cost of stapled hemorrhoidopexy was significantly higher but it followed earlier return to work. There was no significant difference in control of bleeding after stapler hemorrhoidopexy (93.33%) and DG-HAL with rectoanal repair (91.11%). However, the correction of prolapse was significantly better after stapled hemorrhoidopexy (95.55%) than after DGHAL with RAR (71.11%). No major complications were noted in either group. Overall patient satisfaction was better after stapled hemorrhoidopexy.

Conclusion: Stapled hemorrhoidopexy is superior to DG HAL combined with RAR in prolapsing hemorrhoids.

Disclosure of Interest: None declared
HARMONIC SCALPEL IN HEMORRHOIDECTOMY. A COMPARISON BETWEEN STANDARD SCALPEL USE WITH SUTURE AND HARMONIC SCALPEL WITHOUT SUTURE
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Introduction: Recently, harmonic scalpel is widely used in surgery for its features as being safe and time saving. In this report we compared standard hemorrhoidectomy, scalpel excision and suturing with harmonic scalpel excision without suturing.

Materials & Methods: One year long prospective study was planned with 2 groups. Each group had 31 patients. Group 1 included Grade 2 or 3 symptomatic hemorrhoids undergoing Ferguson operation. Group 2 included Grade 2 or 3 symptomatic hemorrhoids undergoing Harmonic scalpel use hemorrhoidectomy without suturing the excised anal mucosa.

Results: Duration of surgery for group 1 was 35 minutes and for group 2 it was 21 minutes. 1 (3.2%) patient had bleeding in group 1 and 2 (6.4%) patients had bleeding in group 2. One of the patients who had bleeding from group 2 underwent suturing. The pain control was made with non-steroidal anti-inflammatory drugs for both groups and there was no significant difference between groups. There were no other complications encountered during 3 month follow-ups. Duration of surgery was significantly lower in harmonic scalpel group.

Conclusion: Harmonic scalpel excision of grade 2 and 3 hemorrhoids is safe and time saving.

Disclosure of Interest: None declared
Introduction: To investigate whether preoperative chemotherapy using mFOLFOX6 plus molecular targeted drugs is effective either for curative resection or for improving oncological safety of the anal sphincter preserving operation (SPO) in marginally resectable advanced lower rectal cancer.

Materials & Methods: The records of 26 patients initially diagnosed with marginally resectable lower rectal cancers between 2008 and 2016 were retrospectively reviewed. Marginal resectability was caused by metastases or difficulty performing SPO due to local invasion. Nineteen patients received preoperative mFOLFOX6 plus bevacizumab, and the other seven, with no ras family mutation, received preoperative mFOLFOX6 plus cetuximab. All patients completed at least six courses of chemotherapy, with additional courses administrated if further tumor shrinkage was anticipated.

Results: Eighteen patients received 6–12 courses of mFOLFOX6 plus bevacizumab, followed by an additional 0–6 courses without oxaliplatin. One case experienced a Grade 4 allergy at the first injection, and was therefore treated with FOLFIRI plus bevacizumab. All seven patients treated with mFOLFOX6 plus cetuximab completed 6-9 courses of this regimen.

None of the 26 patients showed disease progression before surgery. Any grade adverse events (AEs) were observed in 19 (73%) patients, including Grade 3 AEs in four patients, with one each experiencing deep venous thrombosis, pelvic abscess, rectovaginal fistula, and diarrhea. Anal sphincter preserving operation was performed in 18 cases, where intersphincteric resection (ISR) in 11 cases and low anterior resection (LAR) in 7. Remaining 8 cases received either abdominoperineal resection (n=5) or total pelvic exenteration (n=3). Pathologic examination showed no remaining tumor cells (TRG4, or grade 3 in the Japanese classification) in two patients, very few remaining tumor cells (TRG 3 or grade 2) in five. Eighteen cases underwent curative resections. Whereas, positive resection margin (pRM1) was seen in 8 cases; 6 out of them were those performed SPO. At a median follow up period of 960 days, the local recurrence and distant metastasis rates were 15.4% and 35%, respectively. The 5-year DFS and OS were 51.7% and 68.9%, respectively.

Conclusion: Preoperative treatment with mFOLFOX6 and molecular targeted drugs is safe and effective in patients undergoing curative resection of marginally resectable lower rectal cancers. However, care is needed to preserve the anal sphincter muscle when SPO is initially difficult.

Disclosure of Interest: None declared
PE161
FISTULECTOMY AND PRIMARY CLOSURE FOR LOW ANAL FISTULAE- WALAPONE METHOD: OFFERS HEALING WITH PRIMARY INTENTION.
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Introduction: According to conventional surgical wisdom low anal fistulas are treated by laying open. This almost always gets infected due to faecal soiling and takes time to heal. We in this ongoing case series describe a new method (Walapone Method) Where fistulectomy is done and primarily closed, resulting in healing with primary intention.

Materials & Methods: 20 patients presented with low anal fistulas to Base hospital Rikillagaskada, Sri Lanka from 06/2015 to 01/2017 were managed in this method. Examination under anaesthesia was done under saddle block or spinal anaesthesia. Fistulous track was opened up and fistulectomy done. Damaged parts of internal and external sphincters were repaired with 3/0 polygalactin sutures. Watertight closure of skin was achieved with 3/0 nylon. Patients received 3 days of intravenous antibiotics followed up by 05 days of oral antibiotics. Sutures were removed at 14 days post op. Patients were reviewed at 07 days, 14 days, 21 days, and 03 months post op.

Results: Out of the 20 patients, 17 patients had full healing without recurrence by the time of suture removal. In 03 patients, sutures had to be removed early due to infection. 02 of them healed by secondary intention whereas in one patient fistula recurred.

Conclusion: Fistulectomy and primary closure of low anal fistulae (Walapone method) offers healing with primary intention in most cases.

Disclosure of Interest: None declared
Introduction: Chronic radiation proctitis (ChRP) is a complication following radical radiation treatment for pelvic malignancies. The aim of this study was to assess the expression of vascular endothelial growth factor (VEGF).

Materials & Methods: The study group consisted of 50 patients after radiotgerapy for uterine, cervical and prostate cancers. The EORTC/RTOG scoring system was used for grading of radiation-induced proctitis intensity. Endoscopic scoring was performed using Gilinsky’s classification. Serum levels of VEGF were analysed by ELISA method.

Results: Clinical assessment performed in the studied group showed that the most patients with prostate, cervical and uterine cancers presented the first degree of symptoms intensity (84.6%, 72.73% and 86.7%, respectively) according to RTOG/EORTC scoring system. Endoscopic assessment showed that the most patients in the whole studied group and also in three subgroups (prostate, cervical and uterine cancers) presented I° degree of late rectal mucosal damage according to Gilinsky’s classification (62%, 69.2%, 54.5% and 66.7%, respectively). The predominant endoscopic finding for the whole study group and for three mentioned above subgroups was the presence of telangiectases (86%, 84.6%, 81.8% and 93.3%, respectively). VEGF expression was significantly higher in the study group in comparison with the control group (p<0.0001). Assessment of VEGF correlation between the control group and three degrees (1°-3°) of endoscopic changes according to Gilinsky’s classification in the study group showed statistically significant differences for all three degrees (p<0.0001, p=0.0251 and p=0.0005, respectively). During analysis of VEGF expressions depending on the intensity of clinical symptoms, on account of small number of patients in 2 and 3 degree, two groups of patients were created within the study group for statistical reasons. The first group of patients comprised 1 and 2 degree and the second group comprised 3 and 4 degree of radiation proctitis intensity according to RTOG/EORTC scoring system. VEGF expression was statistically significant between the control group and the group I and the group II (p=0.0001, p=0.0009, respectively).

Conclusion: 1. There is a significant increase of VEGF expression that correlates with clinical and endoscopic symptoms.
2. VEGF may serve as a marker of the clinical course of ChRP.

Disclosure of Interest: None declared
ARE KI-67 AND REG FAMILY GENES EXPRESSIONS TOGETHER WITH PATHOMORPHOLOGICAL EXAMINATIONS WORTH DOING IN PATIENTS WITH CHRONIC RADIATION PROCTITIS?

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Introduction: Rectal mucosa injuries following radiotherapy (chronic radiation proctitis, ChRP) for pelvic malignancies may intensify proliferation and regeneration in rectal epithelium.

Materials & Methods: The study group consisted of 50 patients after radiotherapy (prostate, cervical and uterine cancers) and the control group comprised 20 patients. Ki-67 antigen and the regenerating family genes expressions (REG1A, REG1B, REG4) were evaluated in all patients.

Results: Morphologic evaluation and expression level of Ki-67 did not reveal significant differences in both groups. REG family genes expressions in the study group and in the controls showed statistically significant differences for REG1B and REG4 (p=0.003 and p<0.0001, respectively).

REG4 expression, from all REG family genes, was the most significant for correlations related to the period of time after radiotherapy, endoscopic findings and the clinical intensity symptoms after irradiation.

Conclusion: 1. There is lack of mucosal histopathological features that might be pathognomonic for ChRP
2. Unusual REG4 overexpression proves its considerable proliferative activity, thus this antigen may play an important role in the pathogenesis of ChRP
3. Ki-67 expression is not a helpful proliferative marker in the course ChRP.

Disclosure of Interest: None declared
PE164
COMPARISON OF DOPPLER GUIDED HEMORRHOID ARTERY LIGATION AND MILLIGAN MORGAN HEMORRHOIDECTOMY IN MANAGEMENT OF HEMORRHOIDAL DISEASE
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Introduction: Hemorrhoidal disease is the most common rectal disorder, and many modalities have been suggested for its treatment. In this study, we compared Doppler-guided Hemorrhoid Artery Ligation, one of the newest techniques in the treatment of this disease, to the Milligan-Morgan Hemorrhoidectomy (open Hemorrhoidectomy).

Materials & Methods: One hundred patients were enrolled in this study and divided randomly into two groups of fifty patients. Each group either underwent the Milligan-Morgan procedure or the Doppler-guided Hemorrhoid Artery Ligation method. The outcomes were compared using statistical methods.

Results: Patient demographic results and symptomatology and the type of anesthesia used had no influence on the study results. The mean duration of the operation had no statistical difference. The major impact of this new method had less postoperative pain and more patient satisfaction. After a mean follow up of eighteen months, we had two cases of recurrence in the Doppler-guided Hemorrhoid Artery Ligation group with grade IV hemorrhoidal disease.

Conclusion: Doppler-guided Hemorrhoid Artery Ligation is a safe and easy method for treating hemorrhoidal disease, but its results should be interpreted carefully, especially in grade IV of the disease.

Disclosure of Interest: None declared
Introduction: The percent of excess Body Mass Index lost (% EBMIL) is currently the best method to report weight loss and improvement in metabolic syndrome in morbidly obese subjects after LRYGB. A certain weight gain occurs after obesity surgery compared to the lower weight usually observed between 18 and 24 months post surgery. The aim of this study was to evaluate the % EBMIL and weight regain in patients submitted to LRYGB over a 3-year follow-up period.

Materials & Methods: Retrospective review of patients undergoing LRYGB from 2010 to 2013, at a single medical center in Portugal, with 3 years follow-up, and evaluation of % EBMIL.

Results: Between 2010 to 2013 LRYGB was performed in 220 patients with an average initial BMI of 44.1 kg/m² and an average age of 41.3 years. The %EBMIL increased from one month to two years post surgery and remained stable, around 80%, at 36 months of follow-up.

Conclusion: A large number of patients achieved a BMI <30 kg/m² and this is likely associated with significant health benefits. The %EBMIL remained stable at 36 months of follow-up.

References:

Disclosure of Interest: None declared
RESOLUTION OF OBSTRUCTIVE SLEEP APNEA NOT IMPACTED BY PREOPERATIVE BODY MASS INDEX OR
CHOICE OF OPERATION
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Introduction: Obstructive sleep apnea (OSA) is a serious obesity-associated disorder that results from repeated
interruptions in upper airway breathing during sleep and is associated with short and long-term medical
consequences. OSA is closely associated with obesity.

Materials & Methods: A retrospective analysis of outcomes of a prospectively maintained database was done on
obese patients with a diagnosis of OSA who had undergone either a sleeve gastrectomy (SG) or a Roux-en-Y gastric
bypass (RYGB) at a tertiary center between 2011 and 2015. We aim to compare the 6-month and 1-year post-
operative remission rates of obese patients with diagnosis of OSA undergoing bariatric surgery based on their pre-
operative body mass index stratification and type of bariatric operation (SG versus RYGB).

Results: It was noted that there was statistically no significant correlation observed between remission rates and
patients pre-operative body mass index and between remission rates for patients undergoing SG versus RYGB
surgery. The overall 6-month OSA remission rate for patients who underwent either sleeve or gastric bypass surgery
was 74.5%. Patient’s with pre-operative BMI 30-34.9, 35-39.9 and 40+, had 100%, 69.4%, and 75.1% (P>0.5) OSA
remission rates respectively. The 6-month remission rates for SG and RYGB were 75.2% and 71.4% (P>0.5)
respectively. The overall 1-year OSA remission rate for patients undergoing either sleeve or gastric bypass was 87%.
Patients with pre-operative BMI 30-34.9, 35-39.9 and 40+, had 100%, 86.7% and 86.5% (P>0.5) remission rates
respectively. The 1-year remission rates for SG and RYGB were 89.8% and 75% (P>0.5) respectively.

Conclusion: Most obese patients experience remission of their OSA after bariatric surgery regardless of their pre-
operative body mass index and irrespective of whether they undergo SG or RYGB. Therefore, bariatric surgery is
highly effective in helping obese patients suffering from OSA to achieve remission.

Disclosure of Interest: None declared
LAPAROSCOPIC MID-DISTAL GASTRIC BYPASS: AN OPTION FOR FAILED GASTRIC BYPASS

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\textbf{Introduction:}

As the number of obese patients benefiting from bariatric surgery is increasing, surgeons have more and more to cope with weight regain or insufficient weight loss. It might be challenging to head for a conversion after gastric bypass. Some options do exist. Some have limited efficiency on further weight loss, others allow great results in that field but do bring a lot at of side effects sometimes difficult to deal with. We report a surgical option, easy to achieve, Laparoscopic Mid-Distal Gastric Bypass. This procedure do provide patients with not only satisfactory weight loss but also with a good quality of life. Details regarding the procedure, patients data at the time of the MDGBP and the follow-up are given.

\textbf{Materials & Methods:}

From May 2015, 13 patients, of which 10 in the last 12 months, twelve women and one man, with a mean age of 48.3 years (31.5 – 66.5) were operated on. Three patients have had a Gastric Band before the GBP, one a Vertical banded Gastrectomy, and one a Billroth II gastrectomy. Regarding the mean BMI, at the time GBP: 41.6 kg/m\textsuperscript{2}, for MDGBP: 37.9 kg/m\textsuperscript{2}. Four patients had lost considerable weight between the 2 procedures: mean BMI 26.2 kg/m\textsuperscript{2}; range 24-28.5. For the rest, the lowest BMI was at the time of the MDGBP. The mean time between GBP and MDGBP was 5.9 years; range 1.4 - 12 years.

\textbf{Results:}

The procedure consisted in the transposition of the alimentary limb from just above the lower anastomosis of the GBP to 150 cm from the caecum. We created a long bile limb, the same alimentary limb and a 140 cm common channel. The mesenteric defect was closed.

The follow-up ranged from 29 months to six weeks. We only considered follow-up data of the 10 patients having reached at least six month after the MDGBP. The mean BMI was 29.2 kg/m\textsuperscript{2}; range 26.4 - 31.1.

One patient presented disturbing diarrhea and had to be reversed. Six patients developed Protein deficiency and need to be supplemented. Six patients had no B12 deficiency and two patients suffering from symptoms matching with neuroglycopenia had immediate relief.

\textbf{Conclusion:}

The number of patients reported is small. Yet, results are promising for this safe "easy to do and to reverse" procedure. We have started a study to assess the benefits of MDGBP regarding weight loss, deficiencies, quality of life and metabolic problems such as neuroglycopenia.

\textbf{Disclosure of Interest:} None declared
EFFICACY OF CONVERSION OF ROUX-EN-Y GASTRIC BYPASS TO ROUX JEJUNO-DUODENOSTOMY FOR SEVERE POSTPRANDIAL HYPOGLYCEMIA

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Introduction: Medically refractory postprandial hypoglycemia after Roux-en-Y Gastric bypass (RYGB), so called non-pancreatogenous hypoglycemia syndrome (NIPHS), is a rare and poorly described complication. Various therapeutic procedures have been described, including reversal of gastric bypass, 80% distal pancreatectomy (no longer suggested), and conversion to duodenal switch, with poor results. We describe a novel surgical technique for treatment of such patients.

Materials & Methods: Retrospective review of 8 patients with severe, documented postprandial hypoglycemia (serum glucose <45 mg/dL by venipuncture) and neuroglycopenia after RYGB, who underwent Roux jejuno-duodenostomy as a surgical therapy from 2011-2014 was performed. This procedure involved transection of the Roux limb about 70cm from the cardio-jejunostomy with anastomosis of the proximal cut end of the Roux limb to the proximal duodenum. Pre- and post-operative data were analyzed.

Results: All 8 patients were females with a mean age of 51 [38-66] years. All had postprandial hypoglycemic symptoms including documented neuroglycopenia despite management with diet modification and medications for a mean of 53 [range, 3-95] months. Mean postoperative follow up was 35 [range, 4-69] months. After operation, complete resolution of symptoms occurred in 25% of the patients, marked improvement in frequency and severity of symptoms in 50%, and no improvement in 25%. Marked subjective improvement in the quality of life was reported in 75%. The mean frequency of hypoglycemic symptoms decreased pre vs postoperatively from 23 (14-35) to 7 (0.5-35) episodes per week respectively [p= 0.007]. The mean nadir in serum glucose increased pre vs postoperatively from 36 (24-42) to 47 (35-70) mg/dl [p=0.036]. There were no deaths. A single complication of anastomotic bleed was successfully managed non-operatively [morbidity 13%]. All patients continued some form of dietary modifications postoperatively. Mean weight decreased postoperatively by 0.8 [range, -29 to +18] kgs [p=0.93].

Conclusion: Conversion to a Roux jejuno-duodenostomy appears to be a safe, easy, and effective treatment of severe postprandial hypoglycemia (NIPHS) after RYGB. This operation redirects ingested food through the duodenum, maintains a weight-loss preserving anatomy (in contrast to restoration of normal anatomy), and avoids the morbidity of conversion to a duodenal switch, which involves both a further gastrectomy and the gastro-gastrostomy.

Disclosure of Interest: None declared
Introduction: Helicobacter pylori is a gram negative bacteria which strongly associated with duodenal ulceration, gastric ulceration and gastric cancer. A recent work demonstrates H. pylori correlation with diseases of the extra-gastro-intestine such as cholecystitis, biliary cholangitis, and gallbladder cancer. Objectives: To evaluate the role of preoperative eradication of H. pylori in the treatment of cholecystitis.

Materials & Methods: A Prospective descriptive case control study in which 200 patients with symptomatic gallstone were investigated for pre and post-operative H.pylori screening using ELISA method. 60% of the patients (case) with positive result had an eradication of the bacterium using a triple therapy regimen for 1-2 weeks. The remaining 40% (control) with positive results were underwent a cholecystectomy without a preoperative drug eradication.

Results: 85% of the studied patients were female; 90% of them had symptoms of pain and 69% had dyspepsia and flatulence. 63% (n=126) of the investigated patients for preoperative H.pylori showed positive screening result; 60% of them (n=76) received preoperative antibiotic eradication of the organism; and they show significant postoperative symptoms reliving (P <0.002). Symptoms of dyspepsia and flatulence had been relived in 66.1% of the cases, whereas it relived in 37.5% in control at least in the first 6 months of postoperative follow up. 45 of case patients (59.2%) who had underwent eradication showed negative post-operative H.pylori screening results, however, they were 18.4% negative results in control. 76.8% of patients with negative preoperative H.pylori screening result reported free post-cholecystectomy symptoms in the postoperative follow up.

Conclusion: Preoperative eradication of associated H.pylori in a patient with gallstone play an important role in the treatment of cholecystitis and it will reduce the postoperative symptoms.

Disclosure of Interest: None declared.
Introduction: Type II diabetes mellitus (T2DM) is strongly linked with obesity and more than 60% of diabetic people live in Asia. Comparing to the West, Asians are more susceptible to develop T2DM at lower body-mass-indexes (BMI). While laparoscopic sleeve gastrectomy (LSG) is proved to be effective in diabetic Caucasians, the long-term impact of LSG on Asian T2DM patients was poorly investigated. This study aims to evaluate the long-term glycemic outcomes of Asian T2DM patients after LSG.

Materials & Methods: This was a prospective observational study of 100 consecutive Chinese T2DM patients who underwent LSG for the treatment of metabolic syndrome in Hong Kong between 2006 and 2016. Based on the American Diabetes Association 2009 criteria, the five-year results of T2DM remission rates were measured as primary outcome. Changes in weight parameters and glycemic control were also assessed.

Results: In this study, 100 T2DM patients (57 males) with mean age of 41.8±10.3 years were evaluated. Their mean body weight, BMI, and waist circumference were 108.3±20.7kg, 39.3±5.7kg/m$^2$, and 121.9±14.3cm, respectively. Their median duration of T2DM was 6 (range 1-30) years. The preoperative fasting C-peptide level was 3.4±1.7ng/ml. After LSG, the follow-up compliance rates were 100% (n=77) at 1 year, 98.4% (n=61) at 2 years, 88.5% (n=46) at 3 years, 88.6% (n=39) at 4 years and 83.3% (n=30) at 5 years. The overall T2DM remission rates were 50.0% at 1 year, 57.6% at 2 years, 55.3% at 3 years, 50.0% at 4 years and 51.6% at 5 years. During 5-year follow-up, their mean percentages of excess weight loss were 67.5±32.2% (1-year), 61.0±31.4% (2-year), 56.6±37.2% (3-year), 50.7±40.8% (4-year), and 51.6±40.0% (5-year). Their glycosylated hemoglobin (HbA1c) levels improved significantly from 8.0±1.8% preoperatively to 6.3±1.5% at 1 year (P<0.001) and were maintained at 6.7±1.8% at 3 years and 6.9±1.8% at 5 years. The percentages of patients having HbA1c<7% also increased significantly from 31.7% preoperatively to 81.7% at 1 year, 76.6% at 3 years, and 73.3% at 5 years (all P<0.001). At 5 years, only 2 patients (6.7%) developed recurrent T2DM after previous complete remission.

Conclusion: Among Chinese T2DM patients undergoing LSG, more than one-half of patients could sustainably achieve T2DM remission for 5 years. LSG was effective in achieving durable glycemic improvement in Asian T2DM patients. Recurrent T2DM was uncommon.

Disclosure of Interest: None declared
Introduction: Morbid obesity is one of common pathologies nowadays. Statistic results show increasing trend all over the world. While 31% of USA population has any type of obesity American Society for Bariatric and Metabolic Surgery and International Diabetes Federation consider this rate will be as high as 54% by 2050. Despite absence of official statistics number of morbid obesity patients in Azerbaijan is steadily growing.

Materials & Methods: Results of sleeve gastroectomy surgery conducted in 27 patients seeking medical help at Department of Surgical Diseases I of Azerbaijan Medical University, and Modern Hospital during 2012-2016 have been reviewed. 8 of them were men, and 19 were women. Average body weight of patients was 110-220kg, and BMI was 45-80.5 kg/m². 15 patients suffered from Type II diabetes, 17 from hypertension, 19 from fatty liver syndrome and hyperlipidemia, 12 from sleep apnoea, and above all, 12 women from hormonal dysfunction related to polycystic ovary syndrome and 5 men from lack of sexual activity. Upon all preoperative standard measures, surgeries in 27 severely obese patients were started with resection at 2-3cm proximal from 32 Fr. calibration tube and pyloric sphincter, and omentopexy was conducted beginning from fundal part. Two of the surgeries were carried out in an open method, the others in a laparoscopic method. Hospital stay after the surgery was 1-3 days.

Results: After new modification to sleeve gastroectomy applied by our team, efficient progress is observed in weight loss and metabolic indicators, and weight loss in first 6 months becomes faster.

Conclusion: Our results in all these patients are based on continuous observations up to 36 months. Weight loss of 31-57kg was observed in our patients during the first 6 months. One-year weight loss indicator equals to 44-78kg on all surgeries. In 17 patients out of 19 suffering from hypertension, also fatty liver syndrome and hyperlipidemia, these problems were eliminated during the first 3 months. Symptomatic treatment was implemented in our 2 patients, and lack of sexual activity observed in 5 male patients was completely eliminated within six months in accordance with the clinics of patients (by the level of free testosterone and sex hormone binding globulin). 14 patients out of 15 suffering from Type II diabetes normalized after a month without taking any antidiabetic drugs, and in one patient, dosing was significantly reduced.

Disclosure of Interest: None declared
**Introduction:** To provide a reference laparoscopic Roux-en-Y gastric bypass video for residents rotating through the upper gastrointestinal and bariatric surgical unit in Tan Tock Seng Hospital, Singapore. This is with the aim of improving surgical outcomes for the patient as the whole surgical team is familiar with the steps of the surgery and also improve the learning of the residents with the provision of reference material.

**Materials & Methods:** A video of a laparoscopic Roux-en-Y gastric bypass was edited to show the important steps of performing the surgery.

**Results:**

1. Insertion of three 10/12mm ports and two 5mm ports
2. Liver retracted with Natheson retractor
3. Omentum divided
4. Angle of His identified
5. Window made between 1st and 2nd gastric veins on lesser curve to enter lesser sac
6. Retrogastric and pancreatic adhesions freed
7. A 30-40 cc gastric pouch is created by dividing the stomach with powered echelon blue staplers
8. Identification of ligament of Treitz
9. Jejunum 100cm from the ligament of Treitz identified
10. Gastrostomy created at posterior wall of gastric pouch with harmonic
11. Enterotomy created at identified jejunum with harmonic
12. Gastro-jejunostomy performed end to side fashion with handsewn double layer anastomosis
13. Jejunum just proximal to gastro-jejunostomy divided with powered echelon white staplers
14. Creation of side to side jejuno-jejunostomy 100cm distal to gastro-jejunostomy with powered echelon white stapler
15. Closure of mesenteric defect with 2-0 V-lock non-absorbable suture
16. Peterson defect closed with prolene 2-0 sutures
17. Fascia of 10/12mm port sites closed with vicryl 2/0 with the use of the suture passer

**Conclusion:** With the creation of the video, we hope to provide residents with a standardized approach to laparoscopic Roux-en-Y gastric bypass surgery to improve their learning and raise standard of patient care.

**Disclosure of Interest:** None declared
Introduction: Human hydatidosis is a real public health problem in our country. Incidence of the disease has steadily increased in the absence of an effective prevention policy. It is rampant endemic to the great Maghreb. To this geographical ubiquity is associated a ubiquity of localization. In addition to hepatic and pulmonary localization, which accounts for 90% of the other organs and are not spared. Pelvic localization is rare, accounting for 0.2 to 2% of cases. Primary uterine localization, is exceptional; it is considered unusual. We report the case of a 27 years woman for chronic pelvic pain.

Materials & Methods: Patient have noticed an increase in the perimeter of her abdomen with exacerbation of pelvic pain, wishing to pregnancy she consulted in obstetrics unit. The general examination found a patient in good general condition. The abdomen is distended by the abdominal pelvic mass; simulating a pregnancy of 4 months. The pelvic examinations combined with the abdominal palpation reveal a filling of the asses of vaginal sac by mass and a pain triggered to the mobilization of the cervix. The routine laboratory tests were within normal values. The chest x ray was normal with no hydatid cyst was seen. Abdominal USE found a cystic mass of uterus. There was no signs of pregnancy. Beta HCG was negative. Hydatid serology was positive at 1/14500 (ELISA technic). The CT scan showed a huge hydatid cyst of the uterus with a honeycomb image. There are no other abdominal hydatid cyst.

Results: The surgical approach by midline laparotomy, reveals an enlarged uterus with presence of a mass of it posterior wall. Protection of the peritoneal cavity and isolation of the uterus by fields soaked with oxygen peroxide at 10 V. Cystotomy and aspiration of several daughter vesicles of different ages. Repeat sterilization with H2O2. Total extraction of the hydatid material. Resection of the protruding cyst wall. She passed a smooth post-operative period and discharged on the 7th post-operative day. Contraceptive treatment was prescribed but not observed by the patient. The patient was seen in Follow-up 6 months after surgery; there was no recurrence.

Conclusion: The isolated uterine hydatid cyst remains an unusual location even in countries with high endemic. Surgical treatment is the only remedy. The only real treatment is prevention. Human hydatid cyst is a real public health problem in our country, needs all procedures for the eradication of this disease.

Disclosure of Interest: None declared
THE ROLE OF DELETED IN COLORECTAL (DCC) AND P53 MRNA EXPRESSION IN YOUNG COLORECTAL CANCER

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Introduction: The incidence of colorectal malignancies at a young age, and the absence of sufficient data to explain about it, including in terms of gene mutations that play a role. The research will be done here is to determine whether changes in mRNA expression of genes DCC (deleted in colorectal cancer) and p53 play a role in colorectal malignancy is less than 40 years of age. Researchers also will perform immunohistochemistry to look at protein expression of the gene and protein expression was evaluated whether these correlated with mRNA expression.

Materials & Methods: This study is an observational analytic cross sectional design, carried out in the Laboratory of Biomedical Faculty of Medicine Sebelas Maret University from June 2013 to March 2014. Subjects were 30 patients with stage III colorectal adenocarcinoma, with details of the 15 subjects for each group. Subjects taken by consecutive sampling. Immunohistochemical examination of paraffin block preparation and reverse transcriptase - polymerase chain reaction (RT - PCR) of tumor tissue samples for evaluation of the presence of the protein and mRNA expression of DCC and p53 genes.

Results: Expression of p53 protein more available in the age group > 40 years (3 subjects), in the age group ≤ 40 years is only found in 1 subject. Examination results of RT-PCR to assess the mRNA expression results are consistent with the results of immunohistochemistry. Eleven subjects from the age group ≤ 40 years obtained DCC mRNA expression, whereas p53 mRNA expression was found in 12 subjects. From statistical analysis using the chi-square test and Phi correlation, we found significant association between protein and mRNA expression of DCC with colorectal cancer aged ≤ 40 years. Correlation of test results, obtained significant correlation between mRNA expression of DCC with colorectal cancer aged ≤ 40 years and the results of protein expression were significantly correlated with mRNA expression of DCC and p53 genes.

Conclusion: the expression of p53 protein and mRNA did not play a role in colorectal cancer ≤ 40 years of age. Protein expression was positively correlated with mRNA expression.

Disclosure of Interest: None declared
NOVEL APPROACH TO TREAT GIANT RECTAL ADENOMAS EXTENDING TO THE DENTATE LINE

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Introduction: Large tubulovillous adenomas (TVA) in the low rectum that extend to or beyond the dentate line are a rare but challenging entity. Complete endoscopic resection is often not feasible and an abdominoperineal resection with end colostomy is the classic alternative to achieve an oncologically safe resection. The aim of this report is to describe a novel sphincter preserving technique to treat such giant TVA.

Materials & Methods: Consecutive patients presenting with giant TVA that reach below the dentate line were reviewed. Treatment included sequential endoscopic resection of the distal part of the adenoma to allow subsequent sphincter-preserving total mesorectal excision (TME).

Results: From 2013-2016 three patients presented with TVA that were 6-12 cm in diameter and extended beyond the dentate line. None of them could be removed endoscopically. 5-6 cm of the lower rectum could be cleared by ESD, which was controlled 3 weeks thereafter and followed by low anterior resection with TME. The reconstruction was performed with a colonic J-pouch in two cases and end-to-end anastomosis in one. We achieved complete resection of the adenoma with low colorectal anastomosis in all cases, thus preserving sphincter integrity. R0 resection of the TVA was achieved in all three cases. Two patients however harbored a T1 invasive adenocarcinoma in the upper part of the polyp, which was thus removed in an oncologically safe manner. One patient who had upfront rectal resection needed ESD afterwards to remove remaining adenomatous tissue at the level of the anastomosis. None of the patients showed recurrence in their follow-up endoscopy.

Conclusion: This novel technique provides an alternative to achieve oncologically safe resections of large TVA of the lower rectum. Sphincter preservation is achieved by the endoscopic clearance of the lowermost rectum. This technique further represents a safe oncologic strategy by the removal of the mesorectum and allows thorough histological workup of the removed specimen.

Disclosure of Interest: None declared
INFLUENCE OF PLACE OF SURGERY ON ADEQUATE RESECTION OF COLORECTAL CANCER - PAKISTAN EXPERIENCE
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Introduction: Colorectal cancer is one of the commonest cancer worldwide(1), curative treatment is possible with the intent of R0 resection(2). The National Comprehensive Cancer Network (NCCN) has developed guidelines for the adequate resection, this includes minimum number of 12 lymph nodes(3), minimum 4-5 cm of tumour free margin, and in case of tumour less than 5cm from anal verge a 1-2 cm of tumour free margin is required(4).

Colorectal resection procedures are performed throughout Pakistan and a significant proportion of specimens are sent to Aga Khan University Hospital (AKUH) laboratory for the assessment and reporting. An assessment of how adequate are these specimens is necessary to devise strategies for adequate surgical resection.

Materials & Methods: This study includes analysis of pathologic reports of specimens sent for examination. All cases performed with intent of oncologic resection will be included for the year 2016. Cases will be classified into two broad categories AKUH and Non-AKUH, and analysed for adequacy of specimen as per NCCN guidelines. Crosstabs will be used to compare the data and Chi Square for cases above 5 and Fisher’s Exact test for cases numbering less than 5 will be performed, value <0.05 will be considered significant.

Results: These are preliminary results and final results will be presented during congress if abstract is approved. A total of 25 cases (AKUH n=14, Non-AKUH n=11) were included, 85.7% (n=12) of patients in AKUH group and 36.4% (n=4) of non-AKUH patients had achieved adequate surgical ressection with p Value of 0.17.

Conclusion: Our preliminary study had shown statistically significant results, these results might change on final analysis of the study. This study highlight the part of our knowledge that is lacking and constant need of workshops and conferences which emphasise on newest trends and guidelines for cancer surgeries.

References:

Disclosure of Interest: None declared
GANGRENOUS SIGMOID VOLVULUS ACCOMPANIED WITH EVENTRATION OF LEFT HEMIDIAPHRAGM: A CASE REPORT
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Introduction: Contemporaneity of sigmoid volvulus, considered as one of the bowel obstruction causes and diaphragmatic eventration that each of them are not so common entities, is extremely rare. Sigmoid volvulus is a condition in which a loop of sigmoid colon twists around its mesentery; results in both luminal and vascular compromise. It occurs mostly in large redundant loops of sigmoid colon then less frequently in cecum. Recurrent type of that was characterized by recurrent episodes of partial or complete sigmoid volvulus. Dependent on its severity, it can be demonstrated from being asymptomatic to abdominal discomforts, nausea, vomiting and constipation. Although the worldwide incidence rate of sigmoid colon volvulus is unknown, it varies widely according to the geography and population studies. In contrast, the prevalence is much higher in other parts of the world, such as Iran, India, Bolivia, Brazil, Nigeria, West Africa, and Ethiopia, where sigmoid colon volvulus accounts for 50% to 85% of large bowel obstructions that organizes "volvulus belt" region. In the "volvulus belt" the consumption of high-fiber diets results in a long redundant sigmoid colon that Iran has also been located in this region. Diaphragmatic eventration is a structural disorder affecting its natural function, making it permanently elevated and predisposes to push toward viscera into thorax without presence of any anatomical defects. It rarely remains undiagnosed until adulthood.

Materials & Methods: In our case a 65 year old man with a history of rectosigmoidoscopic devolvulation just one year ago, comes with bowel obstruction symptoms again. Radiological investigations revealed a loop of distended colon forming a volvulus lied in the left hemithorax pushing the left lung upward and the heart to right side surprisingly without any respiratory complaints.

Results: We are reporting a case of recurrent sigmoid volvulus in a 65 year old man with left hemidiaphragm eventration as at laparotomy, a gangrenous sigmoid colon was reduced into the abdominal cavity and the thin and membranous diaphragm was plicated. After resection of volvulus, a Hartmann's procedure performed. He was discharged several days later with no complications and two month later his colostomy was closed.

Pre-operation chest radiography in the left side showing a large dilated loop of bowel inside the left hemi-thorax (arrows) along with mediastinal shift and a portable one taken immediately after the surgical plication repair in the right.

Conclusion: Diaphragmatic eventration can predispose visceral translocations such as sigmoid volvulus especially in the region called "volvulus belt" where the prevalence of sigmoid volvulus due to anatomical and geographical aspects is higher.

Disclosure of Interest: None declared
Introduction: Rectal involvement in tuberculosis is uncommon. Isolated rectal tuberculosis is defined as focal lesions in the rectum in the absence of radiologically demonstrable lesions in the small and large intestine. This study describes the clinical presentation, diagnostic evaluation, management and outcome in eight cases of rectal tuberculosis.

Materials & Methods: Diagnosis of rectal tuberculosis was made by characteristic endoscopic appearance, histopathological features of tuberculosis in rectal biopsy and response to antitubercular treatment. Patients were followed for at least one year following treatment.

Results: Eight patients with rectal tuberculosis presented in five years period at our center. One patient had associated pulmonary tuberculosis. Predominant symptom was constipation (all patients) followed by bleeding (four patients) and constitutional symptoms (3 patients). Barium enema and CT scan showed strictures of variable length with focal areas of deep mucosal ulceration. On endoscopic examination strictures of variable length and diameter were found in all the patients within 6 to 10 cm from anal verge. Anal tone was normal and all the patients were continent. One patient required low anterior resection; five patients were treated by repeated rectal dilatation while two patients did not require any intervention. Antitubercular treatment was given to all the patients. Patients were followed for one year and there was significant improvement in symptoms following treatment.

Conclusion: Rectal tuberculosis is uncommon and may mimic malignancy; however meticulous evaluation and a high index of suspicion helps in diagnosis. Most patients present with low rectal strictures and are managed by repeated rectal dilatations and antitubercular therapy.

Disclosure of Interest: None declared
Introduction: Stoma creation is associated with significant psychologic distress for the patient. Peristomal morbidity is frequent, further increases patients' distress but is little known to surgeons. The aim of this study was to analyze the incidence and type of 30-day post-operative peristomal morbidity, and identify predictive risk factors.

Materials & Methods: All patients who underwent stoma creation from January 2014 to June 2016 in our institution were retrospectively assessed. Patients who died, had their stoma reversed or were lost to follow-up within 30 post-operative days were excluded. Peristomal morbidity was analysed using a specific photography database produced by an enterostomal therapist. The validated scale for peristomal skin lesions (SACS), clinical findings, and the Dindo-Clavien scale were used to classify morbidity. For risk factor analysis, morbidity was categorized as "negligible" (including superficial skin erosion SACS L1-2 and suture fissures), or "relevant" (any other morbidity).

Results: 111 consecutive patients met the inclusion criteria. Peristomal morbidity (any kind) occurred in 81(73%). The most common events were muco-cutaneous separation in 57(51%) patients and peristomal superficial skin erosion in 25(23%) patients. All complications were Dindo-Clavien grade I except in 2 patients where surgical intervention was necessary (Dindo-Clavien III). Double-barrel stomas compared to end stomas were more often associated with "relevant" morbidity (66% vs. 45%, p=0.044).

Conclusion: Peristomal post-operative morbidity is common but mild and usually due to muco-cutaneous separation. It is more frequent with double-barrel stomas.


Disclosure of Interest: None declared
Introduction: The aim of this study was to investigate the impact of diabetes mellitus (DM) on patients’ risk profile and oncosurgical long-term outcome (characterized by overall survival [OS], disease-free survival [DFS] and local recurrence rate [LRR] after 5 years) after resection for primary rectal cancer.

Materials & Methods: A prospective multicenter observational study “rectal cancer (primary tumor) – elective surgery” from 2008 to 2011 was used. A form of 68 items on pre-, peri- and postoperative details was filled in by the physicians in charge including a consecutive follow-up if the patient had undersigned consent form. Data from hospitals of each level of clinical care were obtained for analysis. Patients were subdivided into three groups: “No DM” and non-/insulin-dependent DM (“NIDDM” / “IDDM”, respectively).

Results: Overall, 10,625 patients were reported by 183 hospitals of which 10,442 were enrolled for analysis (acquisition rate: 98.3 %). 11.0 % of the patients had NIDDM and 7.2 % IDDM. The mean age was 68 (range: 21 – 99) years. Diabetics were significantly older (P<0.001). IDDM and NIDDM-patients were more likely to have cardiovascular (P<0.001) and renal (P<0.001) risk factors as well as obesity (P<0.001). IDDM patients also showed more pulmonary (P=0.001) and hepatogenic risks (P<0.001). Consequently, the ASA-classification was worse in patients with DM (P<0.001). Tumor stages classified by UICC were comparable between the groups (P=0.547) including lymph node invasion (pN+) (P=0.285) and distant metastasis (M1) (P=0.854). Five-yr-OS was 60.6 % for patients without DM, which was better than in NIDDM- and IDDM-patients who showed 53.3 % and 46.4 %, respectively (P<0.001 each). The difference between NIDDM and IDDM was significant, too (P=0.008). DFS was also worse in diabetics (P<0.01 each), without a difference between NIDDM and IDDM (P=0.106). The LRR ranged between 4.6 % for patients without DM and 8.3 % for IDDM-patients after five years without significant differences (P>0.05 each).

Conclusion: Patients with DM can be considered to have a higher operative risk than their non-diabetic counterparts. In addition, IDDM and NIDDM worsened the survival rates but were not significantly associated with higher risks for local recurrence. Finally, IDDM impairs patient-related comorbidities and worsens long-term tumor-dependent outcome more than NIDDM.

Disclosure of Interest: None declared
Introduction: Anastomotic leakage (AL) following colorectal surgery can be difficult to diagnose due to varying clinical presentations. This systematic review aims to assess biomarkers as potential diagnostic tests for pre-clinical detection of AL.

Materials & Methods: A comprehensive literature review was conducted according to the PRISMA guidelines. All published studies evaluating biomarkers, both systemic and peritoneal, in the context of AL following colorectal surgery were included in this review. Studies were searched for in three electronic databases (MEDLINE, PubMed and EMBASE) from January 1990 to June 2016.

Results: Thirty-six studies evaluated 51 different biomarkers in the context of AL after colorectal surgery. Biomarkers included ischaemic, inflammatory and microbiological markers, and were measured in both peritoneal drain fluid and the systemic circulation. The most commonly evaluated peritoneal drain fluid biomarkers were interleukin (IL) – 6, IL-10 and tumour necrosis factor. Significantly elevated drain levels in the early postoperative period were reported to be associated with the development of AL. C-reactive protein (CRP), procalcitonin (PCT) and leucocytes (WCC) were the most commonly evaluated systemic biomarkers with significant negative and positive predictive values. Associated area under the curve values ranged from 0.530 to 0.960.

Conclusion: Peritoneal drain fluid and systemic biomarkers are poor predictors of AL after colorectal surgery. Combinations of these biomarkers showed improvement in predictive accuracy.

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Introduction: Oncologic surgery principles mandates en-block resection of the cancerous segment with tumor free margin and adequate number of lymph nodes. Pathologic results of emergency and elective colorectal surgeries were compared.

Materials & Methods: From January 1st 2012 to June 30th 2016 131 patients admitted for emergent colorectal cancer surgery were analyzed retrospectively. Operation procedures and pathology results were evaluated and compared with 169 elective colorectal surgeries during the same period of time. SPSS 15.0 was used for statistical analysis and p<0.05 was accepted as statistically significant.

Results: R0 resection rates were higher in elective group (92.5% vs 74.3% p<0.001), the number of lymph nodes harvested was lower in emergency surgery group (mean value 11 vs 15) and this difference was statistically significant (p<0.02). Cancer free margins of the specimens were well provided and the results were similar in two groups (92% for elective and 89% for emergency surgery groups p=0.1)

Conclusion: R0 resection rates and number of lymph nodes harvested in emergency colorectal cancer surgery were significantly lower when compared with elective surgery.

Disclosure of Interest: None declared
Introduction: Since June 2015 we perform robotic-assisted rectosigmoidectomies (RAR) with the da Vinci Xi. To evaluate the quality of this new technique in our hands we analyzed perioperative results over a period of 19 months and compared them to patients who underwent laparoscopic rectosigmoidectomies (LAR) in the same period.

Materials & Methods: Retrospective analysis of prospectively collected data between June 2015 and December 2016. RAR was performed in 82 patients (47 female, 35 male) by 5 surgeons and LAR in 87 patients (54 female, 33 male) by 12 surgeons. Mann-Whitney-U Test was used for statistics. Significance level for P-Value < 0.05.

Results: The average age was 66.96 (±11.51) in the RAR and 62.39 (±10.70) in the LAR (p=n.s). Indications for RAR were in 75 patients diverticular disease, in 6 patients carcinoma and in 1 patient an adenoma. For LAR 68 diverticular diseases, 17 carcinomas and 1 adenoma lead to surgery. Mean operating time was 300min (±61) in the RAR group and 210min (±54) in the LAR group (p=0.001). Morbidity in RAR group was 25.6% (Clavien-Dindo III-IV 3.7%), in LAR group 24.1% (Clavien-Dindo III-IV 6.9%). There was 1 anastomotic leakage and a total of 3 reoperations after LAR, none of both occurred after RAR. There was no mortality in both groups. Length of hospital stay was statistically not different (10.5 days (±2.6) after RAR and 10.3 days (±2.8) after LAR).

Conclusion: Analysis of our own results showed the newly introduced RAR is safe, feasible and at least equivalent to the LAR. This is promising to be considered still being in the learning curve with this new technique.

Disclosure of Interest: None declared
Introduction: Rectal surgery is a technically demanding procedure, especially in obese patients. High Body Mass Index (BMI) has been associated with increased morbidity. Transanal total mesorectal excision (tTaME) has emerged as an alternative to laparoscopy and might be associated with improved outcomes in such difficult cases.

Materials & Methods: From a prospectively maintained database of patients undergoing tTaME for rectal cancer, we analyzed the outcomes of patients with BMI<25 Kg/m$^2$ (non-obese group) and patients with BMI>30 Kg/m$^2$ (obese group). Patients with mid and low rectal cancer were included. Histopathological results were also studied.

Results: A total of 104 patients were included in the analysis, 83 patients (79.8%) in the non-obese group and 21 patients (20.2%) in the obese group. Both groups did not differ in male-female ratio (male patients: 53.0% vs. 66.7%, p=0.260) or median age (63 vs. 66 years). There was no difference in smoking ratio (31.4% vs. 30.0%, p=0.903). There was an expected increased risk in the ASA classification for the obese group. T3 disease was present in 62 (77.5%) vs. 13 (61.9%) patients (p=0.146), and T4 was present in 7 (8.8%) vs. 1 (4.8%) patient (p=0.547), with no difference in the administration of neoadjuvancy (71.0% vs. 61.9%; p=0.575). Median operative time was 120 vs. 160 min (p=0.051). Intraoperative complications were present in 5 (6.4%) vs. 3 (15.0%) (p=0.211). Abdominal conversion to hand-port occurred in 1 (1.2%) vs. none (p=0.613). The 30-days postoperative complication number was 30 (36.6%) vs. 9 (42.9%) (p=0.597). A reintervention was warranted in 6 (7.3%) vs. 1 (4.8%) case (p=0.678), while readmission rate was 9.9% vs. 9.5% (p=0.961). Median length of hospital stay was 6 vs. 7 days (p=0.280). Pathological results showed no difference concerning quality of the specimen between both groups (98.8% vs. 100.0% of completeness of mesorectum, p=0.611) and no difference in positive CRM (8.5% vs. 4.8%, p=564).

Conclusion: Despite increased technical difficulty of resection, with tTaME obesity seems to be no longer associated with higher morbidity.

Disclosure of Interest: None declared
Introduction: Enhanced recovery (ERAS) pathways help to reduce complications, length of stay and costs after colorectal surgery. The present study aimed to evaluate a potential effect of ERAS on surgical site infections (SSI).

Materials & Methods: All consecutive colorectal surgical patients operated between May 2011 and September 2015 constituted the cohort for this retrospective analysis. Over 100 items related to demographics, surgical details, compliance and outcome were registered in a prospectively maintained database. Risk factors for SSI were identified by univariate analysis and by multinominal logistic regression.

Results: 54 out of 397 patients (14%) developed SSI. Independent and modifiable protective factors for SSI were smoking abstinence (OR 0.29; 95%CI 0.11-0.78, p=0.014), minimally invasive surgery (OR 0.3; 95%CI 0.16-0.56, p<0.001), elective setting as compared to emergency procedures (OR 0.45; 95%CI 0.22-0.91, p=0.026) and renouncement to oral bowel preparation (OR 0.14; 95%CI 0.28-0.66, p=0.013). Compliance to ERAS items of >70% was not retained as protective factor for SSI after multivariate analysis (OR 0.94; 95%CI 0.46-1.92, p=0.86).

Conclusion: Smoking, open and emergency surgery and bowel preparation were risk factors for SSI, while ERAS pathway had no independent impact.

Disclosure of Interest: None declared
COMPARISON OF ROBOTIC-ASSISTED VS LAPAROSCOPIC RESECTION OF RECTAL CANCER AFTER NEOADJUVANT CHEMORADIOThERAPY

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Introduction: Since June 2015 we perform surgery on locally advanced rectal cancer (LARC) not only laparoscopically but also by implementing robotic technique with the latest da Vinci Xi generation. For both techniques we analyzed our perioperative results in patients with LARC and neoadjuvant chemoradiotherapy (long-course therapy with 50.4 Gy + capecitabine).

Materials & Methods: Retrospective analysis of prospectively collected data. From January 2014 to November 2016 a total of 38 patients with LARC and chemoradiotherapy (CRT) underwent a laparoscopic or a robotic-assisted da Vinci Xi low anterior resection with total mesorectal excision (TME) in our department. In the robotic group (Rob-G) a total of 14 patients (age 63 ± 12, 42% f) were included, in the laparoscopic group (Lap-G) 24 patients (age 62 ± 12, 21% f).

Results: The average operation time was significantly longer in the Rob-G compared to the Lap-G (408 ± 83 min vs. 280 ± 50 min; p = 0.0001). Severe complications (Clavien-Dindo III or IV) occurred in 14% in Rob-G vs. 13% in Lap-G (p = ns). On the specimen, the number of resected lymph nodes did not differ significantly (Rob-G 17.7 ± 4.8 vs Lap-G 20.0 ± 6.9, p = ns). The quality of the TME was complete in 93% of the Rob-G and in 88% of the Lap-G (p = ns). The mean hospital stay was 14.6 ± 4.4 days in the Rob-G and 14.3 ± 6.5 days in the Lap-G (p = ns).

Conclusion: Although our team is still in the learning curve with the da Vinci Xi TME, we achieve absolutely comparable results to the laparoscopic technique in regards to perioperative morbidity, quality of oncological resection and length of hospital stay. The influence on oncological outcomes has to be investigated in further studies with a longer observation period.

Disclosure of Interest: None declared
Introduction: Aim: To demonstrate data systematically obtained by multicenter observational studies, & findings, which were derived for clinical practice in the management of rectal Ca.

Materials & Methods: Over a defined study period, patient-, treatment- & tumor-associated data on surgical patients with rectal Ca who had been enrolled in a prospective multicenter observational study (design) were documented & analyzed as follows.

Results: Hospital volume did not have a significant impact onto the oncosurgical long-term outcome but showed an inverse correlation to the frequency of creation of a permanent stoma & postop. morbidity. Neoadjuvant radiochemotherapy did not increase the risk of a postop. anast. insufficiency or dysfunction of the urinary bladder after sphincter-preserving rectal resection with curative intention. Specific study results on the diagnostic accuracy of EUS to assess T-category could not be confirmed in daily surgical practice. Creation of a protective enterostoma did not reduce the frequency of a postop. anast. insufficiency but it lowered the frequency of following surgical or interventional consequences. Quality of TME depends on patient- (such as patient’s age, tumor site, pT-category) & treatment-associated factors (such as technique of surgical dissection, surgeon’s case load). Patient’s age is a risk factor but it cannot be considered a general contraindication for resection of rectal Ca. Oncological outcome after laparoscopic rectum resection is comparable with that after open resection. However, necessity for conversion can worsen long-term oncosurgical outcome. Limited resection of pT1-low-risk Ca may provide an acceptable oncosurgical outcome but needs to be considered a compromise to radical resection. Rate of abdominoperineal rectum extirpation (APR) has been reduced in routine surgical care down to approximately 20% over the last years. Isolated invasion of lymphatic vessels could not be identified as independent risk factor for local or systemic tumor recurrence & in addition, did not show an impact onto long-term survival after radical resection. Disturbances of wound healing after APR can be reduced down to 5% by using antibiotic-releasing collagen-based biomaterial constructs in addition to the well-established wound closure of each single layer.

Conclusion: The results i) reflect real situation in abdominal surgery in Germany, ii) have influenced disease-specific clinical management, & iii) may define novel subjects of up-coming studies.

Disclosure of Interest: None declared
QUALITY ASSURANCE IN COLON CANCER (CA) – RESULTS OBTAINED IN STUDIES CONDUCTED BY A MULTICENTER STUDY GROUP

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Introduction: Aim: To summarize results obtained in a prospective multicenter observational study on the surgical management of colon Ca & their consequences for daily surgical practice.

Materials & Methods: As substantial part of a prospective multicenter observational study, data on diagnostic, treatment & outcome of patients with colon Ca were documented & analyzed as follows.

Results: 1) Case load in general does not provide necessarily a signif. impact onto the outcome.
2) Age can be considered a risk factor, however, it can not be considered a contraindication for surgical treatment of colon Ca.
3) Hartmann’s procedure is still indicated in high-risk patients & emergency cases (ileus, perforation) to reduce morbidity/mortality.
4) Hospital volume does not provide a significant impact onto the early postop. outcome. Therefore, there is no need for centralisation of surgical care in colon Ca to tertiary centers since the quality of surgical care is similar at each level.
5) Implantation of self-expanding stents can be considered an efficient measure in endoscopic palliation of the malignant colonic stenosis – it reduces postop. complications in bridging of stenosing Tu growth of colon Ca until surgery.
6) Laparoscopic approach in resection of colon Ca is reasonable in a well defined portion of patients; it should be performed by experienced surgeons since conversion to open surgery is associated with a signif. increase of morbidity/mortality/hospital stay.
7) Anast. insufficiency in colon resection is a rare but severe complication, which is associated with specific risk factors (such as Op time, ASA score, male sex, ileus, Tu lesion at the left hemicolon, cardiovascular & hepatogenic accompanying diseases, hand suture [one row], occurrence of intraop. complications, BMI >30kg/m²); their knowledge in the periop. decision-making process is of vital importance in order to sufficiently prevent an increase of morbidity/mortality.
8) The recently suggested German-wide model for quality assessment generates valid & comparable results to other population-based studies; it needs no further specific support to be implemented by the health system in each hospital.

Conclusion: The acquisition of data i) from a representative No. of patients, ii) on each level of surgical care, iii) over an appropriate study period, & iv) to characterize adequately daily surgical practice & its sufficient analysis as well as interpretation can provide important hints & knowledge for future care.

Disclosure of Interest: None declared
Introduction: In addition to modern research in the fields of genomics & proteomics, analyses of macroscopic tumor (Tu) characteristics & their prognostic relevance appear as "old fashion". However, there is no sufficient molecular parameter or a set of markers on the horizon, which are suitable to assess appropriately the prognosis of colorectal Ca. Beside the genotype, there is also the phenotype of a Tu lesion, whereby almost no data on precisely structured patient cohorts has been published so far.

Materials & Methods: By systematic additional analysis in a formerly documented historical study cohort, impact of macroscopic Tu issues as alternative to the today's rather molecular biological characteristics onto Tu outcome was to be investigated.

Results: From 1997-2000, all consecutive patients with colorectal Ca at the Carl-Thiem Hospital of Cottbus (n=205) who had undergone an elective, oncologically adequate resection were documented, in particular, their parameters of a minimally residual Tu disease. Among the 140 items, established clin. & histopathol. data (re-checked by an investigation called "reference pathology") added by further parameters on macroscopic Tu characteristics obtained from Tu specimens such as growing types were evaluated. With regard to the occurrence of a stenosis, only a subjective yes-/no-option of response & data registration was possible. Median follow-up time period was 61 months. End point of the study was the Tu-related death.

In 199 patients (97.1%), sufficient information on Tu stenosis was available. There were signif. associations between Tu stenosis & i) pT stage (p<0.001), stage according to UICC classification (p=0.018), type of Tu growth (insular vs. circular, p<0.001), grading (p=0.044), preop. serum CEA level (p<0.001), L status (p=0.007) & intraop. mobility of Tu lesion (p<0.001). There was no signif. correlation with nodal status, peritumorous Tu cell dissociation, Tu shape & Tu site. Cases with a Tu-based stenosis were associated with a significantly worse Tu-dependent survival in both univariate Kaplan-Meier curve (p=0.001) & in multivariate Cox regression analysis (p=0.045).

Conclusion: In a controlled patient cohort, detection of a stenosing Tu growth is considered an independent prognostic parameter. Macroscopic Tu issues characterizing Tu phenotype & manifestation of genotype should be included in the overall prognostic assessment of a Tu disease.

Disclosure of Interest: None declared
TRENDS OVER A 5-YEAR TIME PERIOD IN SURGICAL TREATMENT OF PRIMARY RECTAL CANCER

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Introduction: Gender-specific aspects play an increasing role in clinical medicine, e.g., in oncosurgery.

Materials & Methods: To analyze trends with regard to changes of the overall outcome in a representative No. of patients with surgical treatment of rectal cancer incl. gender-specific differences by means of a clinical systematic, prospective multicenter observational study.

Results: In total, 10,657 (2005/06: n=5,714; 2010/11: n=4,943) patients were registered, in the majority male (60.9%).

Exog./endog. risk factors: Men showed more frequently alcohol abuse and being a smoker (equal in both time periods); they are equally obese as women (portion of obese patients increased steadily over the time periods). The rate of other exog. risk factors was stable over the two time periods (cardiovasc. factors decreasing), w/o any detection of signif. differences comparing the two 2-year periods.

The No. of MRI/EUS investigations increased rapidly over the years (\(P<0.001\) each) – both methods were more frequently used in men & the increase was more distinct in them (2010/11: ♂ 65.8% / ♀ 60.3% vs. 0.5% in 2005/2006).

There was no signif. difference with regard to the tumor site (above anocutaneous line) comparing the two time periods and comparing histopathol. criteria.

Rate of abdominoperineal rectum extirpation decreased significantly in men over the years (\(P=0.002\)). However, Hartmann’s procedure was higher but did not decreased significantly in women (\(P=0.006\)). Palliative creation of an enterostoma was associated with a significant decrease comparing 2010/11 vs. 2005/2006 in both sexes. Specific postop. complications did not show a significant difference of the earlier vs. later 2 year periods. In the early postop. outcome, there was no significant change of the 30-d-morbidity with the same significant difference of men vs. women (\(P<0.001\)) – furthermore, there were no significant differences with regard to hospital letality, overall survival, and tumor-free survival.

Conclusion: Gender-dependent differences can be used not only to characterize tumor disease by diagnostic measures, they have also a substantial impact onto diagnostic, treatment & prognosis. By comparison of various time periods, analysis of gender-specific trends can result in significantly different developments with regard to the various parameters.

Disclosure of interest: None declared
LYMPHOVASCULAR INVASION IN COLORECTAL CARCINOMA – RELEVANT FOR OUTCOME?

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Introduction: Aim: To investigate i) surgical results & quality in colorectal surgery according to well described criteria as reported before as well as ii) the frequency of L1 status (detected lymphangiosis carcinomatosa) in correlation with other well established & in particular, macroscopic tumor(Tu) characteristics.

Materials & Methods: Patients with primary colorectal Ca were enrolled in this systematic, prospective unicenter clinical observational study. Survival according to Kaplan-Meier assessment as well as uni- & multivariate analysis were performed to characterize the impact of “L1”.

Results: From 09/01/1997 to 06/30/2000, 222 patients were enrolled in the study out of which 205 with colorectal cancer were evaluated. The mean age was 65.5 (SD: 9.69; range, 35-86) years. Sex ratio was 1.66:1 (M:F; males, n=128) with the majority at sigmoid colon & rectum (30.2 & 41%), resp. Hundred twenty eight patients (62.4%) had versus 74 individuals (36.1%) did not have lymphangioinvasion. i) Univariate analysis revealed that “L” category showed a significant impact onto Tu-free survival (P=0.0001) in addition to Tu stage (according to UICC; P<0.0001), pN category (P<0.0001), pT category (P<0.0001), preoperatively elevated CEA serum level (P=0.0003), Tu stenosis (P<0.0001), intraop Tu finding (P=0.0063) & R classification (P<0.0001; Tu grading w/o impact [P=0.18]) whereas II) multivariate analysis demonstrated that only postop. pN category (P<0.001), R status (P<0.001) & Tu stenosis (P=0.045) are independent variables with signif. impact onto Tu-free survival (Tu stage according to UICC, only a trend [P=0.078]). III) Detected lymphangiosis was significantly associated with Tu stage (according to UICC; P<0.001), T stage (P<0.001), N stage (P<0.001), peritumoral Tu cell dissociation (“budding”; P<0.001), Tu stenosis (P=0.006), preop. serum level of CEA (P=0.04) & macroscopic Tu characteristics (P=0.003 – no correlations, Tu grading, detected micrometastases within lymph nodes/peritoneal lavage, Tu site at the colon/rectum or intraop. Tu finding).

Conclusion: Lymphangiosis carcinomatosa may have prognostic relevance in all Tu stages & in particular, in stage II according to the classification by UICC but an independent prognostic impact onto survival could not be detected. However, it deserves further investigation in i) larger patient cohorts, ii) risk groups of patients & iii) earlier Tu stages.

Disclosure of Interest: None declared
Introduction: Many features are different between right-sided and left-sided colorectal cancer (CRC). The aim of this study was to compare the clinicopathological features between resected right-sided CRC and left-sided CRC.

Materials & Methods: A total of 900 patients with resected stage II and III CRC who underwent R0-resection from January 2003 to December 2013 were included. We compared clinicopathological factors between the right-sided (appendix, cecum, ascending, and transverse colon) and the left-sided CRC (descending, sigmoid colon, and rectum).

Results: The mean age of the patients was 68.5 ± 10.5 years and the male-to-female ratio was 523:377. The number of patients with stage II and III CRC were 533 and 367, respectively. The tumor location was the appendix, cecum, ascending, transverse, descending, sigmoid colon and rectum in 7, 70, 142, 92, 60, 240, and 289 patients, respectively. Postoperative adjuvant chemotherapy was performed in 77 and 193 patients with stage II and III CRC, respectively. Compared with patients with left-sided CRC, patients with right-sided CRC were older (70.2 vs. 67.6 years, P = 0.0004), more likely to be female (50.6% vs. 37.3%, P = 0.0001), and had a larger tumor diameter (53 mm vs. 48 mm, P = 0.007). The rate of mucinous or signet ring cell carcinoma was significantly higher in right-sided CRC than in left-sided CRC (5.8% vs. 3.4%, P = 0.0007). Compared with left-sided CRC, the ratio of T3-T4 tumors was significantly higher (T1:T2:T3:T4 = 0.3%:1.9%:80.3%:17.4% vs. 1.5%:5.4%:76.9%:16.1%, P = 0.0291); however, there was no significant difference in the number of lymph node metastases, or venous or lymphatic invasion. The disease-free survival (DFS) of patients with right-sided CRC tended to be better than left-sided CRC (75% vs. 70%, P = 0.1163). Univariate analysis of DFS showed that there were significant differences in stage and use of adjuvant chemotherapy. Multivariate analysis of DFS showed that there were significant differences in stage; however, there were no significant differences in the location (right-sided vs. left-sided CRC, P = 0.2262).

Conclusion: Compared with left-sided CRC, patients with right-sided CRC were older and more likely to be women. The DFS of patients with right-sided CRC tended to be better than that of patients with left-sided CRC, in spite of larger tumor diameter and deeper invasion.

Disclosure of Interest: None declared
Introduction: This study aims to compare Laparoscopic versus Open colostomy operation, done as a pretreatment fecal diversion procedure in patients with partially obstructed carcinoma of the Rectum in a Tertiary care hospital in India between January 2012 and December 2014.

Materials & Methods: All patients with a diagnosis of Carcinoma Rectum, who underwent a pretreatment diversion procedure between 2012 and 2014, were included, their online charts used for data extraction and analysed. A total of 55 patients with a diagnosis of Adenocarcinoma Rectum underwent pretreatment diversion colostomy between 2012 January and 2014 December. 33 of them were performed laparoscopically while 22 had open diversion. The primary end point of our study was time to initiation of neoadjuvant chemotherapy or chemoradiation as decided by the multi-disciplinary team. The median time for treatment initiation in the laparoscopic diversion group was 16 days (interquartile range of 13.5 to 21.5) in comparison to the open diversion group which was 20.5 days (interquartile range of 15.75 to 27) using Mann Whitney test.

Conclusion: Pretreatment defunctioning colostomy using laparoscopic approach was a safe option associated with faster recovery and early initiation of the desired neoadjuvant treatment in patients with locally advanced carcinoma rectum.

Disclosure of Interest: None declared
THE EARLY RESULTS OF TREATMENT OF LEFT-SIDED COLONIC OBSTRUCTION BY ONE-STAGE OPERATION WITHOUT INTRAOPERATIVE COLONIC IRRIGATION

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Introduction: To identify the early results of one-stage operation without intraoperative colonic irrigation (ICI) in treatment of left-sided colonic obstruction.

Materials & Methods: This is prospective case-series including patients who had resectable left-sided colonic obstruction and admitted Nhan Dan Gia Dinh hospital from January 2008 to December 2016. All patients were treated by primary resection and anastomosis without ICI. The early results were described focusing on mortality, anastomotic-related complications, operative time and hospital stay.

Results: There were 65 patients including 34 males and 31 females with the mean age of 57 years (range 20-81 years). Colorectal cancer was the cause of obstruction in 84.6% of cases. Median operative time was 159 ± 43 minutes. There was 1 death (1.5%) on POD 6 due to severe pneumonia and multiorgan failure. Four patients (6.2%) had minor anastomotic leak, 1 patient (1.5%) had major anastomotic leak, 8 patients (12.3%) had wound infection, 3 patients (4.6%) had intraabdominal fluid collection, and 1 patient (1.5%) had early adhesive small bowel obstruction. Reoperation was needed in 2 cases (1 for major leak and 1 for small bowel obstruction). Median hospital stay was 9 ± 3 days.

Conclusion: With carefully selected patients and with experienced surgeons in GI surgery, one-stage operation without ICI is an effective and safe treatment option for resectable left-sided colonic obstruction.


Disclosure of Interest: None declared
CLIPLESS LAPAROSCOPIC TOTAL PROCTOCELECTOMY WITH CUFF-LESS STAPLING ANASTOMOSIS

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Introduction: Laparoscopic surgery has now been applied to various diseases. However, there are few reports on total proctocolectomy by clipless laparoscopic surgery with cuff-less stapling J pouch anal anastomosis.

Materials & Methods: Our surgical procedure is as follows. A mesocolon widow was created from the descending to horizontal portion of the duodenum. The mesocolon, including vessels from left side of the window to the sigmoid colon was incised by LigaSure without clips. After total mesorectal mobilization to the anal canal, rectal transection was performed at the upper edge of the anal canal by three firing 30mm-long staplers. J pouch anal anastomosis was performed by the double stapling technique using a 25 mm circular stapler through the anus.

Results: Ten patients with ulcerative colitis, including three concomitant cancer underwent this procedure between 2014 and 2016. The mean operative time was 303.4 (270 to 335) min, the mean operative blood loss was 49.0 (0 to 200) ml, the mean hospitalization after surgery was 16.3 (14 to 18) days, and no postoperative complications were encountered. J pouch anal anastomosis was created at the dentate line in all patients. Good defecation was confirmed by defecography at one year after operation.

Conclusion: Clipless laparoscopic total proctocolectomy with cuff-less stapling anastomosis seems to be a useful surgical procedure for ulcerative colitis.


Disclosure of Interest: None declared
**Introduction:** Anastomotic leakage is the most serious complication after low anterior resection (LAR) for rectal cancer and diverting ileostomy (DI) is one of the common procedures for its prevention. The aim of this study is to clarify the relation between gender difference and significance of DI following laparoscopic LAR in rectal cancer patients.

**Materials & Methods:** Four hundred and seventeen rectal cancer patients who underwent laparoscopic LAR with ileostomy (n=226, DI group) or without ileostomy (n=191, Non-DI group) between 2007 and 2015 at Saitama Medical University, International Medical Center were enrolled in this study. The symptomatic anastomotic leakage with grade II or more by Clavien-Dindo classification was defined as an anastomotic leakage.

**Results:** The creation rate of DI following LAR was significantly more related to gender, tumor location, operative time and usage of transanal drain. The incidence rates of anastomotic leakage (8.4 % vs. 10.0 %, p=0.612) and re-operation (1.8 % vs. 4.7 %, p=0.097) showed no significant difference occurred between DI and Non-DI groups, respectively. Analyzing with gender difference, the rate of anastomotic leakage was not significantly different in male (8.6 and 14.9 %, p=0.159) and female patients (7.7 and 4.4 % in DI and Non-DI group, p=0.464), respectively. However, the rate of re-operation caused by anastomotic leakage was significantly different in male (1.7 and 7.9 %, p=0.021) but not in female patients (1.9 and 1.1 % in DI and Non-DI group, p=1.000). The postoperative hospital stay was not different in male (12.5±15.8 and 13.6±12.4 days in DI and Non-DI group, p=0.552) but significantly longer in DI (13.3±12.5 days) than Non-DI group (9.0±7.1 days)(p=0.026) in female patients. In DI group, 22 (9.7 %) of all 226 patients had ileostomy-related complications. In details, outlet syndrome (obstruction at ileostomy site), surgical site infection and bleeding were occurred in 19, 3 and 1 cases, respectively. Male patients had relatively high rate of ileostomy-related complications (11.5 %, 20/174) compared to female patients (3.8 %, 2/52) (p=0.117).
Conclusion: Diverting ileostomy following LAR might be beneficial to prevent re-operation caused by anastomotic leakage for male patients, but not for female patients.

Disclosure of interest: None declared
Introduction: Resection of the left colon with surgical Orifice Specimen Extraction (NOSE) is a technique with excellent immediate clinical results. The aim of this study is evaluate the impact of NOSE surgery of the left colon by Colorectal cancer, on survival and disease-free time compared with classic laparoscopy.

Materials & Methods: A cohort of patients undergoing laparoscopic resection of the left colon, with diagnosis of Adenocarcinoma, with a follow-up time more than 24 months, was analyzed. The analysis was performed from a prospective database, comparing disease-free time and overall survival among the group of patients undergoing classical laparoscopy and NOSE surgery. Kaplan-Mayer curves were compared with the Log rank test.

Results: From January 2010 to June 2014, 79 patients were submitted to laparoscopic surgery of resection of the left colon with a curative intent (Stage I-III). In 29 patients the surgical specimen was transanal (NOSE). The NOSE group presented shorter postoperative hospitalization time (mean 5.2 vs 6.8 days, p <0.001). Lymph node sampling was similar in both groups. During follow-up, we had 6 deaths (3 in each group p = 0.673) and 4 recurrences (1 Lap group, 3 NOSE group, p = 0.292). The comparison of the survival curves and disease-free time between the two groups didn’t present a statistically significant difference, either in the total population (overall survival p = 0.576 and disease free time p = 0.140) or in subgroups with stage I-II subgroups (Overall survival p = 0.874 and disease free time p = 0.255) or stage III (overall survival p = 0.539 and disease free time p = 0.129).

Conclusion: NOSE surgery of the left colon with transanal extraction has better immediate clinical results and don’t affect negatively cancer results. NOSE surgery of the left colon is recommended in the laparoscopic approach of left colorectal cancer, whenever possible.

Disclosure of Interest: None declared
SAFETY AND FEASIBILITY OF LAPAROSCOPIC SURGERY FOR APPENDICEAL MUCOCELE: A MULTICENTER STUDY

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Introduction: Appendiceal mucocele appendix is an uncommon pathology, occurring 0.15% to 0.6% of all appendix specimen (1, 2). Although laparoscopic appendectomy has been widely used since 1987, concerns over potential spillage of mucin during laparoscopic manipulations of appendiceal mucoceles prevented the use of laparoscopic surgery in the mucocele. The purpose of the present study was to evaluated safety and feasibility, and short-term perioperative outcomes of laparoscopic surgery for a mucocele of appendix.

Materials & Methods: From January 2006 to June 2016, a retrospective review was performed to identify patients who diagnosed appendiceal mucocle with computed tomography and underwent surgery at six Hallym University-affiliated hospitals. Patient demographics, surgical outcomes (operation time and intraoperative rupture), and postoperative outcomes (postoperative complications, and length of hospital stay) were retrospectively analyzed.

Results: Eighty two patients were evaluated. Thirty-five underwent open surgery (OS) and 47 underwent laparoscopic surgery (LS). There were no significant differences in the patients’ characteristics between the two groups. The operation time was similar in both groups (113.6 in LS group vs 94.9 minutes in OS group, P = 0.195), and intraoperative rupture occurred in two and one patients, with no significant difference (4.3% in LS group vs 2.9 % in OS group, P = 1.000). Four patients (8.5%) in the LS group required conversion to open surgery because of fixed or bulky appendiceal mass. Time to flatus, time to soft food intake, and the length of stay was shorter in the LS group than in the OS group (2.4 vs 3.1 days, P = 0.004; 3.5 vs 4.6 days, P = 0.019; 6.7 vs 8.6 days, P = 0.033). The rate of postoperative complication was similar in both groups (10.6% in LS group vs 14.3% in OS group, P = 0.618).

Conclusion: The present study shows that laparoscopic surgery can be safe and feasible for surgical treatment of appendiceal mucocele. However, prospective randomized trials are needed to confirm the present results.

References:
Disclosure of Interest: None declared
TOTAL PELVIC EXENTERATION FOR PRIMARY AND RECURRENT RECTAL CANCER IN OUR HOSPITAL

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Introduction: Total pelvic exenteration (TPE) is performed for locally advanced and recurrent rectal cancer, however, is lacking of enough data. We examined surgical outcomes of TPE for rectal cancer at our hospital in this study.

Materials & Methods: Proctectomy was performed in 1288 patients for primary rectal cancer and 62 cases for recurrent rectal cancer between April 2007 and December 2016 in our hospital. Of all, total pelvic exenteration was performed for 16 patients. Clinicopathological factors and short-term outcomes of TPE patients were examined.

Results: Mean age was 61.9 (48-76) years old, gender was 15 males, mean BMI was 20.0 (16.8-30.3)kg/m2, and maximum size of tumor was 7.8±2.3cm. Main tumor location of 11 primary rectal cancer patients were Rectosigmoid 2, upper rectum 2, lower rectum 6, and proctodeum 1. Primary procedures of 5 recurrent patients were abdominoperineal resection 3, intersphincteric resection 3, and low anterior resection 1. Neoadjuvant chemo-radiotherapy was performed in one primary cancer case. Chemotherapy was performed in 3 recurrent cancer cases and 2 of them received also radiotherapy, preoperatively. Invaded organs of primary cases were urinary bladder (U) 5, prostate (P) 1, both U and P 2, both P, urethral sphincter, and lavator ani muscle 1, both U, P, urethra, and right internal obturator muscle 1. Pathological findings of other organ invasion was presented in 7 patients (64%). Final Stage were IIA 3, IIB 2, IIIB 2, IIIC 2, IV 2. In recurrent cancer cases, tumor were located P in 4 cases, U and vagina in 1 case.

Open surgery was performed in 13 cases and hand assisted laparoscopic surgery in 3. Mean operation time was 7.8(5.5-11.2) hours, mean blood loss was 924.5(85-19250)ml. Associated sacrectomy was performed in 5 patients. R0 resection was performed in 12 cases (75%). In one patients, concomitant ileocecal resection was performed, anastomotic leakage and pelvic abscess were occurred postoperatively and lead to hospital death at 6 months. Morbidity rate was 69% and Clavien-Dindo classification more than Grade III was 25%. One hospital death occurred because of pelvic abscess. Mean (exclude one mortality) period of hospital stay was 20 (11-114) days. 5 years overall survival rate of primary cancer cases was 58.9%.

Conclusion: One hospital death and large amount of intraoperative blood loss was occurred in our experience. Long-term survival was archived in some cases. Appropriate indication and treatment after surgery of TPE is important.

References:
Disclosure of Interest: None declared
Introduction: Controversy exists whether surgical treatment is influenced by insurance status. We analyzed if operative technique, oncologic quality of the resected specimen and complication rates differ between patients with general versus patients with private healthcare insurance.

Materials & Methods: Based on the prospective database of the AQC (Arbeitsgemeinschaft für Qualitätssicherung in der Chirurgie, Switzerland), all patients undergoing elective resection for colorectal cancer between 2002 and 2016 were identified. A propensity score match for age, gender and ASA-score of eligible cases was performed and outcomes assessed. T-test was used to compare interval data and Pearson Chi-Square test for nominal/ordinal data respectively.

Results: 988 (494 general & 494 privately insured patients) were matched for colon resection (CR) and 1042 (521 general & 521 private insured patients) for rectal resection (RR). Rate of incomplete oncological resections (R1/R2; CR: 2.8% vs. 4.2%; RR: 5.6% vs. 6.1%) as well as lymph node yield (CR median: 21 vs. 21; RR median: 18 vs. 18) did not differ with respect to insurance status. Patients with general insurance however had longer length of operation (CR: median 172 vs. 150 minutes; RR: median 240 vs. 206 minutes; \(p < 0.001\)) and higher blood loss (CR: median 100 vs 50 ml; RR: 150 vs. 50ml; \(p < 0.001\)). Privately insured patients were more frequently operated using laparoscopic or robotic techniques (CR: 61% vs. 37%, \(p < 0.001\); RR: 72% vs 61%, \(p = 0.014\)), however no overall difference in the length of hospital stay was observed between patients with general or private insurance (CR: median 12 vs. 12 days; RR: median 14 vs. 14 days). While there was no difference in intraoperative complications for both colon and rectal resections, higher rates of wound infections in patients with a general insurance after colonic resection were reported in the registry (CR: 4% vs 1.6%, \(p = 0.006\)).

Conclusion: While the quality of the oncologic resection was not affected and only minor differences in postoperative complications were observed, the use of minimally invasive techniques was favored in patients with private insurance. Similarly, differences in blood loss and length of operation likely reflect the higher levels of training in surgeons operating on patients with private insurance coverage.

Disclosure of Interest: None declared
SURVIVAL AFTER CYTOREDUCTIVE SURGERY AND HYPERTERMIC INTRAPERITONEAL CHEMOTHERAPY (HIPEC) DEPENDS ON RAS/RAF MUTATIONAL STATUS

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Introduction: Cytoreductive Surgery and hyperthermic intraperitoneal chemotherapy (CRS/HIPEC) can prolong survival in well-selected patients with peritoneal carcinomatosis of colorectal (CRC) origin. Today, selection criteria are only poorly defined, and the risk of recurrence is high. In this study, we analyzed the role of tumor biology, and proto-oncogenes k-Ras, n-Ras and b-Raf on survival after CRS/HIPEC.

Materials & Methods: Data of n=125 patients operated at a single tertiary hospital between 2009-2015 were analyzed. Patients received standard perioperative chemotherapy. HIPEC with mitomycin C/doxorubicin was performed after radical (CC-0) cytoreduction.

Results: For patients after CC-0 resection, median disease free survival (mDFS) was 12 months and overall survival (mOS) has not been reached. In contrast, mOS was only 13 months for patients with an incomplete (CC-1 or 2) resection. Signet ring differentiation highly negatively predicted outcomes (p=0.006). Overall, 36.7% of patients had mutations in one of the oncogenes (k-Ras: 26.7%, n-Ras: 6.7%, b-Raf: 3.3%). The mutation status did not correlate with age, gender, T-stage, N-stage, amount of invaded lymph nodes, PCI, complications, complete vs. non-complete resections, or the temporal appearance of PC. However, tumors with oncogene mutations showed a reduced mOS (p=0.05), and impaired mDFS (6 vs. 17 months, p<0.001). In addition, mutated tumors had an increased risk of peritoneal recurrence (p=0.09) and a higher rate of non-peritoneal metastatic relapse (p=0.036).

Conclusion: Tumor biology is critical, and Ras/Raf-mutation status is an independent and critical risk factor for impaired outcomes after CRS/HIPEC.

Disclosure of Interest: None declared
Introduction: Laparoscopic rectal resection (LRR) for rectal cancer is a challenging procedure, with conversion to open surgery being reported in up to 30% of cases. There is limited evidence about short-term and long-term oncologic outcomes after converted LRR. Since only a few studies with short follow-up have compared converted LRR and open rectal surgery (ORR), it is unclear if the laparoscopic approach should be always attempted also in those patients with preoperatively known high risk of conversion. The aim of this study was to compare both early postoperative outcomes and long-term survival after converted LRR or ORR for non-metastatic rectal cancer.

Materials & Methods: A prospective database of consecutive curative LRR and ORR for rectal cancer was reviewed. Patients who required conversion (CONV group) were compared with those who had primary open rectal surgery (OPEN group). Only patients with a minimum 5-year follow-up were included in the oncologic analysis. A multivariate analysis was performed to identify predictors of poor survival.

Results: A total of 257 patients were included in the study: 47 had a converted LRR (CONV group) and 210 had a ORR (OPEN group). The most common reasons for conversion were a locally advanced tumor or pelvic adhesions secondary to neoadjuvant chemo-radiation therapy (44.7%) and obesity (31.9%). There were no differences in perioperative morbidity, mortality and length of hospital stay between the two groups. With a median follow-up of 79 (range, 12-266) months, 5-year overall survival was 76.4% in CONV patients and 76.8% in OPEN patients (P=0.956). Five-year disease-free survival was 61.4% and 74.5%, respectively (P=0.064). Poor tumor differentiation, lympho-vascular invasion and a lymph node ratio of 0.25 or greater were independently associated with poorer survival.

Conclusion: These results suggest that even challenging cases should be approached laparoscopically. Even though the disease-free survival is reduced in CONV patients, conversion per se does not impair the outcomes in rectal cancer patients.

Disclosure of Interest: None declared
PE203
INTRAOPERATIVE AIR LEAK TEST REDUCES THE RATE OF POSTOPERATIVE ANASTOMOTIC LEAKAGE: ANALYSIS OF 1,321 COLORECTAL RESECTIONS
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Introduction: Air leak test (ALT) after left-sided colorectal resection (LCR) is widely adopted to test the colorectal anastomosis (CA) integrity, aiming at reducing the rate of postoperative CA leakage (CAL). However, the evidence supporting this practice is not conclusive. The aim of this study was to challenge the use of ALT after elective LCR.

Materials & Methods: It is a retrospective analysis of a prospectively collected database including all patients undergoing elective LCR with primary CA and no proximal diversion for diverticulitis, large colon adenomas and cancer. Intraoperative ALT was performed according to individual surgeon routine practice.

Results: A total of 1,321 LCR (1,048 laparoscopic) without proximal diversion were included in the analysis: the CA was tested in 992 patients (ALT group), while intraoperative ALT was not performed in 329 patients (No-ALT group). The two groups of patients were similar in demographic data, indication for surgery and type of procedure. Intraoperative CAL was detected in 20 (2%) ALT patients: a stoma was created in 14 (70%) patients, while 6 (30%) patients had a suture repair alone. Overall, postoperative CAL occurred in 45 patients (4.3%); the postoperative CAL rate was lower in ALT patients than in No-ALT patients (2.7% vs. 5.5%, P=0.027). A reoperation was needed in 87% of cases. No CAL occurred in the 20 patients with intraoperative positive ALT. Multivariate analysis showed that colon cancer (HR 2.09, 95% CI 1.06-4.13, P=0.034) and male sex (HR 2.58, 95% CI 1.39-4.75, P=0.002) were independent risk factors for postoperative CAL, while intraoperative ALT independently reduced the postoperative CAL rate (HR 0.75, 95% CI 0.39-0.88, P=0.042).

Conclusion: Intraoperative ALT allows to detect AL defects after LCR that can be effectively managed intraoperatively, leading to a significant lower risk of postoperative CAL.

Disclosure of Interest: None declared
PE204
PELVIC EXENTERATION IN THE TREATMENT OF ADVANCED RECTAL CANCER
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Introduction: The treatment of locally advanced and recurrent rectal cancer still poses a challenge even in the era of multidisciplinary approach. Pelvic exenteration surgery may provide means to R0 resection in these cases. We sought to analyze the survival benefit of pelvic exenteration surgery in the treatment of advanced rectal cancer.

Materials & Methods: Single center review of patients with rectal cancer submitted to pelvic exenteration between January 2010 and December 2015. Total pelvic exenteration was defined as resection of the rectum and bladder was well as prostate and seminal vesicles in men and uterus and adnexae (as well as the upper third of the vagina whenever necessary) in women. Posterior pelvic exenteration was defined as resection of the uterus, adnexae, rectum and the posterior wall of the vagina, sparing the bladder.

Results: 34 pelvic exenterations were performed in this period of time (23 total and 11 posterior). The median age was 65 years and 58.8% of the patients were male. The rectal tumor was a primary tumor in 70.6% of the cases and a recurrent tumor in 29.4%. Intra-operative radiotherapy was administered in 76.5%. There were no cases of intra-operative mortality, the overall morbidity rate was 67.6% with 23.5% of major complications (CTCAE 3-4) and 5.9% deaths (CTCAE 5) in the post-operative period. Median overall survival was 30 months. R0 resection was achieved in 79.4% of the cases and there was a statistically significant difference in median overall survival in these patients (p<0.019).

Conclusion: Pelvic exenteration can be done with acceptable morbidity achieving a high rate of R0 resection, with survival benefit in these cases.

Disclosure of Interest: None declared
CHARACTERIZATION OF THE ANTERIOR RESECTION SYNDROME THROUGH THE USE OF THE LARS SCALE (LOW ANTERIOR RESECTION SCORE)

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**Introduction:** Many patients submitted to anterior resection of rectum will develop an alteration on intestinal and defecation function. The dysfunction is variable in symptoms and severity. It can manifest as emergency, incontinence and fragmentation of stools. The bowel movements can be repeated, incomplete or difficult. The set of these symptoms is known as anterior resection syndrome (ARS) and can influence negatively the quality of life of patients. Recently has been internationally validated a Low Anterior Resection Score (LARS) that quantifies the ARS. The aim of this study is quantify the incidence and severity of the ARS using LARS in our population.

**Materials & Methods:** All operated patients with anterior resection for rectal cancer between January 2013 and December 2015, with curative intention and at least one year of functionality, were sent a LARS questionnaire. The variables studied were: age, gender, time elapsed since surgery, type of surgical approach, type of anastomosis, existence of derivative ileostomy and neoadjuvant/adjuvant treatment.

**Results:** Out of 71 patients, 54 (76\%) responded properly to LARS questionnaire. A total of 35\% of the patients presented «severe» LARS and 32\% did not develop quantifiable ARS. Quality of life was worse in the highest LARS scores (P=.002). Incontinence to liquids was present in 48\%, fragmented defecation in 21\%, urgency to defecate in 17\%; the other two assessed parameters were practically inexistent. Patients with tumours between 7 and 10 cm from the anal margin did not develop the assessed alterations or they were very mild. All patients with tumours at less than 7 cm from the anal margin developed severe alterations. In the univariable analysis, radiotherapy regimen and derivative stoma were associated to «severe» LARS.

**Conclusion:** The alterations assessed by the LARS scale were severe during the first months after surgery and when the tumor was closer to the anal margin. The overall perception of quality of life was significantly worse in patients with more severe LARS.

**References:**

**Disclosure of Interest:** None declared
Introduction: Japanese guidelines for the treatment of Colorectal Cancer recommends surgical resection with lymph node dissection for the treatment of colorectal cancer with submucosal invasion over 1000μm and/or positive vertical margin, poorly/ mucinous/ signet ring-cell carcinoma, positive vessel invasion, budding grade 2/3.

The treatment outcomes of colorectal cancers with submucosal massive invasion after endoscopic resection were reviewed in this study.

Materials & Methods: Between October 2006 and December 2015, 45 cases of colorectal cancers with submucosal massive invasion were reviewed the outcomes of treatment after endoscopic resection retrospectively. Clinico-pathological findings were described according to the Japanese Classification of Colorectal Carcinoma.

Results: There were 28 cases in men, 17 cases in women; the mean age of 45 cases was 68 years old (51-86). One case was located in cecum, 3 cases were located in ascending colon, 2 cases in transverse colon, 2 cases in descending colon, 19 cases in sigmoid colon, 7 cases in rectosigmoid and 11 cases in rectum. 18 cases were sessile type (Is) cancers, 11 cases were subpedunculated type (Isp) cancers, 6 cases were pedunculated type (Ip) cancers, 4 cases were elevated type (IIa) cancers and 6 cases were elevated + depressed type (IIa+IIc) cancers. 37 cases were diagnosed well differentiated tubular adenocarcinoma and 8 cases were diagnosed moderately differentiated tubular adenocarcinoma. Positive vertical margin was found in 9 cases and vessel invasion was found in 25 cases. Lymph node dissection was performed in 29 cases and lymph node metastasis was found in 3 cases (10.3%). Including 16 follow-up cases without surgical treatment, 42 cases are alive without any recurrence. In 3 cases, the patients are now deceased due to other diseases.

Conclusion: Careful follow up for the cancer with submucosal massive invasion after endoscopic resection was possible. However, surgical treatment for the cancers with submucosal massive invasion should be considered according to the Japanese guidelines for the treatment of Colorectal Cancers.

References: Japanese Society for Cancer of the Colon and Rectum (JSCCR) Guidelines 2016 for the Treatment of Colorectal Cancer

Disclosure of Interest: None declared
MULTIUSE COST-EFFECTIVE CIRCULAR STAPLING DEVICE - EXPERIENCE OF USE.

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Introduction: Today in colorectal surgery the use of circular stapling device is standard, since being introduced in middle 1960-x. First models was multiuse reprocesable device without fixes staples, the main disadvantage was - "smashing" contact surfaces after continous use. Only in 1980-th began age of disposable "single shoot" devices. Stapler model we use - multiuse with disposable head, and multiusage case and pusher. In our research we analysed clinical results of using multiuse circular stapler in colon cancer patients.

Materials & Methods: 25 patients with colorectal cancer undergo elective surgery with primary anastomosis. 13 male (age 64.7 +- 10.81) 22 female (age 71.08 +- 8.31) Sigmoid colon resection in 9 cases, left hemicolecotomy in 14 cases, anterior resection in 2 cases. Laparoscopic access was used in 15 cases, laparotomy access in 20 cases. 16 times 29 mm stapling head used, 9 times 32 mm head used. Tumor grade was T3 and less - 10, T4 - 15; N0 - 18, N1 - 7, M0 -16, M1 - 9.

Results: There was no anastomotic-related complications in postoperative period, POD 1 - begining liquid and soft food intake, POD 2 solid food intake, postoperative stay in laparoscopic access group 7.2+-2.35 laparotomy group 8.68+-1.91

Conclusion: Multiuse circular stapling device can be used in colorectal surgery(both open and laparoscopic access), it has no significant difference to disposable one (which are now standart) except lower cost.

Disclosure of Interest: None declared
PE208
IS REDUCED ERAS IS ENOUGH FOR ERAS?

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Introduction: Since 1997, invented by Henrik Kehlet Fast Track method in colorectal surgery is guideline for many centers around the world for today. Enhanced Recovery After Surgery now is multimodal approach to patients before - during surgery - and postoperatively. But what parts of ERAS are strongly needed? We tried to describe our experience of implemented basic principles in usual surgical clinic - with probably good result.

Materials & Methods: 79 patients with colorectal cancer undergo elective surgery. 44.3% male 55.7% female; tumor localisation: left side 36.7%; right side 38%; transverse colon 25.3%; 2 groups: 1 open access(N42); 4 LS-access(N37); Both groups preoperational anesthetic preparation was used(epidural naropine infusion up 1 POD), limitation of iv infusion before and after surgery(only antibiotics and gastroprotectors), non-opioid pain management, fast physical activation (walking on 1-th OPD), fast liquid and soft food intake (1 POD). But we still use - drains (up to 4-th POD); urine catheters up to 1-th POD.

Results:

<table>
<thead>
<tr>
<th>Patients clinical data</th>
<th>Laparotomy</th>
<th>Laparoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anesthetics (POD)</td>
<td>2(2;3)</td>
<td>1,5(1;2)*</td>
</tr>
<tr>
<td>Colon Motility (POD)</td>
<td>3(2;3)</td>
<td>2(2;3)</td>
</tr>
<tr>
<td>Flatus (POD)</td>
<td>3(2;4)</td>
<td>3(3;4)</td>
</tr>
<tr>
<td>Faeces (POD)</td>
<td>4(3;5)</td>
<td>3,5(3;4)</td>
</tr>
</tbody>
</table>

* p<0.05 Mann-Whitney U-test

Conclusion: Perioperative, even partial implementation of ERAS principles significantly increase recovery period in patients with colon cancer undergone elevated surgery both laparoscopic and laparotomy groups.

Disclosure of Interest: None declared
IMMUNOLOGICAL CHANGES AFTER PREOPERATIONAL IMMUNOSTIMULATING THERAPY IN COLON CANCER PATIENTS UNDERGO ELECTIVE SURGERY.

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Introduction: Cancerogenesis and colon cancer itself cause serious changes in immunity. For today, surgery is the dominant method of colon cancer cure. Surgery itself (laparoscopic less-invasive than open access too) cause serious immunosuppression.

We propose that possible way to compensate induced by colon cancer and operation itself immunodpression - pharmacological preconditional immunostimulating therapy. We try to evaluate grade of immunostimulation by measuring blood plasma cytokines (1b,2,6,10) levels.

Materials & Methods: 79 patients with colorectal cancer undergo elective surgery. 44.3% male 55.7% female; tumor localisation: left side 36.7%; right side 38%; transverse colon 25.3%; 4 groups: 1 open access + immunostimulating (N=20); 2 open access (N=22); 3 LS + immunostimulating (N=19); 4 LS (N=18);

All patients were treated by oral melatonin 3 mg during 7 days before operation

Results: In groups with immunostimulating performed IL levels were significantly higher, then in control groups (without special pharmacological therapy).

Image:

<table>
<thead>
<tr>
<th>Citokine levels after immunostimulating therapy – before surgery</th>
<th>Laparotomy</th>
<th>Laparoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>immunostim.</td>
<td>control</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>IL-6</td>
<td>6(4,5,6,5)***</td>
<td>0(0,0)</td>
</tr>
<tr>
<td>IL-2</td>
<td>1(1;1,5)***</td>
<td>0(0,0)</td>
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<tr>
<td>IL-10</td>
<td>10(8,11)***</td>
<td>0(0,0)</td>
</tr>
<tr>
<td>IL-1beta</td>
<td>0(0,1)***</td>
<td>0(0,0)</td>
</tr>
</tbody>
</table>

* p<0.05; ** p<0.01; *** p<0.001 Mann – Whitney U-test

<table>
<thead>
<tr>
<th>Citokine levels after immunostimulating therapy – 7 days after surgery</th>
<th>Laparotomy</th>
<th>Laparoscopy</th>
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</thead>
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<tr>
<td></td>
<td>immunostim.</td>
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<tr>
<td>N</td>
<td>20</td>
<td>22</td>
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<tr>
<td>IL-6</td>
<td>79.8</td>
<td>38</td>
</tr>
<tr>
<td>IL-2</td>
<td>75</td>
<td>78.9</td>
</tr>
<tr>
<td>IL-10</td>
<td>70.6</td>
<td>76.3</td>
</tr>
<tr>
<td>IL-1beta</td>
<td>83</td>
<td>85.5</td>
</tr>
</tbody>
</table>

Friedman ANOVA dispersion analysis (χ², p<0.0001)

Conclusion: Preoperational immunostimulating therapy affects immunity system and may be useful in preoperational treatment in patients with colorectal cancer undergoing elective surgery.

Disclosure of Interest: None declared
LYMPH NODE YIELD AFTER RECTAL RESECTION IN PATIENTS TREATED WITH NEOADJUVANT RADIATION FOR RECTAL CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Introduction: The lymph node status represents a major prognostic factor in colorectal cancer. However, it was demonstrated that neoadjuvant chemoradiotherapy (CRT) decreases the numbers of lymph nodes in the specimen. Several studies describe less than 12 lymph nodes in the resected specimen of rectal cancer patients after neoadjuvant radiation. This meta-analysis quantifies the influence of neoadjuvant CRT or radiotherapy (RT) only on the lymph node yield in rectal cancer patients.

Materials & Methods: We performed a systematic review and searched PubMed, EMBASE and the Cochrane Library without any language restriction from 1st of January 1980 until 31st March 2015. Two reviewers examined all publications independently and extracted the relevant data if the study assessed lymph node counts or positive lymph node yields of patients who received neoadjuvant treatment compared with patients who did not receive neoadjuvant treatment. Meta-analyses were conducted to quantify the mean difference in lymph node yield.

Results: A total of 34 articles (including 37 datasets) were included in the meta-analyses. Neoadjuvant CRT resulted in a mean reduction of 3.9 lymph nodes (95% confidence interval [CI] 3.7–4.1) and an average reduction in harvested positive lymph nodes of 0.7 (95% CI 0.2–1.2) compared with patients who received no neoadjuvant therapy. Individuals who received neoadjuvant RT had, in average, 2.1 lymph node less (95% CI 1.7–2.5) resected compared with their counterparts who received no neoadjuvant treatment.

Conclusion: Neoadjuvant CRT or RT only in rectal cancer patients leads to a decrease in lymph node harvest of approximately four and two lymph nodes, respectively. We therefore stress the importance of intensifying all efforts from involved subspecialties (i.e. surgeons and pathologists) to reach the benchmark harvest of 12 resected lymph nodes according to current guidelines.

Disclosure of Interest: None declared
PE211
EPITHELIAL MESENCHYMAL TRANSFORMATION AND PERITUMOROUS INFLAMMATION IN SURGICALLY TREATED COLORECTAL CANCER
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Introduction: Surgery is the mainstay in the complex treatment of colorectal carcinoma (CRC). Additional proteomic/morphologic assessment can help to explore carcinogenesis, adjust treatment or diagnostic evaluation. In CRC, epithelial mesenchymal transformation (EMT) and stem cell differentiation promotes invasion and metastasis (Gu et al., 2014) while peritumoural inflammation (PTI) can be protective (Klintrup et al., 2005; Roxburgh et al., 2009).

The aim of the present study was to evaluate relations between EMT, stemness, PTI and CRC spread.

Materials & Methods: In a retrospective study of 240 consecutive, surgically treated CRC patients, tumours were assessed by protocol approach according to WHO and TNM classifications (Bosman et al., 2010). PTI was evaluated by 4-tier Klintrup-Makinen score and redistributed into low (no/mild) vs. high (moderate/severe) grade. Expression of CD44, vimentin (VIM) and E-cadherin (E-CAD) was detected by immunohistochemistry and scored by intensity (0-3) and area (%). The statistical analysis (SPSS 22) comprised descriptive statistics, 95% confidence interval (CI), Pearson, Spearman, Kruskal-Wallis and Mann-Whitney tests. p<0.05 was considered significant.

Results: The CRC group was characterised by 1) prevalence of adenocarcinomas (AdCA; 90.8%[95% CI:84.3-94.8]), followed by mucinous (MucCA; 7.5%[4.0-13.6]) and signet ring cell (1.7%[0.4-5.8]) cancers; 2) high pT (pT3: 48.3%[39.6-57.2]; pT4: 35.0%[27.0-43.9]) and 3) pN+ in 49.2%[40.4-58.0] cases.

Low vs. high grade PTI was observed in 47.5%[38.8-56.4] vs. 52.5%[43.6-61.2] cases, showing statistically significant difference by pN (p=0.001) but not pT (p=0.06).

CD44 score was 1.33[1.20-1.45] ranging from 1.28[1.15-1.41] in AdCA to 2.00[1.61-2.38] in MucCA; p=0.008. There was significant, weak correlation between CD44 and tumour type (Rs=0.211; p=0.02) and location (Rs=0.219; p=0.01) but not pT (p=0.97) or PTI (p=0.23). CD44 was significantly lower in pN+ (p=0.02; pN0 1.50[1.32-1.68] vs. pN+ 1.22[1.04-1.41]).

VIM score was low: 0.05[0-0.09]. E-CAD score differed in AdCA:1.90[1.82-1.97] vs. MucCA:1.48[1.23-1.73]; p<0.001. It lacked correlation with CD44 (p=0.425). Differences were significant by grade (p=0.001) and pT (p=0.01) but not pN (p=0.7).

Conclusion: In CRC, CD44 level is associated with pN+ and can be used in complex preoperative assessment of spread. CD44 is not associated with EMT by E-CAD and PTI. PTI is associated with pN status. EMT in CRC manifests as loss of E-CAD and is associated with pT, tumour type and grade.

Disclosure of Interest: None declared
Introduction: Novel biomarkers are necessary to improve the preoperative evaluation of colorectal cancer (CRC). Systemic inflammatory reaction (SIR), reflected by ratios between blood cell counts, is promising as economically feasible approach, based on correlation with TNM (Jia et al., 2014). However, the best marker and diagnostic threshold is still to be determined. The aim of this study was to assess relations between preoperative SIR and CRC morphology in patients undergoing radical surgical treatment.

Materials & Methods: We performed a retrospective analysis of medical records from 238 surgically treated CRC patients. Preoperative whole blood counts were used to calculate neutrophil-to-lymphocyte (NLR), platelet-to-lymphocyte (PLR), lymphocyte-to-monocyte (LMR) and neutrophil-to-monocyte (NMR) ratios. Morphological parameters as TNM, tumour necrosis (%), perineural, lymphatic and vascular invasion were evaluated by protocol approach. Statistical analysis was performed using SPSS 23 and included descriptive statistics, Chi square, Mann-Whitney, Kruskal-Wallis, Pearson's and Spearman tests as appropriate. Data were expressed as median values and interquartile range (IQR). p<0.05 was considered significant.

Results: The study group was characterised by a predominance of adenocarcinomas (87.6 %) vs mucinous cancers (12.4%); high pT (T1-2: 30.5%; T3-4: 69.5%) and pN+ in 39.2% of cases. There was a statistically significant difference in PLR between pT1-2 (median, 124.7 [IQR 93.7-206.8]) and pT3-4 cases (median, 186.7 [IQR 124.2-256.0]; p=0.03). Regarding lymph node status, 80.0% of pN+ cases had NLR≥2.0 vs 65.9% of pN0 patients (p=0.19). Similarly, 78.4% of pT3-4 patients had NLR≥2.0 vs 57.1% of pT1-2 patients (p=0.08).

None of the ratios was significantly different between cancers with or without perineural, lymphatic and vascular invasion. There was a statistically significant correlation between tumour necrosis (%) and NLR (Pearson’s r=0.32; p=0.03), PLR (r=0.44; p<0.01), NMR (r=0.33; p=0.03).

Conclusion: In CRC patients, high preoperative PLR is associated with more advanced local spread (pT3-4) but not with lymph-node positive disease. Elevated NLR (≥2.0) shows a trend to association with lymph node metastases. PLR, NLR and NMR correlate with tumour necrosis. SIR parameters represent easily accessible data for more detailed preoperative evaluation of local cancer spread and presence of lymph node metastases in surgically treatable CRC patients.

Disclosure of Interest: None declared
A NOVEL APPROACH TO MINIMALLY INVASIVE MANAGEMENT OF SIGMOID VOLVULUS

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Introduction: Resection is the most common treatment choice for sigmoid volvulus, a common complication in our region. A new minimally invasive technique for sigmoid resection with local anesthesia was done in this study. This method is invented to avoid general on regional anesthesia in high-risk patients

Materials & Methods: Nineteen patients were evaluated and then 14 were enrolled in this study. Sigmoidectomy with a left lower quadrant incision was performed and demographic data, the length of hospital stay, complications and procedure time were recorded.

Results: The mean age of participants was 65.68, and the male to female ratio was 1:2.7. The mean duration of the operation was 91.42 min. Complications include one case each of wound hematoma and wound infection. The intraoperative pain score was 1.2/10 and postoperative pain score was 2.35/10. The mean hospital staying was 8.3 days

Conclusion: By meticulous patient selection, sigmoidectomy under local anesthesia for sigmoid volvulus could be a surgeons’ armamentarium in special situations

Disclosure of Interest: None declared
IS IT POSSIBLE TO PREVENT PERITONEAL CARCINOMATOSIS BY ADJUVANT INTRAPERITONEAL CHEMOTHERAPY?

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Introduction: Peritoneal recurrence is one of several causes of surgical treatment failure of locally advanced colon cancer (invasion of serous layer and/or neighboring viscera). We have conducted this study in the aim to evaluate the benefit of intraperitoneal chemotherapy in term of immediate results (morbidity and mortality) and reduction of intraperitoneal recurrence.

Materials & Methods: Only the patients with adenocarcinoma of the colon invading the serous layer and/or invading the neighboring viscera and operated on with curative intent (R0 resection) were included in this study. After removal of the colon tumor, the surgeon adds an immediate intraperitoneal chemotherapy. It starts immediately after a closure of abdominal wound with adjunction of 2 liters of isotonic saline serum associated with antimitotic drug. The protocol associates 10 mg/kg of Mitomycin on day one followed by 500 mg/day of 5-Fluorouracile for 4 days. This procedure is realized for five days. The mean period of follow-up is 95 months (60-200 months).

Results: 52 patients, 28 males and 24 females with mean age of 57 years (24-75 years), were included. 18 patients presented with neighboring visceral involvement. Two patients had respectively hepatic and ovarian metastasis. Enlargement of surgical resection was necessary to remove all tumor in 18 cases. Two patients were twice treated with intraperitoneal chemotherapy. The morbidity and mortality were respectively 34.6% and 0.2%. The morbidity was dominated by anastomosis fistulas. Complications related to chemotherapy drug were nil. Thirty-nine patients (75%) benefited from adjuvant systemic chemotherapy. During period follow-up, 10 patients (19%) experienced recurrences. Only one patient (1.9%) presented peritoneal recurrence. In 9 cases, sites of recurrence were liver in 3 cases, lymphatic nodes in two cases, pulmonary in one case, bone in one case and surrounding anastomosis in 2 cases. Forty patients (77%) are alive without disease at this time with mean duration of 96 months (60-200 months). The 5-year survival rate are respectively 78.8% (41/52). The 5-year survival rate for the stage II is 91% and 53.3% for stage III.

Conclusion: These results suggest that intraperitoneal chemotherapy is safe and reproducible. This approach seems to reduce the rate of peritoneal recurrence. We need to include more patients and a long follow-up to appreciate all results. We have also to make a lot attention for anastomosis fistulas.

Disclosure of Interest: None declared
ILEAL POUCH-ANAL ANASTOMOSIS AND ITS EFFECTS ON FERTILITY, PREGNANCY, AND PERIPARTUM OUTCOMES

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Introduction: The objective of this study was to determine fertility rates, pregnancy complications and delivery methods in female patients with an Ileal Pouch-Anal Anastomosis (IPAA) performed for ulcerative colitis (UC).

Materials & Methods: A standardized patient survey was mailed to 474 female patients with UC who had previously undergone IPAA. All patients were 40 years of age and younger at the time of IPAA. Two-hundred seven responses were collected (44%). Questions concerned respondent’s ability to become pregnant and outcome and complications of pregnancy and delivery. Summary statistics are reported as count and percentages for discrete variables.

Results: Of the 207 patients who returned surveys, 96 attempted to get pregnant after IPAA, and 65 were successful (68%). Of the 65 patients with successful pregnancy after IPAA, 12 (18%) used artificial means to achieve pregnancy (5 of the 12 had multiple pregnancies using artificial means). There were 125 total pregnancies reported, and 93 pregnancies (74%) were uncomplicated. Fifty-two patients (42%) had a planned Cesarean delivery (87% because of IPAA); 38 patients (30%) had a spontaneous vaginal delivery; 22 patients (18%) had an unknown delivery method; 10 patients (8%) had an unplanned Cesarean (20% because of IPAA); and 3 patients (2%) had an elective termination. Of the 38 patients with vaginal delivery, 68% had no complications and 32% described a vaginal tear, none of which resulted in pouch injury.

Conclusion: The reported rate of impaired fecundity in the overall United States population of women aged 15 to 44 is 12.3%, and we found a 32% rate in our patient population who were actively trying to achieve pregnancy following IPAA. Infertility in young females remains a valid consideration when considering IPAA. However, the majority of patients who attempted pregnancy following IPAA were able to conceive, most without reproductive assistance. Seventy-four percent of patients reported no pregnancy-related complications and 68% had uncomplicated deliveries. Sixty-two percent of patients underwent Cesarean section, which is higher than the US national percentage of deliveries by Cesarean in 2014, which was 32.2%. The decision to pursue Cesarean should be related to obstetrical concerns rather than the presence of an IPAA as pouch injury is uncommon.

Disclosure of Interest: None declared
ASSESSMENT OF ANASTOMOSIS FOLLOWING TRANSANAL TOTAL MESORECTAL EXCISION ENSURES PATIENTS SAFETY FOR RECTAL CANCER

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Introduction: The aim of this study was to assess completeness of anastomosis after TaTME for rectal cancer.

Materials & Methods: Prospectively collected data of 12 consecutive patients with rectal cancer who underwent TaTME from September 2015 to December 2016 were evaluated. Completeness of anastomosis, completeness of TME, operative time for TME completeness, intraoperative blood loss, pathological findings, complication and length of hospital stay were assessed.

Surgical Procedure: We performed a two-teams approach for TaTME. A purse-string suture was performed to tightly occlude the rectum with a 3 cm margin distal to the tumor. After irrigation with saline, a full-thickness rectal transection was initiated. After dissection of rectococcygeal muscle at 6 o'clock and rectourethral muscle at 12 o'clock, sharp dissection in the holy plane was circumferentially performed. Then the dissection proceeded lateral side between behind of the neurovascular bundle and rectum with appropriated tension. The dissection proceeded toward presacral plane and peritoneal reflex. Then the dissection connected to the abdominal plane via laparoscopic TME with recognition of pelvic nerve flexure. After completing TME, proximal colon was resected extracorporeally. Intestinal perfusion of the proximal colon was assessed in the fluorescent imaging mode following injection of indocyanine green (ICG) intravenously. After anastomosis completed, full thickness of resected ring, mucosal fluorescent stain of anastomosis, and air leakage test at 15 mmHg via air seal system were utilized to assess completeness of anastomosis.

Results: Completeness of anastomosis was performed in 10 (83%) patients. Two patients with SST decided diverting ileostomy due to thin resected ring after anastomosis, resulting in no leakage. One patient with poor ICG stain underwent extended colonic resection. Completeness of TME was performed in all of patients with CRM negative. The mean number of lymph nodes retrieved was 16, and lymph node metastasis was identified in 4 patients. The mean operative time for completion of TME and intraoperative blood loss were 144 min and 64 g, respectively. No patient had an intraoperative complication and three patients had postoperative complications. No other complications occurred. The length of hospital stay was 17 days.

Conclusion: Assessment of anastomosis following TaTME for rectal cancer is very important and ensures patients safety.

Disclosure of Interest: None declared
Introduction: Different tumor grading systems have been proposed to predict the association between tumor response and clinical outcome after preoperative chemoradiotherapy in rectal cancer patients. The American Joint Committee on Cancer and College of American Pathologists regression grading system was recommended as the standard tumor regression grading system for rectal adenocarcinoma.

Materials & Methods: This study evaluates the clinical applicability of the American Joint Committee on Cancer and College of American Pathologists regression grading system in neoadjuvant treated rectal cancer patients. One hundred and forty-four patients with primary locally advanced mid-to-low rectal adenocarcinoma who underwent preoperative long-course chemoradiotherapy and total mesorectal excision between 2003 and 2012 were included. The primary outcome measures were the five-year overall survival rate, the relapse-free survival rate, the cancer-specific survival rate, and cumulative recurrence rates.

Results: Of the 144 patients, 16 (11%) were diagnosed as American Joint Committee on Cancer and College of American Pathologists regression grade 0, 43 patients (30%) as grade 1, 61 patients (42%) as grade 2, and 25 patients (17%) as grade 3.

After a median follow-up time of 83 months (range 3 to 147), five-year survival estimates for grades 0, 1, 2, and 3, were 93%, 77%, 81%, and 54% for overall survival (P = 0.006); 93%, 82%, 75%, and 55%, for relapse-free survival (P = 0.03); 100%, 86%, 89%, and 63%, for cancer-specific survival (P = 0.006) respectively. The multivariate Cox regression analyses confirmed American Joint Committee on Cancer and College of American Pathologists regression grading system as a prognostic factor for overall (P = 0.04), relapse-free (P = 0.02), and cancer-specific survival (P = 0.04).
Conclusion: Our study findings confirm the clinical relevance and applicability of the American Joint Committee on Cancer and College of American Pathologists regression grade system as a predictive factor for rectal cancer patients.

Disclosure of Interest: None declared
Introduction: Tumor budding is associated with increased invasiveness, higher metastatic potency and thus an unfavorable prognosis in colorectal cancer patients. The effect of neoadjuvant long-term chemoradiotherapy on tumor budding has not been investigated until now. The aim of our study was to examine the relationship between neoadjuvant long-term chemoradiotherapy, tumor budding, clinicopathological characteristics, and survival in patients with primary mid-to-low rectal cancer who underwent long-term chemoradiotherapy followed by curative total mesorectal resection.

Materials & Methods: A total of 128 patients (ypUICC 0 to III) from the institutional prospective colorectal cancer database with a primary locally advanced mid-to-low rectal cancer treated by neoadjuvant long-course chemoradiotherapy and total mesorectal excision were included in this retrospective cohort study. The presence of budding was determined retrospectively in all 128 cases through assessment of all tumor-containing H&E slides by counting the tumor buds using the 10-high-powered field method. Kaplan-Meier survival estimates along with multivariable proportional Cox's regression analyses were performed.

Results: None or mild tumor budding (BD-0) was present in 37% (n=47) and moderate or severe tumor budding (BD-1) in 63% (n=81) of specimens. After a median follow-up time of 83 months (range 3 to 147), five-year survival estimates for BD-0 and BD-1 were 90% (95% confidence interval [CI] 76% - 96%) and 80% (69% - 87%) for overall survival (P = 0.08) and 90% (76% - 96%) and 71% (60% - 80%) for relapse-free survival (P = 0.01). Five year recurrence rates for BD-0 and BD-1 were 2% (0% - 16%) and 16% (9% - 27%) for overall recurrence (P = 0.04), and 2% (0% - 16%) and 12% (7% - 23%) for distant recurrence (P = 0.03) respectively. Multivariable Cox’s proportional hazards analysis for disease free survival revealed a hazard ratio of 3.33 (95% CI 1.26 - 8.80; P = 0.015) for BD-1 patients.

Image:
Conclusion: This study has shown tumor budding to be a strong predictive and prognostic factor in neoadjuvant treated mid-to-low rectal cancer patients. In particular, it was those patients with characteristics of moderate to strong tumor budding that had significantly unfavorable 5-year disease free survival, overall recurrence, and distant recurrence estimates. This valuable knowledge could be used to help stratify patients into groups to predict prognosis, guide decisions regarding optimal therapy, and would also provide the patient with additional information.

Disclosure of Interest: None declared
Introduction: Hong Kong’s women and men enjoy the longest life expectancy in the world. Infants born nowadays are expected to live beyond their 80s. However, increasing age is a well-known risk factor for perioperative morbidity and mortality. The purpose of this study is to evaluate the outcomes and predictive factors of elective and emergency colorectal cancer surgery in patients aged ≥ 90.

Materials & Methods: Retrospective analysis of a prospectively collected database for all consecutive patients aged ≥ 90 with colorectal cancer was performed for a period between January 1996 and December 2015. Baseline characteristics, premorbid scores (ASA, ECOG, Charlson comorbidity index), acuity and approach of surgery, tumor characteristics, treatment, complications, mortality and survival were analyzed. This study was conducted in a tertiary referral hospital.

Results: A total of 57 patients were selected for analysis. The majority of them were women (64.9%), ASA score II to III (94.7%) and ECOG 3 (49.1%). The median age was 92 years. There was no lost of follow-up. Most of the surgery was curative intent (77.2%), performed under elective setting (57.9%) and with open approach (78.9%). A total of 36.9% of patients had postoperative complications, and 38.1% out of which were pneumonia. The 30-day mortality rate was 7%, all attributed to pneumonia. The 180-day mortality rate was 31.6%. The most common cause was again pneumonia (42.9%), followed by terminal malignancy (21.4%). In univariate analysis, patient with ASA IV and history of ischaemic heart disease were at higher risk of developing complications, 30-day and 180-day mortality. While suffering from pulmonary or any complication were associated with a higher mortality rate at both 30-day ($p<0.001$, $p=0.012$) and 180-day ($p=0.001$, $p=0.005$). Hypoalbuminaemia was also associated with higher 30-day and 180-day mortality ($p=0.041$, $p=0.008$). In multivariate analysis, emergency surgery ($p=0.025$, RR4.2) and ischaemic heart disease ($p=0.016$, RR17.6) were independently associated with higher risk of postoperative complications; while pulmonary complication ($p=0.004$, RR 33.1) and pre-op high white cell count ($p=0.005$, RR 1.33) were independent risk factor of 180-day mortality.

Image:
**Conclusion:** Colorectal surgery was generally safe for nonagenarians in selected group. Future studies with larger numbers are recommended.

**Disclosure of Interest:** None declared.

---

**Multivariate analysis**

<table>
<thead>
<tr>
<th></th>
<th>Univariate p-value</th>
<th>Multivariate p-value</th>
<th>Relative Risk</th>
<th>95% CI</th>
</tr>
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<tr>
<td><strong>Perioperative complications</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASA (II-III / IV)</td>
<td>0.039</td>
<td>0.126</td>
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<tr>
<td>Ischaemic heart disease</td>
<td>0.017</td>
<td><strong>0.016</strong>*</td>
<td>17.660</td>
<td>1.7 - 184</td>
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<tr>
<td>Surgical urgency</td>
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<td><strong>0.025</strong>*</td>
<td>4.219</td>
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<td>Tumor location</td>
<td>0.031</td>
<td>0.208</td>
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<tr>
<td><strong>30-day mortality</strong></td>
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<td></td>
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<td></td>
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<tr>
<td>ASA (II-III / IV)</td>
<td>0.011</td>
<td>0.465</td>
<td></td>
<td></td>
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<tr>
<td>CCI (&lt;8 / ≥9)</td>
<td>0.042</td>
<td>0.157</td>
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<tr>
<td>Ischaemic heart disease</td>
<td>0.051</td>
<td>0.465</td>
<td></td>
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<tr>
<td>Respiratory disease</td>
<td>0.012</td>
<td>0.102</td>
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<tr>
<td>Overall complications</td>
<td>0.12</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulmonary complications</td>
<td>&lt;0.001</td>
<td>0.997</td>
<td></td>
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<td>Albumin</td>
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<td>0.199</td>
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<tr>
<td><strong>180-day mortality</strong></td>
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<td></td>
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<tr>
<td>ASA (II-III / IV)</td>
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<td>0.406</td>
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<tr>
<td>ECOG (&lt;4 / ≥4)</td>
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<tr>
<td>CCI (&lt;9 / ≥9)</td>
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<td><strong>0.059</strong>*</td>
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<td>Surgical intent</td>
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<tr>
<td>Overall complications</td>
<td>0.006</td>
<td>0.080</td>
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<tr>
<td>Pulmonary complications</td>
<td>0.001</td>
<td><strong>0.004</strong>*</td>
<td>33.100</td>
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<tr>
<td>Albumin</td>
<td>0.008</td>
<td>0.195</td>
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</tr>
<tr>
<td>WCC</td>
<td>0.021</td>
<td><strong>0.005</strong>*</td>
<td>1.330</td>
<td>1.1-1.6</td>
</tr>
</tbody>
</table>

Data were analysed using logistic regression in a forward conditional manner.
Introduction: Major colorectal surgery leads to significant morbidity during recovery including pain and fatigue. Intravenous lignocaine (IVL) has both analgesic and anti-inflammatory effects that may improve post-operative pain and recovery. The aim of this systematic review was to compare the effectiveness of IVL to other post-operative analgesia regimens for reducing pain and opioid consumption following elective colorectal surgery.

Materials & Methods: In concordance with the PRISMA statement, a literature search was conducted to identify randomised control trials that compared IVL with intravenous placebo or epidural anaesthesia in open or laparoscopic colorectal surgery. The primary outcomes of interest were opioid analgesia requirements and pain scores assessed by visual analogue score. Data were extracted and entered into pre-designed electronic spreadsheets.

Results: The literature search identified 2707 studies. A total of nine RCTs met the inclusion criteria. Five studies investigated IVL compared to intravenous placebo and four studies investigated IVL compared to epidural anaesthesia. Two out of the five studies comparing IVL and placebo showed statically significant reductions in opioid consumption with IVL. There was a variable degree of improvement in pain scores. When IVL was compared with epidural two studies (one laparoscopic and one open) showed a significant difference, with lower opioid consumption and pain scores in the epidural group. Laparoscopic and open procedures could not be compared between the IVL and placebo group.

Conclusion: Although the evidence is limited and very heterogeneous, IVL has shown some benefit towards reducing pain and opioid consumption when compared to placebo in patients undergoing colorectal surgery. However, IVL did not show any significant reduction in pain or opioid consumption when compared to epidural.

Disclosure of Interest: None declared
CONGENITAL DIAPHRAGMATIC HERNIA (BOCHDALEK’S HERNIA) REVEALED LATE IN ADULTHOOD
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Introduction: The most common type of CDH is a Bochdalek hernia; other types include Morgagni hernia, diaphragm eventration and central tendon defects of the diaphragm. Bochdalek's hernia is the most common form of diaphragmatic hernia, occurring in approximately 1 in 2500 births and twice as often in males as in females. The herniated bowel passes through the defect, filling the chest cavity and causing hypoplasia of the left lung and a shift of mediastinal structures to the right side.

Materials & Methods: A retrospective study of 11 cases of Bochdalek’s hernias from January 2000 to December 2015. This study concerned 6 men and 5 women. The average age was 53 years old (extremes: 17-87 years). The associated complications were determined using imaging techniques. Therapeutic methods with short and long term outcomes were recorded. Bochdalek’s hernia is defined as a posterolateral diaphragmatic interruption. Patients who met the criteria were included in the cohort, and all others were excluded. The estimation of hernia size (small or large) was more important than the volume of the hernia sac itself.

Results: Clinical signs leading to the discovery of diaphragmatic hernia were respiratory in 5 patients, digestive in 4 patients and mixed (respiratory and digestive) in the last 2 patients. The chest X-ray has to suspect the diagnosis by showing a posterolateral opacity or fluid level. Upper gastrointestinal opacification by nasogastric tube was performed in 1 case and showed the presence of intrathoracic stomach. The computed tomography performed in 10 patients confirmed Bochdalek’s hernia diagnosis in 9 cases. For 2 patients, magnetic resonance imaging (MRI) showed a large posterior diaphragmatic defect. The hernia was left in 10 cases and right in 1 case. The content of the hernia was, most often, colon, stomach. The postoperative course was uneventful in 10 cases. We recorded 1 death on the 5th postoperative day by organ failure (woman of 87 years with heart disease).

Conclusion: Simple chest X-ray may help in diagnosis but still not sufficiently, however contrast enhanced CT scan and barium studies should be done in patients with doubtful complicated presentation and before planning any surgical intervention. Further terrible presentation such as obstruction and strangulation of bowel loops including pyopneumothorax may be seen in patients with delayed post-traumatic diaphragmatic hernias. Definitive surgical approach helps in reducing morbidity and mortality in adult diaphragmatic hernia patients.

Disclosure of Interest: None declared
Introduction: Appendicitis in pregnancy is relatively rare, but it has significant morbidity and is a cause of maternal and infant mortality. Abdominal pain is the most common presenting symptom, and the consideration of multiple pathologic disorders should be entertained. Accurate diagnosis of appendicitis in pregnancy is the largest challenge since the signs and symptoms may vary depending on the trimester in which the patient presents.

Materials & Methods: 31 patients were admitted for suspicion of acute appendicitis during pregnancy in our hospital over a period of 11 years [2004-2015]. Two patients had perforated appendicitis with generalized peritonitis. The average age was 31.5 years [24-43 years]. The average term was 20 weeks and 2 days of amenorrhea. Seven patients were operated in the first trimester, 14 in the second and ten in the third trimester. The Mac Burney incision was performed for twenty nine patients, and two pennants were operated by midline incision.

Results: All the patients were operated and the postoperative period was uneventful for 29 patients but one patient had an abortion and another a premature delivery. Some clinical signs are wrongly blamed on sympathetic signs of pregnancy. The mother and the fetal prognosis depends on the therapeutic delay and severity of the acute appendicitis. The time between onset of symptoms and response is an important prognostic factor.

Conclusion: Acute appendicitis may involve the maternal & fetal prognosis. The management should be fast and provided by a multidisciplinary team. The treatment is surgical consisting of an appendectomy ether by laparoscopy or open surgery approaches. Morbidity and mortality is not negligible.

Disclosure of Interest: None declared
ROLE OF SOLUBLE CD73 AS A PROGNOSTIC MARKER IN PATIENTS OF ACUTE PANCREATITIS

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1General Surgery, 2Surgical Gastroenterology, 3Radiodiagnosis, 4Pathology, 5Community Medicine, King George's Medical University, Lucknow, India

Introduction: The natural history of acute pancreatitis may range from a benign mild form to a severe form that can be life threatening. Early identification of the subset of patients who are more likely to develop this severe form is of critical importance so as to initiate early aggressive treatment and admission into ICUs. Various multi-parameter scores like Ranson, Glasgow that have been developed for the purpose are cumbersome to use and lack repeatability. Single lab parameters like CRP and creatinine are easily available but have questionable sensitivity and specificity. CD73 is a surface molecule and seen to have increased levels in acute inflammatory states and has thus been studied for the purpose.

Materials & Methods: A prospective cross-sectional comparative study was carried out in the Department of General Surgery, King George’s Medical University, Lucknow, India from November 2014 to May 2016. Serum levels of CD73, CRP and creatinine at admission were correlated with the severity of acute pancreatitis that developed during the hospital course. Receiver Operator curves were plotted and sensitivities and specificities for predicting the development of moderate and severe acute pancreatitis were calculated and compared between the three biomarkers.

Results: Serum CD73 levels were found to be the most sensitive and specific among the three biomarkers that were compared for predicting the development of SAP and with maximum accuracy. The serum levels of CD73 also correlated well with the severity of disease with maximum levels observed in SAP.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Severe acute pancreatitis (SAP)</th>
<th>Moderate acute pancreatitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD73 (ng/ml)</td>
<td>Creatinine (mg/dl)</td>
<td>CRP (mg/dl)</td>
</tr>
<tr>
<td>Cutoff value</td>
<td>≥30</td>
<td>≥0.90</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>82.6</td>
<td>52.2</td>
</tr>
<tr>
<td>Specificity</td>
<td>95.2</td>
<td>85.7</td>
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<tr>
<td>PPV</td>
<td>95.0</td>
<td>80.0</td>
</tr>
<tr>
<td>NPV</td>
<td>83.3</td>
<td>62.1</td>
</tr>
<tr>
<td>Accuracy</td>
<td>88.6</td>
<td>68.2</td>
</tr>
</tbody>
</table>

Conclusion: Serum CD73 levels at admission appears a promising biomarker for predicting the development of severe acute pancreatitis. It was found to be more sensitive and specific than CRP, the most widely used single laboratory marker for this purpose. Being a relatively inexpensive biomarker unlike its other novel counterparts, it can prove to be an excellent parameter to guide early intensive care unit admissions and aggressive supportive therapy when SAP is predicted. Also, it can suggest interventions guided towards upregulation of CD73 thereby decreasing the severity of the disease.

Disclosure of Interest: None declared
LAPAROSCOPIC SINGLE STAGE MANAGEMENT FOR TREATMENT OF CONCOMITANT GALLBLADDER STONES AND COMMON BILE DUCT STONES IN ELDERLY PATIENTS

B. Sutedja
1Surgery, Gading Pluit Hospital, Jakarta, Indonesia

Introduction: Laparoscopic common bile duct exploration (LCBDE) followed by laparoscopic cholecystectomy as laparoscopic single stage management for treatment of concomitant gallbladder stones and common bile duct stones has already been established. However, the outcomes of this procedure in elderly patients have not been well assessed.

Materials & Methods: A retrospective study was conducted for all patients who underwent laparoscopic single stage management, between January 2008 and November 2016, in Pluit hospital and Gading Pluit hospital in Jakarta, Indonesia. The short term outcomes of elderly patients in group A (≥ 65 years old) were compared with the younger patients in group B (< 65 years old).

Results: Three hundred twenty eight patients were included in this study. The result of the group A (N=110 patients) were compared with the group B (N=218 patients). The preoperative clinical findings includes ASA, liver function test, co morbidity and infection status, were similar in both groups. The mean duration of operation (183 vs 185 minutes), conversion rate (2.2 % vs 1.7 %), major complications (9 vs 6 cases), retained stones (2 vs 4 cases), mortality (2 vs 1 cases) and mean length of the post operative hospital stays (5 vs 6 days) were no statistic significantly difference in both groups.

Conclusion: Laparoscopic single stage management for treatment of concomitant gallbladder stones and common bile duct stones in elderly patients is safe and effective.

Disclosure of Interest: None declared
Introduction: Acute appendicitis is a common surgical emergency in general surgery. The incidence of postoperative complications after appendectomy ranges from 3.0 % to 28.7 % (1). There are a few studies, who examined the predictive value of postoperative CRP as an indicator for a postoperative complication. The aim of this retrospective analysis is if postoperative CRP levels are predictors for postoperative complications.

Materials & Methods: This was a retrospective single-center cohort study of 744 patients who underwent open and laparoscopic appendectomy in clinically suspected appendicitis between January 1st 2011, and December 31st 2015 at the department of general and visceral surgery, Kepler University Hospital in Linz, Austria. Demographical data, the surgical technique (open or laparoscopic appendectomy), postoperative complications, histopathological findings, postoperative white blood counts and C-reactive protein values were elevated.

Results: 411 (55.2%) patients underwent open appendectomy and 333 (44.8%) patients underwent laparoscopic appendectomy. The complication rate in the group of open appendectomy was 9.7%, whereas a superficial wound infection was the most frequent cause. In the group of laparoscopic appendectomy the complication rate was 3.9%. The overall complication rate (open and laparoscopic appendectomy) was 7.1% (n = 53), of these 48 patients (91%) had histologically a gangrenous or perforated appendicitis. The subgroup analysis showed the highest significance of a CRP measurement for the prediction of a complication on the third postoperative day (area under the curve 0.828, p 0.001), and statistically significant in the group of gangrenous appendicitis (p 0.008).

Image:
Conclusion: The complication rate was significantly reduced in the group of laparoscopic appendectomies, especially in a considerable reduced number of superficial wound infections. We recommend a postoperative white blood count and CRP measurement in the presence of gangrenous or perforated appendicitis.


Disclosure of Interest: None declared
Introduction: Achalasia is a rare oesophageal dysmotility disorder characterized by absent peristalsis of the oesophagus coupled with failure of relaxation of the lower oesophageal sphincter. Dysphagia to solids and liquids is the most common presenting complaint. Other symptoms include odynophagia, regurgitation of undigested food, halitosis, chest pain, weight loss and rarely total dysphagia.

Materials & Methods: The authors describe the case of an achalasia diagnosed in the emergency department whose manifestation was thoracic pain, dyspnea and total dysphagia.

Results: The authors describe the case of a 58-year-old man, who had gone to the emergency department for retrosternal pain, dyspnea and total dysphagia. He was a patient with no relevant medical history, who reported a progressive dysphagia and weight loss, with one year of evolution, and aggravation in the last two days. An attempt was made to perform contrast radiography of the upper gastrointestinal tract, unsuccessfully, due to total dysphagia. The patient underwent a CT scan that revealed a dilated esophagus with probably food content and no suspected lesions. Upper endoscopy was performed with extraction of all food impaction. The subsequent study confirmed the diagnosis of achalasia. The patient was submitted to pneumatic dilatation, and is free of symptoms one year later.

Conclusion: Achalasia is a lifelong, debilitating condition, which significantly affects the quality of life of patients. In rare cases, the manifestation of achalasia may be chest pain, dyspnea and total dysphagia, and the first contact with the patient may be in the emergency department. Either graded pneumatic dilation or laparoscopic surgical myotomy with a partial fundoplication are recommended as initial therapy for the treatment of achalasia in those fit and willing to undergo surgery.


**Disclosure of Interest:** None declared
PE227
IS COLONOSCOPY NEEDED FOR CHRONIC CONSTIPATION?
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1General Surgery, Haseki Training and Research Hospital, 2General Surgery, Istanbul Training and Research Hospital, 3General Surgery, Lutfiye Nuri Burat State Hospital, 4Anesthesiology, Haseki Training and Research Hospital, Istanbul, Turkey

Introduction: Is colonoscopy needed for chronic constipation? According to Rome III criteria for functional constipation, its onset must be more than 6 months and provide 1) ≥ 2 of the following a) straining during at least 25% of defecations b) lumpy or hard stools in at least 25% of defecations c) cessation of incomplete evacuation for at least 25% of defecations d) sensation of anorectal obstruction/blockade at least 25% of defecations f) less than 3 defecations per week 2) loose stools are rarely present without use of laxatives 3) insufficient criteria for irritable bowel syndrome. Colonoscopy is frequently recommended as first diagnostic tool even in the absence of organic disease symptoms. We evaluated our colonoscopy findings in the last 5 years in chronic constipation patients.

Materials & Methods: Between January 1st 2012 and December 31st 2016 the patients having constipation symptoms for at least 6 months or more, fulfilling Rome III criteria underwent colonoscopy in surgical endoscopy unit were retrospectively analyzed.

Results: 450 patients underwent colonoscopy for functional chronic constipation. Mean age was 53. 301 (66.8%) patients were female and 149 (33.2%) were male. Colonoscopy findings were normal in 427 (94.9%). Results revealed grade I and II hemorrhoids in 12 (2.7%), anal fissure in 6 (1.3%) and diminutive polyps in 5 (1.1%) patients.

Conclusion: Colonoscopy isn’t needed for chronic constipation in the absence of organic symptoms such as rectal bleeding, heme-positive stool, iron deficiency anemia. Colonic transit time, defecography and anal manometry must be the first line diagnostic tools.

Disclosure of Interest: None declared
Introduction: Surgical intervention is inevitable event in the management of ileocecal Crohn's disease. The aim of
this study is to evaluate the outcome of introduction of early surgery in the course of isolated ileocecal Crohn's
disease, where there is no absolute indication of surgery, as compared to late intervention.

Materials & Methods: Observational study involving patients with isolated ileocecal Crohn's who underwent early
surgical resection (within one year of the presentation of the hospital). The patients who required mandatory surgical
intervention or had previous surgery were excluded. Blood workup in the form of complete blood count, ESR and CRP
were done and compared between the preoperative value, 1st postoperative visit (3 – 4 weeks) and last follow up visit.
Statistical analysis was done using SPSS version 23 and Analysis of Variance (ANOVA) was used to compare the
different figures.

Results: 15 patients were initially included in the study, but two patients were excluded. Out of 13 patients with a
mean age of 27.7 years. An average of 6 months was the duration between first presentation to the hospital and
surgery (max=12 months). 10 patients had ileocecal resections and three had right hemicolectomy. The patients were
followed up with average of 18.8 months. No patients required further surgical intervention and controlled symptoms
were achieved in all patients.

There was a statistically significant increase in the hemoglobin levels between preoperative, postoperative and long
term follow up, and a significant decrease in leukocyte count between the pre and post-operative values (F=19.8,
p<0.001 and F=8.9, p=0.002 respectively). Similarly, the ESR and CRP values were decreased significantly in the
long term follow up (F=8.5, p=0.019 and F=8.3, p=0.013 respectively).

Image:

<table>
<thead>
<tr>
<th></th>
<th>CRP</th>
<th>ESR</th>
<th>Hb</th>
<th>WBC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-op mean ± SD</td>
<td>113.5 ± 116.5</td>
<td>55 ± 33.9</td>
<td>10.0 ± 2.1</td>
<td>10245 ± 4459</td>
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<tr>
<td>Post-op mean ± SD</td>
<td>21.8 ± 33.2</td>
<td>36.2 ± 27.0</td>
<td>11.1 ± 2.1</td>
<td>7849 ± 2496</td>
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<tr>
<td>Mean at follow-up ± SD</td>
<td>5.0 ± 4.7</td>
<td>18.5 ± 23.4</td>
<td>12.7 ± 2.2</td>
<td>7144 ± 2191</td>
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<tr>
<td>F-value</td>
<td>8.3</td>
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<td>19.8</td>
<td>8.9</td>
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<tr>
<td>p-value</td>
<td>0.013</td>
<td>0.019</td>
<td>&lt;0.001</td>
<td>0.002</td>
</tr>
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</table>

Table 1. Summary table containing the means at the three data collection points, their standard
deviations, and the relevant F-value and p-value for each biochemical marker.
Conclusion: Early surgical resection in isolated ileocaecal Crohn's achieved significant results clinically as well as biochemically. These successful results in this small number of patients prompt reconsideration of the primary management of ileocaecal Crohn's disease, and indicate that early surgical intervention may provide better outcomes. These initial results encourage the recruitment of larger group of patients, with the inclusion of quality of life parameters, and also long-term results compared to long-term use of biological agents.


Disclosure of Interest: None declared
Introduction: Cholelithiasis is one of the most common problems encountered in surgery department. Symptoms may be acute or chronic. Chronic symptoms are usually dyspeptic. Dyspeptic symptoms are also present in other upper (Gastro intestinal) GI pathologies. UGIE is investigation of choice for definitive diagnosis of upper GI pathologies. Upper GI endoscopy and endoscopist still are not easily available in rural or small towns, CHC or district hospital in India. So it is not easy to perform routine upper GI endoscopy in all patients of cholelithiasis with dyspepsia in these set ups. Endoscopy also gives economic burden to the poor patients. So our study questioned is it really necessary to perform upper GI endoscopy in all patients of cholelithiasis presenting with dyspepsia and to identify the various common UGI pathologies seen on UGIE in all cholelithiasis patients with dyspepsia in rural population.

Materials & Methods: Present study was carried out in department of surgery in UP Rural Institute of Medical Science and Research, Saifai, Etawah (U.P.) during January 2014 to august 2015. 100 patients admitted under IPD were taken for the study, considering the exclusion and inclusion criteria.

Results: In our study, it was found that, dyspepsia with gall-stones was commonly seen in females in 30-60 year age group in rural patients. Patients presenting with dyspepsia and gall-stones in rural setup should be directly treated surgically. As in our study at three month postoperatively 99% showed no any type of dyspeptic symptom.

Conclusion: Routine pre-operative upper GI endoscopy could not be recommended in all (for our study population as well) patients with gall-stone disease who present with dyspepsia as at the end of 3 months postoperatively 99% patients were symptom free in our study. If symptoms persists even after surgery now patient can be considered for upper G.I. endoscopy to rule out other causes of dyspepsia.

Disclosure of Interest: None declared
MANAGEMENT OF PRIMARY NEOPLASMS OF THE APPENDIX: A CASE SERIES AND A LITERATURE REVIEW

S.-L. Wang, M.-J. Yang, C.-T. Ting, P.-C. Chen on behalf of Authors

Introduction: Primary appendiceal adenocarcinoma is a rare disease, constituting <0.5% of all neoplasms of the gastrointestinal origin. Primary appendiceal adenocarcinoma presents classically as an inflammatory condition, such as acute appendicitis, and its preoperative diagnosis is difficult.

Materials & Methods: In this case series, we report the cases of five patients with appendiceal neoplasms who underwent laparoscopic resection of appendiceal tumors and have thus far been healthy without any evidence of recurrence.

Results: The five cases have good prognosis and don't have the evidence of recurrence until now. Opinions regarding the most appropriate management of appendiceal tumors are variable. Recently, laparoscopic resection of appendiceal tumors has been added as a surgical option.

Image:

Table 1. Patients' Summary

<table>
<thead>
<tr>
<th>No.</th>
<th>Age/Sex</th>
<th>Pre-op. diagnosis</th>
<th>Operation</th>
<th>Pathology type</th>
<th>Follow-up time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case 1</td>
<td>56/F</td>
<td>appendicitis</td>
<td>appendectomy + Rt. colectomy</td>
<td>mucinous</td>
<td>5 years</td>
</tr>
<tr>
<td>Case 2</td>
<td>78/M</td>
<td>appendicitis</td>
<td>appendectomy + Rt. Colectomy</td>
<td>mucinous</td>
<td>5 years</td>
</tr>
<tr>
<td>Case 3</td>
<td>45/F</td>
<td>intussusception</td>
<td>Rt. Colectomy</td>
<td>mucinous</td>
<td>6 years</td>
</tr>
<tr>
<td>Case 4</td>
<td>74/F</td>
<td>cecal mass</td>
<td>Rt. Colectomy</td>
<td>mucinous</td>
<td>9 years</td>
</tr>
<tr>
<td>Case 5</td>
<td>57/F</td>
<td>cecal mass</td>
<td>laparoscopic</td>
<td>mucinous</td>
<td>2 years</td>
</tr>
</tbody>
</table>

Conclusion: If adequate preoperative assessment and definite diagnosis can be performed, laparoscopic resection of appendiceal tumors might become a feasible surgical option instead of open surgery in selected patients.

References:

Disclosure of Interest: None declared
A CASE OF SCLEROSING ANGIOMATOID NODULAR TRANSFORMATION OF THE SPLEEN (SANT)

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Introduction: Sclerosing angiomatoid nodular transformation of the spleen (SANT) is a rare benign vascular lesion of the spleen with unknown etiology.

Materials & Methods: A 56-year-old man was found to have a splenic tumor (48mm) on a CT done for examination of cholelithiasis. He complained of no symptoms and no history of trauma or inflammatory disease. The tumor showed high FDG accumulation on FDG-PET. Therefore, malignant disease could not be ruled out, and a laparoscopic assisted splenectomy was performed. The pathological diagnosis was SANT.

Results: SANT was originally described in 2004 by Martel et al. Most people are asymptomatic at presentation. Common presentations are incidental splenic mass, abdominal discomfort, or splenomegaly. There is slight female preponderance and predominantly affects middle aged adults. Histology of the spleen consistently shows multinodular appearance at lower power examination. Individual nodules have angiomatoid appearance. Vessels in the angiomatoid nodular are the combination of three different types: capillaries (CD34+/CD8−/CD31+), small veins (CD34−/CD8−/CD31+), and sinusoids (CD34−/CD8+/CD31+). It is difficult to rule out malignant nodule of the spleen using imaging modalities alone. Core biopsy can be used to distinguish SANT from other lesions in the differential diagnosis of SANT. However, there is a worry about risk of intra peritoneal seeding if the lesion biopsied proves to be angiosarcoma and other complications such as splenic rupture and bleeding are noted with splenic biopsy. Therefore, splenectomy may be a safe and effective procedure for the diagnosis and treatment of SANT.

Conclusion: We reported our case and other cases and review the relevant literature.

Disclosure of Interest: None declared
PE232
QUALITY OF LIFE IN PATIENTS WITH RECURRENT DIVERTICULAR DISEASE – OPERATIVE VS NON-OPERATIVE TREATMENT
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Introduction: Though the prevalence of diverticular disease is increasing in Western countries, the treatment options for recurrent uncomplicated diverticulitis have not yet been thoroughly evaluated from a quality of life perspective. This study surveys quality of life in uncomplicated diverticulitis, with particular attention to possible differences between conservative and operative treatment.

Materials & Methods: Quality of life (QOL) was evaluated with a standardized questionnaire, sent to 215 patients treated for uncomplicated diverticulitis between 2008 and 2015. The 8-page survey consisted of a general part addressing demographic characteristics, number of episodes, treatment methods, diet and physical activity as well as an adapted GIQLI score for gastrointestinal QOL. Patient responses were evaluated for recurrent diverticular disease (≥2 episodes) and patients divided accordingly. Postoperative outcome and patient satisfaction were measured with the Freiburg Index for Patient Satisfaction (FIPS), ranging from 1 (very satisfied) to 6 (not satisfied). The main outcome variable was patient reported quality of life. Predictor variables were treatment options and number of episodes. Statistical analysis compared mean and median values.

Results: Of 140 patients who responded, 81 were included in the survey. Thirty-seven patients were treated with either minimally invasive or open surgery. The Quality of Life Index showed a higher, statistically non-significant result in operated individuals (+1.3%, p=0.81) as compared to conservatively treated patients. Notably, patients who underwent laparoscopic resection (23 pt., 63%) had even higher QOL scores (+4.6 %, p=0.13) than those managed medically. The overall postoperative satisfaction rate was high (FIPS 1.8 ± 0.8), with slightly better results for laparoscopy patients (FIPS 1.7 vs. 2.2).

Conclusion: Patients with recurrent uncomplicated diverticulitis appear to profit from laparoscopic resection in terms of quality of life and patient satisfaction. These results so may be useful in deciding when to operate on a patient with recurrent episodes of uncomplicated diverticulitis. Due to study design and small sample sizes, however, potential bias cannot be excluded and further studies are advisable.

References:

Disclosure of Interest: None declared
A CASE OF MIXED ADENONEUROENDOCRINE CARCINOMA OF THE APPENDIX WITH COMPLICATION AS ACROMEGALY

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Introduction: Mixed adenoneuroendocrine carcinoma (MANEC) is a rare pathological diagnosis recently defined by the World Health Organization Classification of tumors of the digestive system in 2010. Colorectal neoplasms are well known to be a complication of acromegaly, but MANEC of appendix has not been reported.

Materials & Methods: We report the case of MANEC of appendix, initially diagnosed with acromegaly accompanied by cardiovascular diseases.

Results: A 48-year-old man with acromegaly complained of sustainable bloody bowel discharge, and visited our hospital. He was diagnosed as ischemic colitis of sigmoid colon, from the findings of Computed tomography (CT) of the abdomen, and colonoscopy. The ischemic colitis was due to hypertension, with cardiovascular complication of acromegaly. Among these CT findings, swelling of the appendix was recognized incidentally. Tip of appendix wall was 20 mm diameter, and solidity enhanced by contrast medium. He was high-risk patient of colorectal cancer, so he was recommended Right hemi colectomy and D3 lymphnode dissection for appendiceal tumor. Histopathological findings showed mucinous adenocarcinoma with concurrent goblet cell carcinoid of appendix, and depth of tumor invasion was subserosa with no regional lymphnode metastasis. The histopathological examination confirmed a diagnosis of the appendiceal tumor as MANEC.

Conclusion: This seems to be a rare case of MANEC of appendix with complication as acromegaly. And it is also important that this case was achieved of R0 resection. We should undergo close post-operative surveillance.


Disclosure of Interest: None declared
FIRST EXPERIENCE AND EVALUATION OF ROBOTIC-ASSISTED (DA VINCI XI) SURGERY FOR GIANT HIATAL HERNIAS AND COMPARISON TO THE LAPAROSCOPIC APPROACH

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Introduction: Since July 2015 we perform robotic-assisted surgery to repair giant hiatal hernias with the latest da Vinci Xi System. To evaluate the feasibility and quality of this new approach we analyzed perioperative results of the last 18 months and compared them to patients who underwent the same type of surgery in laparoscopic technique during that period.

Materials & Methods: Retrospective analysis of prospectively collected data between July 2015 and December 2016. For this study we included all patients with type III or IV hiatal hernia according to Hill classification who underwent surgical therapy. In 19 patients (12 female, 7 male) the robotic system was used for hernia repair (Rob-G), 15 (10 female, 5 male) patients were treated using laparoscopic technique (Lap-G). Hiatal hernia repair was done with or without mesh augmentation, performance of a fundoplication and/or gastropexy. Mann-Whitney-U Test was used for statistics. Significance level for P-Value < 0.05.

Results: The average age was 70.6 years (58-84) in the Rob-G and 71.2 years (30-91) in the Lap-G (p=n.s). Mean operating time (MOT) was 246 min (± 133) in the Rob-G and 173 min (± 137) in the Lap-G (p=0.00048). Mesh augmentation was performed in 17 Rob-G patients and 3 Lap-G patients. In the Rob-G 16 fundoplications were carried out (16 Toupet, 0 Nissen) whereas in the Lap-G 13 (7 Toupet, 6 Nissen) fundoplications were implemented. Gastropexy was applied in 17 patients in the Rob-G and in 13 cases in the Lap-G. Morbidity in Rob-G was 10% (Clavien-Dindo III), in Lap-G 7% (Clavien-Dindo III). There was no mortality in both groups. Length of hospital stay was statistically not different 9.5 days (4-17) in Rob-G and 9 days (6-15) in Lap-G.

Conclusion: Analysis of our own results showed that using the da Vinci Xi System is safe, feasible and equivalent to the laparoscopic technique. We attribute the longer MOT to larger hernias with mesh augmentation more frequent in the Rob-G. In consideration of that and the fact still being in the learning curve we expect the MOT in the Rob-G to shorten in the near future.

Disclosure of Interest: None declared
A RARE CASE OF METACHRONOUS EARLY GASTRIC CANCER AFTER A GASTRIC MALT LYMPHOMA
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Introduction: In the last two decades, several studies have demonstrated the association of gastric adenocarcinoma and MALT (Mucosa-Associated Lymphoid Tissue) lymphoma. Synchronous development of these two neoplasms has already been well reported, whereas metachronous development of Early Gastric Cancer (EGC) after a gastric lymphoma with complete remission is very rare. We report the case of a metachronous EGC occurring in a patient previously treated for a MALT lymphoma.

Materials & Methods: We present a 59 years old man with a history of non-Hodgkin lymphoma MALT type of the duodenum, ileum and colon, treated with chemotherapy nine years before. Four years before a relapse of the stomach and colon occurred and it was again successfully treated with chemotherapy. During a gastroscopy, a pseudopolipoid 2,5 cm lesion of the posterior gastric corps was detected. The histology showed a residual lymphatic infiltrate and epithelial cells with high grade displasia. A PET-CT showed no metabolically active lesions. Initially an endoscopic mucosectomy was attempted but the lesion could not be removed. It was made just a biopsy. The sample's PCR revealed a monoclonal pattern. Due to the presence of high grade displasia, it was decided for a laparoscopic gastric wedge resection with removal of a portion of the stomach of 6,5x2,5x2cm. The definitive pathology reported a MALT lymphoma adjacent to a well differentiated adenocarcinoma pT1b with free resection margins. The postoperative course was uneventful.

Results: Metachronous development of EGC following MALT lymphoma is an exceptional finding. H.Pilory (HP) is the common factor that can cause both gastric MALT lymphoma and gastric carcinoma. Sometimes, despite the eradication of HP and chemotherapy to treat the lymphoma, residual MALT lymphoma persists for several years in the deep part of the mucosa and favours the occurrence of gastric carcinoma. In fact EGC often develops in the same location. In these patients, it is very important to diagnose a possible gastric carcinoma in the early states, in order to treat it immediately.

Conclusion: Even after treatment, primary gastric MALT lymphoma may persist at the site of origin for a prolonged period of time. Residual disease should be considered in order to prevent cancer development. Long-term endoscopic follow-up with multiple gastric biopsies is mandatory.


Disclosure of Interest: None declared
Introduction: Since various treatments have been developed, the long-term outcomes of stage IV gastric cancer have improved; however, treatment results with or without gastrectomy remain unclear. The aim of this study was to clarify the characteristics of long-term outcomes of stage IV gastric cancer.

Materials & Methods: Among 1,295 cases of gastric cancer (1,203 resected and 92 unresected) from January 2005 to September 2016, 143 cases of stage IV gastric cancer (64 with and 79 without gastrectomy) were included. We investigated the characteristics of long-term outcomes according to the clinicopathological features.

Results: The mean age of the 64 patients with gastrectomy was 68.5 ± 11.5 years (range, 27–85), and 49 were men. Neoadjuvant chemotherapy had been administered to 5 patients. The diagnostic criteria for stage IV were peritoneal dissemination (n=40), hepatic metastasis (n=17), distant lymph node metastasis (n=5), and others (n=2). The 1-, 3-, and 5-year overall survival (OS) rates and median survival (MS) time were 52%, 26%, and 14%, and 9.4 months, respectively. The numbers of 3- and 5-year survivors were 11 and 6, respectively. The 1-, 3-, and 5-year OS and MS of patients with peritoneal dissemination, hepatic metastasis, or distant lymph node metastasis were 53%, 23%, 0%, and 10.9 months, 53%, 27%, and 9.2 months, and 50%, 0%, 0%, and 4.6 months, respectively. Among the 5-year survivors, 3 had undergone resection for hepatic metastasis, 2 had peritoneal dissemination, and 1 had positive peritoneal cytology. Postoperative chemotherapy with S-1 was administered to 5 of the 5-year survivors. The mean age of 79 patients without gastrectomy was 70.6 ± 8.2 years (range, 46–87) and 50 were men. Criteria for stage IV disease were peritoneal dissemination (n=55), hepatic metastasis (n=6), distant lymph node metastasis (n=10), and others (n=8). The 1-, 3-, and 5-year OS and MS were 37%, 4%, 0%, and 7.9 months, respectively. Two patients survived for more than 3 years. The 1- and 3-year OS and MS of patients with peritoneal dissemination, hepatic metastasis, or distant lymph node metastasis were 39%, 13%, and 8.9 months, 0%, 0%, and 2.8 months, and 30%, 20%, and 5.9 months, respectively.

Conclusion: Long-term outcomes of stage IV gastric cancer depend on the criteria for stage IV, including resection of the primary lesion, and hepatectomy of hepatic metastases. Chemotherapy using S-1 can improve long-term outcomes of stage IV gastric cancer.

Disclosure of Interest: None declared
THE PROPER SURGEON FOR A PROPER GASTRECTOMY
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Introduction: D2 lymph node dissection is currently the standard surgical management of gastric cancer. At least 15 nodes are required for stratification but for better survival rates this number might not be enough. Even though the number of lymph nodes retrieved have been influenced by patient, stage and pathologist factors, some others like surgical expertise and fellowship training may also have an impact in gastrectomy results.

The aim of this study was to determine the number of lymph nodes retrieved and involved margins during gastrectomy for gastric cancer by general (group A) and gastrointestinal surgeons (group B).

Materials & Methods: We retrospectively reviewed the data of 174 patients who underwent curative gastrectomy for gastric cancer from 2014 to 2016 at 5 different Colombian surgery centers. We compared the pathology report, nodal dissection, lymph node ratio and involved margins between 63 patients of the groups A and 111 patients of the B.

Results: Total gastrectomy was performed less frequently in group B patients than in group A patients (53.1 vs. 87.3%, p =0.0001). The mean numbers of nodes removed during procedure were 22 ± 9.8 in group A patients and 31 ± 14 in group B patients (p =0.00001). Involved margins in group A and B patients were 15 and 6.3 % respectively (p =0.04). The percentage of patients with 25 lymph nodes retrieved was less frequently in group A patients than in group B patients (42.9 vs. 77.5%, p =0.0001). Multivariate analysis demonstrated that the lymph node retrieved (>25), was significantly correlated with the group who performed the procedure (p =0.0001).

Conclusion: The results of this study showed that in patients with gastric cancer:
Surgical expertise and fellowship training improve the number of lymph nodes retrieved and negative margins. The findings suggest that the proper surgeon play an important role and may improve the survival rate in gastric cancer.

Disclosure of Interest: None declared
PE238
COMPARISON OF OUTCOMES OF LAPAROSCOPIC GASTRECTOMY FOR EARLY VERSUS ADVANCED GASTRIC CANCER
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1General Surgery, Tan Tock Seng Hospital, Singapore, Singapore

Introduction: The first laparoscopy-assisted gastrectomy was performed for the treatment of early gastric cancer (EGC) by Kitano in 1994. Laparoscopic gastrectomy is emerging as a widely accepted surgical option for EGC, with recent literature demonstrating similar oncological outcomes and lesser morbidity as compared to open surgery. However, data on laparoscopic surgery for advanced gastric cancer (AGC) is still lacking. The purpose of this study is to evaluate the outcomes of laparoscopic gastrectomies for EGC compared to AGC.

Materials & Methods: A retrospective review was performed on all patients who underwent curative laparoscopic gastrectomy for gastric cancer from July 2008 to December 2015 in a single tertiary hospital in Singapore. All patients were followed up for five years post-operatively. The following variables were analysed – patient demographics, tumour characteristics, operative details, and post-operative outcomes. Statistical analysis was carried out using SPSS version 21. Wilcoxon-Mann Whitney tests, chi-square tests, and Kaplan-Meier survival curves were used where appropriate.

Results: A total of 106 patients were analysed (Table 1), of which 49 (46%) and 57 (54%) were EGC and AGC respectively. Majority were male (62%), ASA grade 2 (60%), had a lower gastric tumour (63%), and underwent subtotal gastrectomy (76%). 80 (75%) patients underwent a D2 gastrectomy, 103 (97%) were R0 resections. Billroth II (40%) and Roux-en-Y (36%) were the most common reconstructive surgeries performed. Operative outcomes were calculated in terms of mean, where applicable. Operative time was shorter for EGC compared to AGC (250min vs 284min, p-value <0.001). There was no difference in number of lymph nodes harvested, intra-operative blood loss, conversion rate, re-operation rate, length of stay, 30-day morbidity and mortality for both EGC and AGC. Patients with AGC were more likely to have recurrence (24.6% vs 4.1%, p=0.003) and have a shorter overall survival (27.5 months vs 42.7 months, p<0.001).

Conclusion: The immediate post-operative outcomes for laparoscopic gastrectomy for AGC are comparable to that of EGC. However, laparoscopic gastrectomy for AGC requires a significantly longer operative time as compared to EGC. Patients with AGC are more likely to have recurrence and a shorter overall survival as compared to EGC, however this is likely due to underlying nature of a more advanced disease rather than the operation itself. Hence, laparoscopic gastrectomy is a safe and viable option for patients with AGC.

<table>
<thead>
<tr>
<th>Variable</th>
<th>All (N=106)</th>
<th>EGC N=49</th>
<th>AGC N=57</th>
<th>Pvalue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I (IA, IB)</td>
<td>49(46.2)</td>
<td>49(100)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>II (IIA, IIB)</td>
<td>26(24.5)</td>
<td>-</td>
<td>57(100)</td>
<td>-</td>
</tr>
<tr>
<td>III (IIIA, IIIB)</td>
<td>31(29.3)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Proximal gastrectomy</td>
<td>4(3.8)</td>
<td>2(4.1)</td>
<td>2(3.5)</td>
<td></td>
</tr>
<tr>
<td>Distal subtotal gastrectomy</td>
<td>80(75.5)</td>
<td>42(85.7)</td>
<td>38(66.7)</td>
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<td>Total gastrectomy</td>
<td>21(19.8)</td>
<td>5(10.2)</td>
<td>16(28.1)</td>
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</tr>
<tr>
<td>Others</td>
<td>1(0.9)</td>
<td>0</td>
<td>1(1.8)</td>
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<tr>
<td>Op time, mins</td>
<td>mean±SD</td>
<td>268±84</td>
<td>25±58</td>
<td>284±99</td>
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<td>LCS, days</td>
<td>mean±SD</td>
<td>10±19.7</td>
<td>8.9±8.1</td>
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<td>30-day morbidity</td>
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<tr>
<td>No</td>
<td>91(85.9)</td>
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<td>Yes</td>
<td>15(14.1)</td>
<td>5(10.2)</td>
<td>10(17.5)</td>
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<td>30-day mortality</td>
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<tr>
<td>No</td>
<td>105(99.1)</td>
<td>48(96)</td>
<td>57(100)</td>
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<td>1(0.9)</td>
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<tr>
<td>No</td>
<td>90(84.9)</td>
<td>47(35.9)</td>
<td>43(75.4)</td>
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<td>16(15.1)</td>
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<td>Time to recurrence, months</td>
<td>mean±SD</td>
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<td>-</td>
<td>13.5±9.3</td>
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<td></td>
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<tr>
<td>No</td>
<td>78(73.6)</td>
<td>44(83.8)</td>
<td>34(59.7)</td>
<td>&lt;0.001</td>
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<td>28(26.4)</td>
<td>5(10.2)</td>
<td>23(40.4)</td>
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<td>Survival, months</td>
<td>mean±SD</td>
<td>34.4±23.9</td>
<td>42.7±26.9</td>
<td>27.5±18.7</td>
</tr>
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</table>
2. Japanese Gastric Cancer A Japanese gastric cancer treatment guidelines 2014 (ver. 4) Gastric Cancer 2016

Disclosure of Interest: None declared
Introduction: In order to correlate preoperative serum CK-18, MMP-9 and TIP-1 levels R0 resection (curative resection) suitability in patients with stomach cancer.

Materials & Methods: In a 3-year prospective study, 50 consecutive patients scheduled for curative surgery with the diagnosis of gastric adenocancer were included in the study. 1 ml of blood was taken from each patients to determine MMP-9, CK-18 and TIMP-1 levels one day before the operation.

Results: Six patients (12%) underwent palliative operation and 44 patients (88%) underwent R0 resection. 14% of the patients were stage 2 B, 12% were stage 4, and stage 3 was determined as 74%. The relationship between the possum scores of the patients and mortality and morbidity rates was examined. Patients with a possum score lower than 14 had a morbidity rate of 28%, while those with a possum score higher than 14 had a significantly higher rate.

In addition, mortality rates of 4.7% in patients with 14 possum scores were found to be 33.3% in patients with a score of 21 and over.

CK18, MMP9, TIMP1 levels were statistically significantly associated with pathological N and stage and positive.

Conclusion: Significant correlation was not found between curative resectability and serum CK-18, MMP-9 and TIP-1 levels. However there was a significant correlation between pathologic lymph node metastasis and serum CK-18, MMP-9 and TIP-1 levels of in patients who were planned to undergo curative surgery with gastric cancer.

Disclosure of Interest: None declared
Introduction: Gastric Ca is a challenging tumor disease with regard to substantially improve the outcome.


Results: (corner points): - Overall, neoadjuvant treatment has increased up to 18 %.
- There is an improvement of the 5-year overall survival rate (all tumor stages: from 40.0 up to 48.5%, in particular, in stage II/IV) with no associated increased periop. risk (no increase of the postop. morbidity/lethality) after inauguration of multimodal concepts & based on a higher D2-lymphadenectomy rate (from 71 up to 83.3%) over the years.
- There was an increased acceptance (but further beneficial potential) of using EUS (27.4 up to 40.4%).
- Dysphagia & gastric stenosis (characteristics of a disturbed passage of the upper GI tract by tumor-induced obstruction as well as advanced tumor growth & catabolic status of the patient), obesity & periop. risk according to ASA classification were identified as independent factors with an impact onto the healing of the esophagojejunal anastomosis.
- Therapeutic results & prognosis of AEG-tumor lesions are significantly worse than gastric Ca of other tumor sites.
- Hospital-volume effects can only be found in the treatment of AEG tumor lesions.
- A lower rate of palliative surgical interventions was observed (from 40% down to 24.5%).
- Radical tumor resection with palliative intention (if possible from the perspective of surgical technique) resulted in better median survival by 3 months vs. non-resecting procedures in case of good physical status of the patient & possible palliative chemotherapy postoperatively. In addition, palliative gastrectomy provided a significant prolongation of survival time by 5 months compared with limited resecting procedures (6 vs. 11 months).
- Currently, laparoscopic resections play only a minor role in gastric-cancer surgery in Germany.

Conclusion: To further improve early postop. & oncological long-term outcome, in particular, i) a greater portion of neoadj. treatment in gastric Ca, ii) centralisation of patients with proximal gastric Ca, & iii) palliative resection with low risk (with regard to ASA, exclusion of tumor stenosis/dysphagia) are recommendable.

Disclosure of Interest: None declared
THE MODIFICATION OF THE DELTA-SHAPED ANASTOMOSIS USING A BARBED SUTURE

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Introduction: Background: The delta-shaped anastomosis is the most simple and popular method as an intracorporeal Billroth-I anastomosis using a linear stapler. Meanwhile, there are some problems; the high costs by using 6 or 5 cartridges of surgical stapler, the difficulty of cooperation with an inexperienced assistant, and so on.

Aims: To resolve those problems, we used the barbed suture (V-loc TM) for closing an entry hole of the delta-shaped anastomosis. Here we present this technique and its results.

Materials & Methods: Technique: After lymphadenectomy and transection of the duodenum and the stomach, we made entry holes at the stump of the remnant stomach and the duodenum respectively. Gastroduodenostomy was performed by a 45mm linear stapler to bind the posterior wall of the remnant stomach to that of the duodenum according to the delta-shaped anastomosis. The common entry hole was closed by a continuous single layer suture using a barbed suture device.

Results: From Aug. 2014 to Dec. 2016, 29 patients underwent intracorporeal Billroth-I anastomosis in this fashion, and the conventional delta-shaped anastomosis was performed for 15 patients. The median time of closing entry hole was 450(280-960) seconds in this technique, 722(600-1211) seconds in the conventional method (p<0.01). No anastomotic complication was occurred in both groups. The median length of hospital stay was 10 (5-24) days in this technique, 11 (9-17) days in the conventional method (p=0.737). The cost for the anastomosis was 395 dollars in this technique, 1050 dollars in the conventional method (p<0.01).

Conclusion: Cost saving and shortening the surgical time were achieved by using a barbed suture for closing an entry hole of the delta-shaped anastomosis.

Disclosure of Interest: None declared
Introduction: The aim of this retrospective study was to evaluate the efficacy and feasibility of preoperative chemotherapy with S-1 plus cisplatin followed by gastrectomy with D2 plus para-aortic lymph node (PAN) dissection in patients locally advanced gastric cancer with extensive regional and/or PAN metastases.

Materials & Methods: We enrolled patients with gastric cancer with bulky lymph node metastasis along the celiac artery and its branches (Bulky N) and/or PAN metastases. Preoperative chemotherapy was consisted of two or three cycles of S-1 plus cisplatin, followed by gastrectomy with D2 plus PAN dissection. N-stages, histological regression grade were correlated with overall survival.

Results: Between 2005 and 2015, 41 patients were enrolled. 16 patients had bulky N and 25 had PAN. There were no treatment related deaths. The 5-year overall survival rates (5YOS) were 60.6 % for all patients, 68.9 % for bulky N, and 53.6 % for PAN respectively. The 5YOS was 21.4 % in patients with pathological para-aortic node positive. The 5YOS of pN3a (UICC), pN3b patients were 27.8%, 0% respectively. The 5YOS was 71.7% for histological regression grade 2 tumor and 100% for grade 3. The most common site of initial recurrence after the R0 resection was the para-aortic lymph nodes.

Conclusion: Preoperative S-1 plus cisplatin followed by D2 plus PAN dissection is feasible in terms of oncological outcome. Pathological high grade node metastasis is predictive factor for poor survival. Good response to chemotherapy is predictive factor for better prognosis.

Disclosure of Interest: None declared
Introduction: Introduction: after LAGB revisional surgery is required in 20-30 % of cases due to late complications such as proximal gastric enlargement, gastric erosion, port and tubing problems and few cases of hiatal hernia.

Materials & Methods: Objective: to present the technique employed for treatment of a postoperative large hiatal hernia
Clinical record: patient submitted initially to laparoscopic adjustable gastric banding placement. Late outcome: laparoscopic extraction was performed 6 months after the operation due to vomits and reflux symptoms. Three months later a laparoscopic sleeve gastrectomy was performed. Intractable gastroesophageal symptoms and retrosternal pain. Evaluation with endoscopy demonstrated a dilated cardia with paraesophageal haital hernia and barium sulphate swallow demonstrated a herniated large gastric fundus to the mediatinum. Revisional surgery was indicated in order to treat the hiatal hernia and to perform re-sleeve gastrectomy by laparoscopic approach.
Video: shows the procedure employed: very careful division of adhesions was carried out in order to isolate the distal esophagus and in order to reduce the gastric fundus to the abdominal cavity. Then, complete dissection of greater gastric curvature from the His' angle until 3cms to the pylorus, then vertical re-sleeve was performed.

Results: Results:
No minor neither major complications was observed, excellent BMI reduction, no vomits neither reflux, without proton pump inhibitors. Postoperative barium sulphate swallow shows disappearance of hiatal hernia

Conclusion: Conclusion:
Re-sleeve gastrectomy with hiatal hernia repair is a good option for treatment for these very challenge patients after this complication.


Disclosure of Interest: None declared
Introduction: Serum albumin is a surrogate measure of a patient's nutritional status. Hypoalbuminemia impairs a patient's immunity and may result in gut edema. Therefore, it is postulated to be associated with increased post-operative morbidity and mortality, including anastomotic leaks, surgical site infections, and pneumonia. Our hypothesis is that post-operative albumin therapy will result in better post-anastomosis healing and reduces post-operative mortality and morbidity.

Materials & Methods: This study is a single-centre retrospective observational study. Patients with gastric cancer who underwent elective gastrectomy from 2012 to 2016 were evaluated. Patients who underwent emergency gastrectomy or gastrectomy not because of gastric cancer were excluded. Data (n = 105) was analyzed using SPSS Statistics 24. We further stratified our patients based on pre-operative albumin level (group I being serum albumin < 35g/L, group II being serum albumin ≥ 35g/L).

We examined anastomotic leak rate in patients with gastric cancer who underwent gastrectomy. Our secondary outcomes include post-operative pneumonia, surgical site infection, 30-day mortality, and morbidity according to the Clavien-Dindo classification.

Results: Post-operative pneumonia incidence is higher in gastric cancer patients, with pre-operative albumin level less than 35g/L, and who received post-operative albumin therapy (5.56%), compared to those who did not receive (11.1%). Otherwise, post-operative albumin therapy is not associated with decreased mortality and other morbidities detailed in this study.

Conclusion: Our study demonstrated that post-operative albumin therapy in gastric cancer patients with a low pre-operative albumin level may result in a lower incidence of pneumonia. It did not show an association with lower incidence of anastomotic leak, decreased mortality, or other morbidities.

References: Hussein et al. SECI Oncology 2015. 10.18056/seci2015.3.

Disclosure of Interest: None declared
Introduction: The aim of this study was to assess the safety and efficacy of laparoscopic and open distal gastrectomy (LDG and ODG) each other in elderly patients with gastric cancer compared with the short-term outcome in the nonelderly.

Materials & Methods: We reviewed 439 patients who underwent distal gastrectomy between January 2013 and October 2016. Of these, LDG was performed 280 patients and ODG was performed 159. We compared elderly patients (aged 75 years or more) with younger patients in each operative procedure. (LDG: elderly 71, younger 209; ODG: elderly 73, younger 86) Preoperative comorbidity and surgical results were analyzed. Multivariate analysis was performed to detect predictive factors for postoperative complications.

Results: In both LDG and ODG groups, the operative time and amount of blood loss did not differ, while comorbidity was more common in elderly patients than in the nonelderly, and there were fewer retrieved lymph nodes in elderly patients. The incidence of all postoperative complications did not differ between both groups in each procedure, and there were no significant differences in the time to first flatus or postoperative hospital stay. However, in terms of specific postoperative complications, respiratory complications were more frequently observed in elderly group with ODG significantly (p=0.034), while not with LDG group. In multivariable analysis, age was not independent predictor of postoperative complications.

Conclusion: ODG for elderly patients requires attention particularly in postoperative respiratory complications. LDG is a safe and less invasive treatment for gastric cancer in elderly patients who have greater comorbidity.

Disclosure of Interest: None declared
SHORT TERM RESULTS OF ROBOTIC GASTRECTOMY IN COMPARISON WITH LAPAROSCOPIC GASTRECTOMY

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Introduction: Feasible early surgical outcomes of laparoscopic gastrectomy (LG) for Stage I gastric cancer comparing to conventional open gastrectomy had been shown in randomized control trials. However, feasibility of robotic gastrectomy (RG) comparing to LG have not been fully investigated. The aim of this study was to clarify the feasibility of RG compared with those of LG.

Materials & Methods: This study included 141 patients with gastric cancer who underwent RG (RG group, n=141) and 225 patients who underwent LG (LG group, n=225) at Shizuoka Cancer Center from Jan. 2012 to Dec. 2015. The patients who underwent any combined operations except for cholecystectomy were excluded. Patients’ characteristics and short-term outcomes were compared between the groups. In addition, multivariable analysis using logistic regression model was conducted to elucidate independent risk factors for postoperative complications.

Results: LG included more elderly patients (median age; RG 64 years old, LG 67 years old, P=0.008) and higher ASA-PS (P=0.045). The other clinicopathological characteristics including gender, BMI, ECOG-PS, ventilatory function, blood albumin and comorbidity were not significantly different between the groups. The extent of gastrectomy was also similar, but RG included more D2 cases. In terms of operative results, median operative time was approximately 50min longer in the RG group (337 min) than in the LG group (285 min) with significant difference (P<0.001). Estimated blood loss (median; RG 20ml, LG 19ml) and pathological findings were comparable between the groups. The incidence of intra-abdominal infectious complication (grade II or higher according to Clavien-Dindo classification) in the RG group (2.8 %) was significantly lower than that in the LG group (8.4 %; p=0.044). In multivariable analysis, comorbidity and clinical T2 or over were revealed as risk factors for overall complications, but the surgical approach was not.

Conclusion: Early surgical outcomes of RG were feasible comparing to those of LG. To verify its oncological efficacy, the long-term outcome of RG should be evaluated.

Disclosure of Interest: None declared
INDOCYANINE GREEN FLUORESCENCE METHOD FOR THE SENTINEL NODES MAPPING OF EARLY GASTRIC CANCER USING HYPEREYE MEDICAL SYSTEM AND PINPOINT.

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Introduction: Using bright field, full color fluorescence camera systems, we can observe indocyanine green (ICG) fluorescence under room light. Existence of room light make faint fluorescence invisible. It may allow us to choose sentinel nodes easily. HyperEye Medical System (HEMS; Mizuho Corporation, Tokyo Japan) is a bright field, full color fluorescence camera system developed by Sato in Kochi University. We had assisted his development of HEMS before putting it on the market. PINPOINT is a bright field, full color fluorescence laparoscope (Novadaq, Mississauga, Canada).

Materials & Methods: 1) HEMS; Thirty-four cases were enrolled and the injection of the ICG (50 microgram/ml, 0.5ml x 4 points surrounding early gastric cancer) was performed endoscopically on the day before operation. 2) PINPOINT; Twenty cases were enrolled and the injection of the ICG (33.3 microgram/ml) was performed same way as HEMS.

Results: 1) HEMS; Sentinel lymph nodes were identified in all cases. The number of ICG fluorescence positive (sentinel) lymph nodes per patient was 4.7 ± 2.4. Metastasis was observed in 3 cases, and all of them had the metastasis positive sentinel lymph nodes. 2) PINPOINT; Sentinel lymph nodes were identified in all cases. The number of ICG fluorescence positive (sentinel) lymph nodes per patient was 6.6 ± 3.1. Metastasis was observed in 2 cases, and all of them had the metastasis positive sentinel lymph nodes.

Conclusion: Results of 54 cases in total was good enough to continue and accumulate more cases for the sentinel nodes mapping of early gastric cancer using the bright field, full color fluorescence camera systems. Since the intensity of excitation light, sensitivity of the sensor of camera and the observation distance between lymph nodes and camera are different, the optimum concentration of ICG may be different between HEMS and PINPOINT.

Disclosure of Interest: None declared
Introduction: The trichobezoar is a rare disorder, defined by the presence of a gastric foreign body formed by hair or textile fibers. The authors report the case of a gastric trichobezoar revealed by dysphagia. Through this observation and a literature review, we describe the epidemiological, clinical, radiological and therapeutic characters of the trichobezoars.

Materials & Methods: Our case concerns a 25 year old woman, with a notion of trichophagia and who complained of dysphagia for 6 months with anorexia and weight loss unencrypted. Abdominal palpation revealed an epigastric mass. Imagery was in favor of a gastric bezoar. Trichobezoar extraction was carried out through a longitudinal Gastrostomy. The postoperative period was uneventful and the patient was discharged after 6 days.

Results: The bezoar means amass of swallowed foreign material that collects in the stomach and fails to pass through the intestines [1]. The trichobezoar represents 0.15% of gastrointestinal foreign bodies [2]. Young girls are 9 times more affected than boys [3]. The trichobezoars are often associated with underlying mental disorders [4]. Complications can be revealing, such as perforation or bowel obstruction [5]. The upper gastrointestinal fibroscopy remains the reference examination. Computed tomography shows an intraluminal mobile, heterogeneous mass, that does not catch contrast product [6]. The preferred treatment is conventional or laparoscopic surgery [7], allowing the exploration of the entire digestive tract, the extraction through a gastrostomy as well as potential extensions (tail) or fragments through one or more enterotomies [8].

Conclusion: The bezoar remains a pathological curiosity, because of its natureand its rarity. Its diagnosis and treatment are simple. The psychiatric care of patients is essential.


**Disclosure of Interest:** None declared
CLINICAL SIGNIFICANCE OF GLYCOPROTEIN NON-METASTATIC MELANOMA B (GPNMB) EXPRESSION IN GASTRIC CANCER.

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Introduction: GPNMB is a member of PMEL/NMB family. It is also known as a type 1 transmembrane glycoprotein and it was identified in 1995. It exhibits homology to the PMEL 17 precursor, a melanocyte specific protein. GPNMB is expressed in the lowly metastatic human melanoma cell lines and xenografts but has no expression in the highly metastatic cell lines. This time we examined GPNMB expression in immunohistochemical staining in Gastric cancer and evaluate the relevance of the clinical pathological factor was examined its significance.

We were targeting 100 cases from 2000 to 2005 that made the gastric cancer curative in our department.

Materials & Methods: GPNMB expression resection specimens were sliced, placed the human normal liver tissue anti-GPNMB antibody to the primary antibody expression in immunohistochemical were visualised in positive control. GPMNB expression in the membrane bound vessels in the cytoplasm of the patients were seen, are classified into positive groups, and were examined clinicopathological significance of GPNMB expression. The clinicopathological factors were evaluated in accordance with gastric cancer handling terms and the survival curve was created by Kaplan Meier method was carried out significant difference test with log rank test.

Results: Expression of GPNMB was found in the cytoplasm. Positive rate was 59% cases and these cases were considered as positive groups and the and the negative rate was 41% cases and these cases were considered as negative groups. Overall survival of 100 gastric cancer patients to GPNMB was significantly worse to the positive cases and the P value for overall survival is p =0.04.

Conclusion: GPNMB which is considered one of the cancer specific antigens were observed in 59% expressed in the gastric cancer tissue. And the utility of the prognostic factor in gastric cancer have been suggested.

Disclosure of Interest: None declared
Introduction: Pancreatoduodenectomy (PD) has been performed on gastric cancer patients with duodenum and/or pancreas invasion. However, because of the high incidence of mortality and morbidity, the optimal indications of PD for gastric cancer are still under debate. The aim of this study was to elucidate the role of PD in treatment of advanced gastric cancer.

Materials & Methods: Patients who underwent PD for gastric cancer were included in this study. The clinicopathological characteristics, incidence of postoperative complications, and overall survival were evaluated.

Results: Between September 2002 and December 2015, a total of 24 patients undergoing PD for gastric cancer were included in this study. The main reasons for performing PD were tumor and/or lymph node invasion of the pancreas head in 15 patients, and tumor infiltration to the duodenum in 8 patients. Four patients had received chemotherapy before surgery. Distal gastrectomy was performed on 19 patients and total gastrectomy on 5. Seventeen patients underwent R0 resection and seven patients underwent R1 resection. The median operation time was 451 minutes and the median intraoperative blood loss was 1246 ml. Postoperative complications of Clavien–Dindo classification grade II or higher occurred in 21 patients (87.5%). Two patients (8.3%) died due to postoperative complications. Overall survival (OS) was better in the patients with R0 resection than in those with R1 resection, but there was no statistical difference (5-years OS; 38.8% vs 0%, P=0.078). Among patients with R0 resection, those with pancreas invasion (n=11) had significantly better overall survival compared to those with duodenum invasion (n=6) (5-OS; 54.5% vs 0%, P=0.048).

Conclusion: If R0 resection is possible, PD may be performed for advanced gastric cancer with pancreas invasion. However, as the outcomes may not be satisfactory, multimodality treatment such as neoadjuvant chemotherapy may be recommended.

Disclosure of Interest: None declared
A 5 YEARS DISEASE-FREE SURVIVAL IN LOCAL ADVANCED GASTRIC CANCER POST TOTAL LAPAROSCOPIC TOTAL GASTRECTOMY WITH D2 LYMPHADENECTOMY IN NCI OF THAILAND: A CASE REPORT

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Introduction: Minimally invasive surgery for gastric cancer in increasingly being performed in tertiary centers. Successful of procedure can determine by long term therapeutic outcome. Disease-free survival (DFS) in cancer, the length of time after primary treatment for a cancer ends that the patient survives without any signs or symptoms of that cancer is used to see how well a treatment works. Laparoscopic Gastrectomy for gastric cancer in NCI of Thailand was developed for 6 years. Successful of the procedure can determine by having a 5yrs-DFS case. Laparoscopic Gastrectomy for gastric cancer in NCI of Thailand was developed for 6 years. Successful of the procedure can determine by having a 5yrs-DFS case.

Materials & Methods: In National cancer institute of Thailand, laparoscopic gastrectomy for gastric cancer patient was introduced in October 2010. We retrospective reviewed our 6-year experience with total laparoscopic gastrectomy for gastric cancer cases. We identified a case of 5 years DFS (disease-free survival) and 3 cases of 3 years-DFS gastric cancer cases from overall 28 cases.

Results: From October 2010 to December 2016, 28 patients underwent laparoscopic gastrectomy for gastric cancers. We performed a pure or total laparoscopic gastrectomy with intra-corporeal anastomoses for all patient. Without conversion, no operative mortality, no anastomotic complication such as leakage or stricture, no postoperative hemorrhage and no re-operation found in our series.

A female of 50 years old with gastric cancer, stage IIIb at mid body part, underwent TLTG with Roux En Y esophagoscope-J pouch jejunotomy with temporary feeding jejunostomy at January 04, 2011. Pathological diagnosis was "poorly differentiated adenocarcinoma, signet ring cell type, size approximately 7 cm in greatest dimension, tumor invades to serosa, presence of perineural invasion, presence of carcinoma at shaved distal (duodenal) margin, metastatic carcinoma in 6 out of 26 lymph nodes (6/26)". Adjuvant chemoradiation therapy was introduced. 6 months-interval surveillance with CT scan performed and neither local recurrence nor metastasis found until now.

Conclusion: For total gastrectomy which much more complicated than distal gastrectomy if operated with total laparoscopic surgery, we can performed with safe and satisfying outcome. Because of limitations of time we operated with total laparoscopic gastrectomy for cancer and low incidence of gastric cancer in Thailand, number of cases are not enough for statistical data.

Disclosure of Interest: None declared
PE252
CLINICAL IMPACT OF STOMACH-PARTITIONING GASTROJEJUNOSTOMY WITH BRAUN ENTEROENTEROSTOMY FOR PATIENTS WITH GASTRIC OUTLET OBSTRUCTION CAUSED BY UNRESECTABLE GASTRIC CANCER
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Introduction: Gastrojejunostomy is one of surgical palliative treatments in patients with gastric outlet obstruction (GOO) caused by unresectable gastric cancer. Postoperative clinical condition in these patients is a key issue for the early induction of chemotherapy. To date, we have performed stomach-partitioning gastrojejunostomy with Braun enteroenterostomy (SPGJ-BEE) in patients with GOO. The purpose of our study was to assess the clinical effectiveness and long-term outcome after SPGJ-BEE in patients with GOO.

Materials & Methods: We retrospectively reviewed data from 16 patients (11 men and 5 women; age range, 35–84 y; mean, 66 y) who underwent SPGJ-BEE for treatment of GOO between 2007 and 2015. Fourteen patients had primary gastric tumor with distant metastasis and two patients had locally advanced gastric tumor without distant metastasis. Ten had peritoneal dissemination, four had swollen para-aortic lymph nodes, and three had liver metastasis.

Results: One patient (6.3%) had wound infection as a postoperative complication. The mean time to first oral intake was 4.8 days. All patients received a first-line chemotherapy by oral S-1-based or capecitabine-based regimens and the mean time from surgery to the starting chemotherapy was 12.0 days. None of the patients had adverse events, such as re-obstruction of anastomosis and bleeding caused by tumor growth, from early to late follow-up durations. The median survival was 432 days.

Conclusion: Our data strongly suggest that SPGJ-BEE provides an improved quality of life and the early induction of the following chemotherapy associated with a better prognosis in patients with GOO.

Disclosure of Interest: None declared
Introduction: Osteoporosis after gastrectomy leads to poorer quality of life after surgery and is associated with a poor prognosis. In this study, we retrospectively investigated the prevalence of osteoporosis after gastrectomy in 200 patients with gastric cancer and prospectively evaluated the incidence and changes in bone mineral density (BMD) in 118 patients with gastric cancer.

Materials & Methods: We measured BMD of the lumbar vertebrae and femoral neck and collected data on age, sex, body weight loss (BWL), tumor stage, operation type, history of chemotherapy, and laboratory data including tartrate-resistant acid phosphatase 5b (TRACP5b). We then analyzed the correlation of these factors with the presence of osteoporosis and BMD levels.

Results: The prevalence of osteoporosis was 29.5%. Female sex (p<0.0001), age years 70 or greater (p=0.0014), and TRACP5b above the upper limit of normal (p=0.0178) showed significant correlation with osteoporosis. The incidence of osteoporosis at 1 year after operation was 5.0%; female sex (p=0.005) and chemotherapy (p=0.008) correlated significantly with the presence of osteoporosis. BMD levels in the lumbar vertebrae were significantly decreased in patients with BWL less than or equal to -10% (p=0.0003), chemotherapy (p=0.030), and TRACP5b at or above the upper limit of normal (p=0.0008) 1 year after surgery.

Conclusion: These results suggest that patients have a high risk of osteoporosis after gastrectomy. Female sex, older age, marked BWL, and chemotherapy are risk factors for post-operative osteoporosis. Careful management and early therapeutic intervention is warranted for patients with these conditions.


Disclosure of Interest: None declared
PE254
PROGNOSTIC VALUE OF LABORATORY DATA FOR DISEASE-FREE SURVIVAL IN RESECTED STAGE II AND III GASTRIC CANCER
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Introduction: Surgical resection is the standard treatment for gastric cancer (GC), and accurate prediction of postoperative recurrence risk is important to plan subsequent follow-up and treatment. Recent reports increasingly indicate that routine preoperative laboratory data may also have a prognostic role. The objective of this study was to investigate the relationship between routine preoperative laboratory data and disease-free survival (DFS) in stage II–III gastric cancer.

Materials & Methods: A total of 441 patients with Stage II (n=184) and III (n=257) GC who underwent R0 operation from January 2005 to December 2014 were included. Preoperative routine blood data including C-reactive protein (CRP), albumin, total bilirubin (TB), aspartate aminotransferase (AST), alanine aminotransferase (ALT), lactate dehydrogenase, estimated glomerular filtration rate, white blood cell count (WBC), neutrophil percent, lymphocyte count, red blood cell count, hemoglobin, mean corpuscular volume (MCV), red cell distribution width, platelet count, prothrombin time-INR (PT-INR), activated partial thromboplastin time, and fibrinogen, and age, sex, tumor location, tumor diameter, histological type, stage, and postoperative adjuvant chemotherapy (PAC) were analyzed to investigate the correlation with DFS by using univariate (Kaplan–Meier method and log-rank test) and multivariate analysis (Cox proportional hazard model).

Results: PAC was performed in 184 patients (41%) with Stage II GC and 257 patients (67%) with Stage III GC. Five-year DFS were 68% and 40% for patients with Stage II and III GC, respectively. Univariate analysis show that tumor location, stage, TB, AST, ALT, WBC, MCV, and PT-INR were significantly correlated with DFS. Multivariate analysis for DFS showed significant differences in tumor location, stage, TB, WBC, MCV, and PT-INR. The four laboratory factors including TB ≥ 1.2 mg/dL, WBC ≥ 9000×10⁶ L, MCV ≥ 80fl, and PT-INR ≥ 1.20 have relative risks for disease recurrence between 1.61 and 2.21. To develop a scoring system for DFS, laboratory prognostic score (LPS) was calculated by the sum of blood abnormalities among the four variables. The five-year DFS of patients with LPS 0, 1, 2, and 3-4 were 76%, 53%, 44% and 0%, respectively. The DFS of patients with Stage II or III GC was well stratified by the LPS.

Conclusion: Preoperative blood abnormalities including TB ≥ 1.2 mg/dL, WBC ≥ 9000×10⁶ L, MCV ≥ 80fl, and PT-INR ≥ 1.20 were independent prognostic factors for DFS in patients with Stage II or III GC.

Disclosure of Interest: None declared
LAPAROSCOPIC REDUCTION OF GASTRIC VOLVULUS, NISSEN FUNDOPICATION AND GASTROPEXY: A RARE CASE OF GASTRIC VOLVULUS

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Introduction: Gastric volvulus is a rare clinical condition that can be challenging to diagnose. If left untreated, it can lead to gastric outlet obstruction and possible stomach ischemia. We will be presenting a rare case of gastric volvulus and the surgical technique used to reduce the volvulus.

Materials & Methods: A 44-year-old gentleman presents with recurrent abdominal pain & bloatedness. A CT abdomen & pelvis was performed which demonstrated an organoaxial rotation of the stomach. This was also seen on gastroscopy and gastrograffin study. Patient underwent a laparoscopic reduction of gastric volvulus, nissen fundoplication and gastropexy.

Results: Intra-operative findings were of an organoaxial gastric volvulus, a large posterior redundant fundus, hiatus hernia and adhesion bands at the cardio-oesophageal junction. A Gastrisail was used to de-rotate the stomach and subsequently as a calibration tube. The adhesion bands were released and a floppy nissen fundoplication performed. The intra-abdominal oesophagus was then anchored to the crus of the diaphragm. The video will better illustrate the procedure performed.

Conclusion: The definitive surgical treatment is the de-rotation of the gastric volvulus with repair of the anatomic defect and a gastropexy as described above.

Disclosure of Interest: None declared
PE256
VITAMIN B12 REPLACEMENT THERAPY AFTER GASTRECTOMY - RETROSPECTIVE STUDY.

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Introduction: Postgastrectomy vitamin B12(VB) deficiency (VBD) is common metabolic sequel and worsens the quality of life of gastric cancer survivors. Recently, oral VB replacement is selected. Therefore, we investigated the efficacy of oral VB replacement for gastric cancer patients with VBD after TG.

Materials & Methods: We reviewed 31 patients (pts) with gastric cancer who underwent TG between 2000 and 2015. Pts were consisted of 26 males and 5 females and median age was 71 y/o (range: 52-81).

Results: Initial treatment of VB replacements were intramuscular VB injection for 14 pts and daily oral VB (PO) (3 tablets) for 17pts. One pts voluntarily abandoned replacement therapy and VBD was recurrent. Other 30 pts continued mecobalamin PO. 3 tablets was prescribed for 7 pts, 2 tablets for 14 pts, and 1 tablet for 9 pts. No VBD was in these 30 pts.

Conclusion: One tablet of VB replacement is maybe effective and necessary.

Disclosure of Interest: None declared
UTILITY OF INTRAPERITONEAL PACLITAXEL CHEMOTHERAPY FOR GASTRIC CANCER WITH PERITONEAL DISSEMINATION

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Introduction: Peritoneal dissemination is the most common recurrence pattern in advanced gastric cancer with serosal invasion. Quality of life of these patients is worse because peritoneal dissemination cause the abdominal retention with ascites and bowel obstruction. Phoenix-GC trial as phase III multicenter trial for the evaluation of the intravenous and intraperitoneal paclitaxel chemotherapy with S-1 for gastric cancer with peritoneal dissemination was reported. This chemotherapy with S-1 is expected as new treatment for disappear of peritoneal dissemination. We performed the treatment for gastric cancer patients with dissemination from 2008. The purpose of this study is to evaluate the prognosis and utility of gastrectomy after intraoperative chemotherapy. Forty-eight patients with advanced gastric cancer were enrolled in this study.

Materials & Methods: Peritoneal dissemination (P) was found in 41 patients, and cancer cells were found in 7 patients by intraoperative peritoneal lavage fluid cytology (CY). All patients were constructed the reservoir port for the infusion of paclitaxel under the skin. Intravenous and intraperitoneal paclitaxel chemotherapy with S-1 was performed in all cases until the patients were found progression disease.

Results: Peritoneal dissemination (P) was found in 41 patients, and cancer cells were found in 7 patients by intraoperative peritoneal lavage fluid cytology (CY). All patients were constructed the reservoir port for the infusion of paclitaxel under the skin. Intravenous and intraperitoneal paclitaxel chemotherapy with S-1 was performed in all cases until the patients were found progression disease.

Conclusion: S-1 + paclitaxel intraperitoneal combination chemotherapy is very useful treatment for advanced gastric cancer with peritoneal dissemination.

Disclosure of Interest: None declared
Introduction: It has been reported that circulating tumor cells (CTC) are beneficial for predicting tumor stage or treatment response. Although Epitherial cell adhesion molecule (EpCAM) or Cytokeratin were often used for identification of CTC, other markers for detecting CTC has not been fully investigated. Thus, this study aims to clarify the significance of Carcinoembryonic antigen (CEA, CD66e) positive CTC in patients with gastric cancer.

Materials & Methods: 40 patients with gastric cancer who underwent operation in our hospital were enrolled in this study. Mononuclear cells are enriched by Ficol density gradient centrifugation from 10ml peripheral blood. These cells were immunostained with CD45, EpCAM, and CEA. The number of cells was enumerated depending on the positivity of EpCAM, and CEA by FACS (fluorescence activated cell sorting). The association of these cell counts and clinicopathological characteristics were investigated. The predictive value for Stage IV was examined by ROC analyses and multivariate analysis.

Results: The median age of included patients was 68.5 (range 46-32). Male and female patients were, -- and --, respectively. Macroscopic type of gastric cancer was classified as 0/1/2/3/4/5 in 15/3/4/9/8/1 patients, respectively. As for histologic type, 18 patients (45.0%) were diagnosed as intestinal type, while 22 patients (55.0%) were diagnosed as diffuse type. The mean cell counts of EpCAM (-) CEA (+), EpCAM (+) CEA (-), EpCAM (+) CEA (+) were 231 (range: 0-61897), 1080 (range: 0-12190), and 7.8 (range: 0-95). AUC of ROC analysis using EpCAM, and CEA were 0.604 and 0.765. The number of EpCAM (-) CEA (+) cells were significantly higher in patients with T3-4 than patients with T1-2. The number of EpCAM (-) CEA (+) cells were significantly higher in patients with N1-3 than patients with N0. Multivariate analysis revealed that EpCAM (>840) and CEA (>416) were independent significant predictive factors for Stage IV.

Conclusion: CEA positive CTC may be beneficial for predicting distant metastasis, and one of the candidates to identify CTC in patients with gastric cancer.

Disclosure of Interest: None declared
Introduction: A large number of abdominal hernias require emergency surgery. However, these procedures are associated with poor prognosis and a higher rate of post-operative complications. Two most common abdominal hernias presenting in emergency are inguinal hernia and ventral hernia. Prosthetic repair has become the gold standard for elective management of all hernias; however, its use in the setting of acute incarceration is still limited for fear of prosthetic-related complications, mainly infection. There have been anecdotal references for the usage of autologous tissue grafts viz. tensor fascia lata in these situations. This is important especially in our setting where the cost of biological meshes is beyond reach for patients as majority belong to low socioeconomic strata and are not insured. We performed a prospective analysis of the outcomes of tensor fascia lata graft onlay repair in the management of incarcerated inguinal and incisional hernias.

Materials & Methods: N=25 patients who underwent emergency operations for incarceration of an abdominal hernia (n=20 inguinal, n=5 ventral) between August 2014 to October 2015 were analyzed. We devised a technique of using a free fascia lata patch to repair an inguinal/ventral hernia where the patch was used in as reinforcement.

Results: All inguinal hernias were indirect in nature. Bowel gangrene was noted in n=5 patients for which resection anastomosis was done. Mean operative time was 90 min and mean blood loss was 50 ml. n=2 patients developed postoperative wound complication which was managed conservatively and did not included removing of graft. Median hospital stay was 8 days and follow up time was 18.5 months.

In ventral hernia, the mean defect size was 124 cm², the mean operation time was 165 min, and the mean blood loss was 153 ml. Postoperative infection developed in one patient which was managed conservatively. The median postoperative hospital stay was 12 days and the median follow-up time was 14.1 months. The operative procedure was successful in all patients and there has been no evidence of recurrence.

Conclusion: Tensor fascia lata graft usage for the repair of incarcerated abdominal (inguinal/ventral) hernias appears to be safe and acceptable even in setting of high risk of infection.

Disclosure of Interest: None declared
Introduction: The gastrointestinal tract is the predominant site of extranodal lymphoma involvement. The mainstay of treatment is still chemotherapy and immunotherapy. This study seeks to review the indications and outcomes of patients with gastrointestinal lymphoma who require surgical resection.

Materials & Methods: A retrospective review was performed over a 7 year period from 2010 to 2016 for patients who underwent surgical resection for gastrointestinal lymphomas at a single centre. Their characteristics and outcomes were reviewed during their follow up with the institution.

Results: Our series include 17 patients and small bowel was the primary pathological site in 11 cases. 15 (88.2%) patients underwent emergency resections. 9 (52.9%) had viscus perforation, of which 2 were undergoing chemotherapy. 4 (23.5%) patients presented with intestinal obstruction, 2 (11.7%) presented with an abdominal mass, 1 (5.8%) presented with symptomatic anemia and another presented with chronic diarrhea. 11 (65.7%) had B-cell lymphoma, of which a majority (9/11, 81.2%) were Diffuse Large B-Cell Lymphomas. 10/17 (58.8%) had advanced disease with an Ann Arbor stage of ≥III. Most patients had a good performance status with 14 patients (82.3%) having an ECOG status of ≤1. Only 8 patients (47.1%) received chemotherapy after surgery. The mean hospitalisation length was 13.9 days (median 10 days). 2 patients (11.7%) died during their hospital stay after surgery. The median survival was 182 days which is poor compared to current available data of patients with gastrointestinal lymphoma who did not need surgical intervention. Causes of mortality include sepsis from perforation, neutropenic sepsis and advanced disease. Survivors of more than 3 years tend to have more limited disease.

Conclusion: Surgical treatment for gastrointestinal lymphoma is usually performed in the emergency setting with perforation being a significant cause. Outcomes for these patients are generally poor, despite most of them being initially fit enough for discharge after surgery. Extent of disease affects long term survival.

Disclosure of Interest: None declared
Introduction: Gastrointestinal stromal tumours (GISTs) are mesenchymal neoplasms originating in the gastrointestinal tract. The vast majority of GISTs (up to 70%) arise in the stomach, with 20–30% originating in the small intestine and the remainder 10% occurring in the oesophagus, colon and rectum. The clinical presentation is variable ranging from obstructive symptoms, vague abdominal pain, gastrointestinal bleeding to palpable mass. The malignant potential of GISTs varies, ranging from benign behavior to fatal sarcomas. Although surgery is the primary modality of treatment, almost half of the patients have disease recurrence following surgery. Use of Imatinib revolutionized the management of GISTs and it became the standard of care in metastatic GISTs due to its promising activity in decreasing postoperative recurrences and improving survival.

Materials & Methods: The authors report a case of small intestine GIST with extensive peritoneal metastatic disease.

Results: A 69-year-old woman presented to our hospital with a history of vague abdominal pain with one-week evolution and hematochezia in the past two days. Laboratory findings revealed anemia, leucocytosis and elevation of PCR. The patient had a history of endoscopic study two months before without changes. At the emergency department she underwent a CT scan that revealed multiple intra-abdominal collections and decided to perform an exploratory laparotomy. During surgery multiple nodular formations were identified throughout the abdominal cavity. One of them with 9x6x5 cm originated at the jejunum and with extensive central necrosis. She underwent a segmental enterectomy, appendectomy and excision of multiple peritoneal implants. Histopathological assessment revealed GIST, with 9 cm, comprising proliferative epithelioid cells, 12 mitoses per 50× high power field and peritoneal metastatic disease. Immunohistochemical examination showed positive staining for DOG1, CD117 and SMA, and negative staining for AE1/AE3, S100, CD45, desmin and CD34. These features were compatible with those of high grade GIST and the case was discussed in the oncologic multidisciplinary team meeting. The patient was referred to an oncology reference center.

Image:
Conclusion: GISTs should be considered as a differential diagnosis of gastrointestinal bleeding when endoscopic study is normal. Surgery and Imatinib improve survival of patients.

References:

Disclosure of Interest: None declared
Introduction: The recommended surgical treatment of hiatal hernia consists in the restoration of an intra-abdominal esophageal segment, approximation of the crura of the diaphragm and confection of a retro-esophageal valve, via laparoscopic approach. This study intended to analyze the outcomes of surgical treatment of hiatal hernia, in a population of patients submitted to surgical treatment.

Materials & Methods: This study included 70 patients who underwent surgery for hiatal hernia repair between January 2010 and December 2014. The mean B.M.I. was 27.7 Kg/m², and 70% of the patients were female. The most common clinical manifestations were pyrosis (75%) and epigastric pain (45%). The patients were evaluated with upper gastrointestinal endoscopy, upper gastrointestinal series, esophageal manometry and 24h-pH monitoring. The hiatal hernias were classified as sliding hiatus hernia (Type I) in 80% of cases, para-esophageal hernia (Type II) in 14% and mixed hernia (Type III) in 6%. The indications for surgical treatment were reflux esophagitis and poor response to medical treatment.

Results: In 91.4% of cases, laparoscopic repair with Nissen fundoplication was performed. In the early post-operative period, complications occurred in 5.4% of cases. During follow-up, it was observed an improvement of symptoms in 88.5% of cases (evaluated using Visick’s score), 17% of patients presented dysphagia and 5.7% of them undergo endoscopic balloon dilation. Hernia recurrence was documented in 6.6% of cases.

Conclusion: Type I hiatal hernia is the most frequent, and para-esophageal hernias are associated with increased morbi-mortality. Surgical treatment is an option in early stages of reflux esophagitis. Laparoscopic Nissen fundoplication, associated with hernia repair, division of the short gastric vessels and crurorrhaphy was the most performed procedure, with high success rates. Systematically looking for short esophagus is recommended and dysphagia remains the most frequent complication found during follow-up. Esophageal motility disorders did not constitute a risk factor for post-operative dysphagia.

Disclosure of Interest: None declared
A STUDY ON IMOHORI PRACTICE IN AFFECTING THE RATE OF LYMPH NODE SAMPLING AFTER OESOPHAGECTOMY FOR OESOPHAGEAL CANCER – A SINGLE CENTRE RETROSPECTIVE STUDY

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Introduction: The extent of nodal involvement in Oesophageal Cancer affects its prognosis significantly. The Japanese Imohori Practice (sending lymph node specimens according to their lymph node stations) may help improve the lymph node sampling rate and accuracy in nodal staging.

Materials & Methods: A single centered retrospective study. Lymph node sampling rate in oesophagectomy from 1/1/2013 to 31/12/2015 after the adoption of the Imohori Practice was compared to the cases from 1/1/2011 to 31/12/2012 before the adoption of the practice. Baseline characteristics (ref. figure 1) were compared to Presence vs Absence of Imohori using Binary Logistic Regression with confidence interval of 95% potential confounders. The total number of lymph node sampled from 2011 to 2012 and 2013 to 2015 were compared using Mann-Whitney-U Test.

Results: 42 patients were analyzed; 2011 – 2015: 4, 8, 10, 11 and 9 patients respectively/year. Majority of patients had open surgery, had a right sided approach to thoracotomy and had non-poorly differentiated cell type. 2 stage vs 3 stage and LN sampling > 15 patients were both approximately half. Slightly greater than half of patients received neoadjuvant ChemoRT. LN sampling > 15 was statistically significant. All other baseline characteristics showed no statistical significance after analysis (Figure 1). The total number of sampled lymph nodes were statistically significant after the adoption of Imohori Practice (p = <0.001) with the mean number from 11 to 21 and the median from 9 to 21; an approximate double in harvest (Figure 2). There were no other confounding factors as shown by the non-significance of the baseline characteristics. The significance of the LN sampling > 15 supports the statistically significant relationship of total LN sampling after adoption of the Imohori Practice.

<table>
<thead>
<tr>
<th>Baseline Characteristics</th>
<th>Significance (P Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laparoscopic vs Open</td>
<td>P = 0.114</td>
</tr>
<tr>
<td>Left vs Right approach of thoracotomy</td>
<td>P = 0.364</td>
</tr>
<tr>
<td>Presence vs Absence of Neoadjuvant ChemoRT</td>
<td>P = 0.231</td>
</tr>
<tr>
<td>2 Stage vs 3 Stage Oesophagectomy</td>
<td>P = 0.509</td>
</tr>
<tr>
<td>Poorly differentiated cell type vs Non-poorly differentiated cell type</td>
<td>P = 0.692</td>
</tr>
<tr>
<td>Lymph node sampling &gt; 15 vs Lymph node sampling &lt;= 15</td>
<td>P = 0.006</td>
</tr>
</tbody>
</table>

Figure 1

Conclusion: The practice of sending lymph nodes according to lymph node station groups can improve the lymph node sampling rate and in turn obtain more accurate staging of Oesophageal Cancer and its prognosis. This may have a better guide for post-operative adjuvant treatment in patients with Oesophageal Cancer.

Disclosure of Interest: None declared
OBTURATOR HERNIA - ONLY IN BOOKS?
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Introduction: The obturator hernia is a rare pathology, consisting of the entrance of pelvic or abdominal contents through the obturator foramen.

Materials & Methods: We present the case of an 85-year-old man who came to the emergency department with a history of nausea, vomiting, abdominal pain and constipation with 3 days of evolution.

Results: On admission the patient was stable and without fever, with distended abdomen, painful to palpation, with increased bowel sounds. Analytically with increased inflammatory parameters and abdominal radiography with small bowel air-fluid levels. Computed tomography revealed distension of small bowel, which indicates occlusion secondary to incarcerated obturator hernia.

We propose urgent surgery. The patient was submitted to an exploratory laparotomy, with confirmation of a right obturator hernia, containing small bowel loop with necrosis and perforation. We did an enterectomy, mechanical anastomosis and herniorraphy.

Conclusion: The obturator hernia is an uncommon type of hernia (0.1-1% of all hernias), with only 0.2 to 1.6% complicating with mechanical obstruction of the small bowel.

It is a challenging diagnosis, usually confirmed with an exploratory laparotomy. It is important to early recognise the need to operate, since the mortality rate is the highest among all hernias, approximately 13-40%.


Disclosure of Interest: None declared
Introduction: Pancreas preserving total duodenectomy (PPTD) is an alternative to pancreatoduodenectomy for selected disease of the duodenum. Herein, we reported a case of multiple duodenal diverticula complicated with perforation and bleeding which was treated successfully by PPTD.

Materials & Methods: A 78-year-old woman referred to our hospital with clinical findings of diffuse peritonitis. An abdominal CT demonstrated pneumoperitoneum and extravasation of contrast media from the duodenum. At laparotomy, perforated duodenal diverticulum was found and active bleeding was observed on inner wall of ruptured diverticulum. Other multiple diverticula were also observed in the entire duodenum. A cholecystectomy was performed and small catheter was inserted in bile duct through cystic duct to confirm the location of ampulla of Vater. After total duodenectomy with preservation of pancreas head, the openings of bile duct and pancreatic duct were identified and ductoplasty was performed. Internal stent was inserted to bile duct and pancreatic duct individually. The retrocolic ductojejunostomy was performed by end-to-side duct to mucosa interrupted suture. The jejunum was fixed to the intact head of the pancreas anteriorly and posteriorly by interrupted sutures. Billroth II gastrojejunostomy was performed as usual manner.

Results: Postoperatively, grade A pancreatic fistula was developed, however, the patient recovered without any other event with conservative treatment. On follow-up abdominal CT, there was no abnormal finding. The patient is well at the two-month follow-up without any symptom.

Conclusion: PPTD is an adequate treatment option for multiple duodenal pathology or injury

Disclosure of Interest: None declared
SYNCHRONIC CARCINOID TUMOR OF THE MESENTERY AND SMALL BOWEL
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Introduction: INTRODUCTION Synchronic carcinoid tumor of the mesentery and small bowel are not frequent gastrointestinal tumors; produces a distant metastasis when the size is longer than 2 cm. Usually debut with persistent abdominal pain, obstruction, or bleeding. However the ischemia it is also a manifestation of the tumor. We present a synchronic carcinoid tumor of the mesentery and small bowel, with hepatic metastases. The patient was attended in the General Area Hospital 3 of Mexican Institute of Social Security of Cancun City, Mexico.

Materials & Methods: MATERIALS AND METHODS a 56-year-old woman with hypothyroidism was assisted in the surgery department. She had a history of abdominal pain. Physical examination showed a palpable mass. Abdominal Tomography reported Mesenteric tumor surrounding the superior mesenteric artery. We performed exploratory laparotomy, the findings were a mesenteric tumor an extensive desmoplastic reaction, the adenomegaly is directed to superior mesenteric artery, and the small bowel involucrate have an evident ischemic aspect. We performed mesenteric and small bowel resection with hepatic biopsy.

Results: RESULTS Pathology report showed mesenteric tumor with retraction of intestinal segments and mesentery desmoplastic reaction. Low grade mesenteric carcinoid tumor of 4.5 cm. Segment of small bowel with low grade multicentric (10) carcinoid tumor extends to the muscular. None of tumors had per neural, lymphatic or vascular invasion. Hepatic biopsy was positive for carcinoid tumor.

Conclusion: CONCLUSION The preparatory study of any mesenteric mass with images studies it is essential, the knowledge intestinal vascularity was determinant to achieve the resection and conserved remnant vascularity and maintains sufficient arterial irrigation and venous drainage of remnant intestinal segment. The multicentric carcinoids tumors are associated in increased incidence of metastases. Mesenteric carcinoid tumors are considered to be secondary to metastases from a carcinoid tumor of the small bowel beyond the ligament of Treitz, in our case the mesentery tumor was synchronic. Carcinoid tumors are relatively rare neuroendocrine tumors comprising 2% of all
gastrointestinal tumors. In most cases the diagnostic is postoperative. The postoperative follow-up with scintigraphy with octreotide was positive. The patient receives therapy with octreotide depot injection.


Disclosure of Interest: None declared
Introduction: Accurate and early identification of Perforated Peptic Ulcer (PPU) patients with an increased risk of adverse outcome is needed to plan and target the level of perioperative monitoring and treatment. To provide optimal care, it is important to stratify patients into high and low risk categories ideally prior to surgery. The main aim is to compare the accuracy of various scoring systems (Boeys, PULP, ASA, MPI) in predicting morbidity and mortality in PPU patients.

Materials & Methods: This prospective observational study conducted at Bir hospital, NAMS, for a period of 16 months from October 2014 – January 2016. A total of 50 cases undergoing emergency surgery for PPU were included. Clinical presentations, scoring and surgical outcomes were analyzed. Receiver-operating characteristic curve analysis was used to compare predictive ability between Boey score, PULP score, ASA and MPI.

Results: Thirty days’ mortality was 18% while postoperative morbidity recorded in 64%. ROC curve analysis revealed Boey score AUC mortality prediction (0.802); morbidity (0.778), while PULP score AUC mortality (0.810); morbidity (0.829). Mortality prediction with Boey score was better than MPI and ASA. However, ASA predicted morbidity better (0.842). Patients with morbidity and mortality had statistically significant higher mean ± S.D value of Boey score and PULP score. All scoring and variable had better NPV for mortality while better PPV for morbidity prediction.

Conclusion: The Boey score and PULP score can be utilized as simple and precise predictor of postoperative mortality and morbidity in PPU patients.

Disclosure of Interest: None declared
SYSTEMATIC REVIEW OF PRESSURIZED INTRAPERITONEAL AEROSOL CHEMOTHERAPY FOR THE TREATMENT OF ADVANCED PERITONEAL CARCINOMATOSIS.

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Introduction: Pressurized Intraperitoneal Aerosol Chemotherapy (PIPAC) is a minimal invasive approach under investigation as novel treatment for patients with peritoneal carcinomatosis (PC) of various origins. The aim was to review the available evidence on mechanisms, clinical effects and risks.

Materials & Methods: Systematic review on pressurized intraperitoneal chemotherapy from January 2000 to October 2016. All kind of scientific reports were included.

Results: Twenty-nine relevant papers were identified, 15 were preclinical studies and 14 were clinical reports. Overall quality of clinical studies was modest, 5 papers were prospective studies and there was no randomized trial. Preclinical data suggest better distribution and higher tissue concentrations of chemotherapy agents in PIPAC compared to conventional intraperitoneal chemotherapy by lavage. Technical feasibility (laparoscopic access and repeatability) was 67-82%. Surgery-related complications occurred in up to 12%. Postoperative morbidity was low (CTCAE 3-5 events in 10-30%), and hospital stay was about 3 days. There was no negative impact on quality of life reported. Histological response rates for therapy-resistant carcinomatosis of ovarian, colorectal and gastric origin were 62-76%, 71-86%, and 70%, respectively.

Conclusion: The limited available data suggest that PIPAC is feasible, safe and well tolerated. Preliminary good response rates call for prospective analysis of oncological efficacy.

Disclosure of Interest: None declared
Surgical Treatment of a Large and Symptomatic Morgagni Hernia in an Adult

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Introduction: Diaphragmatic hernias (DH) arise from defects in the structure of the diaphragm, with passage of abdominal contents to the thorax. The acquired ones, usually, are related to trauma. The congenital result from errors in the formation and closing of the diaphragm. When anterior, retrosternal, from a defect of fusion of the anterior pleuroperitoneal membrane with the sternum and costal cartilages, they are known as Morgagni's hernias (MH). MH is the least common congenital DH, 2% of cases. Symptoms usually start in childhood but the majority of cases are incidentally diagnosed in adults, on chest radiographs. Elective surgical treatment is indicated even in asymptomatic patients, with the aim of avoiding complications such as incarceration and strangulation.

Materials & Methods: The authors present a case of a 70 yo female patient, no history of trauma, with complaints for more than 10 years: easy fatigue, some dyspnea, retrosternal and epigastric pain, constipation, abdominal distension and intestinal noises at precordium auscultation. The presence of colon in a retrosternal position has been confirmed by chest X-ray and CT, showing a retrosternal and right paracardiac opacity consistent with a bulging MH, the heart being pushed backwards.

Results: The patient was referred to our department for surgery. Because it was an old, bulky and probably incarcerated hernia, difficult to reduce, the hypothesis of a laparoscopic approach was abandoned. The intervention consisted of a wide subcostal laparotomy, which allowed to approach and reduce an incarcerated hernia comprising part of the stomach, transverse colon and omentum. To partially fill the large cavity, a flap of round and falciform ligaments was left. A primary repair of the hernia defect, without tension, was possible, with a non-resorbable monofilament. The patient was discharged on the 5th po day without complications. Asymptomatic ever since.

Conclusion: The diagnosis of this condition is difficult and often delayed due to unspecific symptoms. Contrast thorax CT is the most sensitive diagnostic method, demonstrating the extension and the content of the hernia. Elective surgical treatment is mandatory, even in asymptomatic patients, with the aim of avoiding complications such as incarceration and strangulation. The outcomes are usually good. The primary repair is usually possible, but mesh may be required in larger defects.


Disclosure of Interest: None declared
ACUTE INTESTINAL OBSTRUCTION: A CHALLENGING EMERGENCY CONDITION

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Introduction: Intestinal obstruction is one of the most common causes of acute abdomen, which usually demands emergency surgical management, otherwise can be proved lethal. The purpose of this study is to present the most common causes of intestinal obstruction, the diagnostic procedures and the surgical treatment.

Materials & Methods: A retrospective study in a group of patients, who presented in our Department with an admission diagnosis of intestinal obstruction, from 2008 to 2016, was carried out. The history, clinical, laboratory data, and imaging studies were analyzed in all patients.

Results: The study was conducted in a group of 533 patients with a mean age 71.2 years (272 male and 261 female). The most common symptoms were crampy abdominal pain, obstipation and vomiting. Diagnosis was confirmed by abdominal X-ray (86, 3%) and abdominal CT (82, 56%), which revealed the cause and site of occlusion. Among the patients, 262 (49, 16%) were finally operated, whereas the rest of them were treated conservatively. At surgery, the most common causes of obstruction were adhesions (59%), colorectal cancer (28 %), strangulated hernias (8 %) and volvulus (2.8 %). In 104 patients we performed a temporary colostomy or ileostomy, which was closed 3 to 4 months later. Morbidity rate was 21.5%, mainly due to anastomotic leak, or pneumonia. The overall perioperative mortality rate was 3.38 %.

Conclusion: Intestinal obstruction requires the surgeon’s meticulous attention, early diagnosis and prompt surgical treatment. A big proportion of patients require surgical management with an acceptable morbidity and mortality rate.

Disclosure of Interest: None declared
SAFETY AWARENESS OF ANGIOEMBOLISATION OF GASTRODUODENAL ARTERY FOR COMPLICATED BLEEDING DUODENAL ULCER

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Introduction: Bleeding peptic duodenal ulcer remains a life threatening condition and there is a trend to manage this with angioembolisation of gastroduodenal artery (GDA) after failure of endoscopic haemostasis or in recurrent bleed post-under-running of bleeding duodenal ulcer.

Materials & Methods: We described 2 cases of significant duodenal ulcer bleed that were managed initially by endoscopic haemostasis and surgical under-running of bleeding ulcer respectively followed by selective angioembolisation of GDA.

Results: Both cases were found to have erosion of the metal coils through the duodenal ulcers. One case subsequently developed a duodenal stricture which required surgical bypass after failure of endoscopic dilatation.

Conclusion: These cases illustrate the need for safety awareness with regard to angioembolisation in acute bleeding duodenal ulcer that failed endostasis or recurred after surgical haemostasis. The ongoing peptic disease process may necessitates further surgery.


Disclosure of Interest: None declared
PE272
INTESTINAL ANASTOMOSIS BEFORE OR AFTER HYPERTHERMIC INTRAPERITONEAL CHEMOTHERAPY IN CYTOREDUCTIVE SURGERY: DOES TIMING MATTER?
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Introduction: The goal of the study was to compare the rate of the anastomotic and other complications in patients undergoing cytoreductive surgery and hyperthermic intraperitoneal chemotherapy for peritoneal carcinomatosis (CRC/HIPEC) with intestinal anastomosis performed prior to perfusion compared to those with post-perfusion reconstruction.

Materials & Methods: A total of 51 patients underwent a bowel anastomosis and had perfusion during CRC/HIPEC from 2006-2016. Demographics, perioperative data, peritoneal cancer index (PCI), and complications were collected and analyzed to compare: pre- (preP) and post-perfusion (postP) using chi-square test, and independent t-test.

Results: Ten of 51 patients (20%) had anastomosis performed pre-perfusion and 41 (80%) post-perfusion. The mean age was 51.7 ± 13, and 63% percent were male. The majority of patients (79%) achieved complete cytoreduction (CC0-1). Tumor types included appendiceal (46%), colorectal (34%), and others (20%). There was no difference in preexisting comorbid conditions or total PCI score between two groups (p>0.05). Both groups had comparable pre-op albumin, PCI, estimated blood loss, duration of surgery, transfusion requirements, and intraoperative glucose levels (p>0.05). There was no significant difference in perioperative morbidity between the two groups. There were no enterocutaneous fistulas in either group. Three (30%) patients in preP group had a prolonged ileus compared to the 15 (37%) in the postP group. Two (20%) patients had intra-abdominal abscess that required percutaneous drain placement in the preP group compared to the 12 (29%) in the postP group (p=0.929). Of those, in 5 patients it was associated with possible small anastomotic leak. A total of seven patients required a return to OR (10 vs. 15%, respectively in preP and postP groups, p=0.061).

Conclusion: These data suggest that the timing of gastrointestinal tract reconstruction with respect to the timing of perfusion results in similar perioperative morbidity.

Disclosure of Interest: None declared
INTRODUCTION: Introduction: Sometime colon interposition is indicated for reconstruction of the upper digestive transit due to benign or malignant causes when stomach is not available due to severe damage of esophagus and stomach or due to postoperative complications after esophagectomy. Objective: to show the causes, evaluate postoperative morbidity-mortality, late complications and quality of life after colon interposition.

MATERIALS & METHODS: Material and method: 44 patients are included in this retrospective study, who were submitted to right colon interposition. Excel 2011 and Stata 10SE of clinical records was done for data revision and registration. Esophago-ileo colic anastomosis is always used, 1 on them with blood supplied augmentation with microvascular anastomosis to cervical vessels.

RESULTS: Results: Indications: failed gastric ascensus after esophagectomy (n=12), caustic ingestion (n=11), esophagogastric junction cancer (n=9), esophageal perforation (n=8) and esophageal stricture (n=4). Surgical complications (n=27) 61.3%, Reoperations (n=13) 29.5%, Mortality (n=3) 6.8%. Postoperative pneumonia was observed in 5 patients. Late complications: stricture of esophago-ileo-colic anastomosis in 15.9% (n=7), 6 of them submitted to endoscopic dilatations and 1 patient submitted to stricturoplasty by cervical approach, diarrhea in 18.1% (n=8), treated with dietary indications and medical therapy, redundant colon 2.3% (1 patient) who was reoperated. Quality of life: 93.2% recovered normal oral ingestion, 6 patients submitted to periodic endoscopic dilatation, 2 reoperated (1 stricturoplasty, 1 to reduce redundant colon). All patients are mostly satisfied of his life after surgery (QOLS = 5).

CONCLUSION: Conclusions: colon interposition is a very challenging procedure when must be done due to severe diseases or postoperative complications with high rate of morbimortality.


DISCLOSURE OF INTEREST: None declared
PE274
EXPERIENCE OF HYDATID DISEASE OF LIVER AT A TERTIARY CARE CENTER
7 YEARS EXPERIENCE

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Introduction:
BACKGROUND:
Hydatid disease caused by Echinococcus Granulosus affects liver in 70-90% of cases. Dogs are the definitive host while humans are the accidental host. Modalities used for its treatment are especially important for our population as the disease is endemic in many Asian countries. The aim of the study was to perform an audit of the various modalities used for treatment of hydatid disease of liver and the response to each modality in tertiary care center of Pakistan.

Materials & Methods: MATERIALS AND METHODS:
Retrospective audit of patients diagnosed and treated for Hydatid disease of the liver at Aga Khan University Hospital from 1st January 2007 to 31st December 2014 was completed. All patients aged 16 and above were included. Patients who had extra hepatic disease and missing records were excluded. Outcome measures were morbidity, mortality and recurrence of the disease.

Results: RESULTS:
During the study period 56 patients were treated for isolated hepatic hydatid disease and were included. Mean age was 39 years with 48% being females and 52% males. Most common presenting complaint was abdominal pain seen in 53% of patients (n=41). Duration of symptoms was less than 6 months in 74% (n=38). Mostly right lobe was involved in 69% (n=38). Most common treatment modality used was surgery in 34 patients followed by PAIR in 14 patients while 8 patients were treated medically. At a median follow up of 34 months recurrence was seen in 2 patients treated with PAIR while no patient treated with surgery had recurrence with the median follow up of 20 months. While no morbidity and mortality were observed in PAIR, but in surgery 5 patients had morbidity while 1 patient had mortality.

Conclusion: CONCLUSION:
Our data is comparative to other studies in terms of morbidity, mortality, and recurrence. We had adequate follow up. In our study PAIR and surgery both are effective and have less complications and recurrence rate. Surgery is still the gold standard in terms of recurrence.

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PE275
LAPAROSCOPIC REPAIR AND PRIMARY CLOSURE: A SAFE APPROACH TO MORGAGNI HERNIA IN THE ADULT.
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Introduction: Morgagni hernias are a rare type of congenital hernia caused by defects in the anterior diaphragm (~3% of diaphragmatic hernias) (1). Because of their small size they usually are diagnosed late in the adult life with obstruction and incarceration are unusual (2).

Materials & Methods: Male, 81 years old with a personal history of high blood pressure, chronic kidney disease, Parkinson's disease, obesity and Morgagni hernia diagnosed in 2007, presented to the ER with a three day history of abdominal pain, bloating, nausea and vomiting. He also referred dyspnea and productive cough. The patient refused surgical correction of the hernia several times in the past. He was hemodynamically stable with normal temperature. Blood tests showed mild leukocytosis, high creatinine and high CRP. Physical exam showed a tender abdomen, with no palpable masses. On further workup, thoracic CT scan was performed and revealed part of the colon, omentum, and stomach herniated into the thoracic cavity (image 1 and image 2). The patient agreed with a laparoscopic surgery.

Results: After accessing the abdominal cavity we observed a voluminous diaphragmatic hernia containing stomach, small bowel, transverse colon and epiplon. The hernia was reduced after verifying a normal organ perfusion and the diaphragmatic defect was closed with separated stitches with vicryl (image 3). The hernia sac was not excised. The patient had a very good recovery post-op, and was discharged after 3 days, with a normal diet, and normal bowel function. One month after the surgery the patient was asymptomatic with no signs of relapse.

Image:

Conclusion: The surgical approach to Morgagni hernias has been already extensively reported in the literature, although there is no gold-standard method for the surgical approach of these patients. In this particular patient we opted for a laparoscopic approach with interrupted suture of the anterior diaphragmatic defect. This option seem valid in the emergency setting when the surgeon is at ease with laparoscopy and intracorporeal suturing.

References:

Disclosure of Interest: None declared
Introduction: Cystic abdominal tumours are diagnoses most often because of the ready available imaging techniques (1). The presentation as giant abdominal cysts is therefor rarer, because of the early diagnosis and intervention (1)(2).

Materials & Methods: A 61 year old female, with a past medical history of rheumatoid arthritis under methotrexate treatment presented with a history of increase in abdominal girth during the previous year associated with a in, bloating and early satiety. She referred episodes of vomiting in the previous week and long-term obstipation. She assumed that the abdomen distention was age-related. Abdominal ultrasound and computed tomography of the abdomen revealed the presence of a very large quistic capsulated mass with unknown etiology (Figure 1a and 1b).

Results: Exploratory laparotomy revealed a large mass with liquid content arising from the adnexa or mesentery. Careful blunt dissection allowed the removal of the intact cyst with a smooth capsule, measuring 45x30cm and weighing approximately 5Kg (Figure 2 and Figure 3). The pathology lab analysis revealed a simple cyst encapsulated with fibrous connective tissue, with no ovarian parenchyma represented. The capsule was lined with simple ciliated tubar tissue and no cellular atypia. There were no signs of malignancy. The patient had a good recovery and was discharged 4 days after surgery.

Conclusion: In patients with an history of increased abdominal girth the diagnosis of abdominal cyst must be considered. Ultrasonography in an early approach is essential to the exclusion of differential diagnosis.


Disclosure of Interest: None declared
Introduction: Minimally invasive approaches show increased benefits in patients demanding colorectal surgery. We aim to evaluate the effect of the learning curve in the efficacy of laparoscopic surgery, realized in patients suffering from either benign or malignant colorectal diseases that were treated in our Center.

Materials & Methods: We collected data from patients treated with laparoscopic colorectal surgery during the period 2004-2016, and assessed the results in terms of conversion to open technique, complications, morbidity, and length of stay. Comparison of these results in terms of surgeons’ experience was also carried out.

Results: 580 laparoscopic procedures have been realized in this period. Major complications were present in 2.46% of cases, while minor in 3.79%, with total morbidity rate being 7.87%. Ten cases (1.7%) presented anastomotic leakage and one presented torsion (0.17%). One pouch necrosis (0.17%), as well as proximal anastomosis necrosis in two cases (0.34%) due to ischemia were observed. Three cases with ureteral injury were included (0.52%), the first treated intra-operatively, the second during a reoperation, while the third one though pigtail placement. Conversion to open surgery was necessary in only 8 cases (1.37%), with the majority of them occurring during the first years. Splenic bleeding, that required conversion, was noticed in two cases (0.34%). One patient presented postoperative acute pancreatitis (0.17%), treated conservatively. In two patients, port-site recurrence was present on 24-month follow-up control (0.34%). Two deaths were observed (0.34%), one due to respiratory failure, and the other after presenting sepsis with neutropenia. Mean length of stay was 4 days (range 2-5). Feeding and rehabilitation were immediate. Postoperatively, the patients took antibiotic and anti-inflammatory treatment for three days. Analyzing this 13-year-experience, we noticed a significant reduction on conversion to open surgery, intra-operative time and length of stay. After the first five years, complication rate was reduced from 9.6% to 4.7%, whereas this rate is even lower (<0.8%) in the last years.

Conclusion: Our experience revealed that laparoscopic surgery for colorectal diseases is safe and feasible, with increased efficacy, depending on the surgeon’s experience. Prospective randomized trials are needed for further evaluation.

Disclosure of Interest: None declared
Introduction: According to the conventional surgical wisdom acute appendicitis should be managed surgically. Here we present a case series where acute appendicitis was successfully managed with antibiotics.

Materials & Methods: Ongoing case series at Base Hospital Rikillagaskada, Sri Lanka from September 2016. All patients presenting with acute appendicitis between 7 years to 70 years of age were included. Diagnosis is made clinically and if there were features of localised or generalised peritonitis, generalised sepsis or appendicular abscess, operative management was done. All others were given 72 hours of intravenous antibiotics under close monitoring, followed by 5 days of oral antibiotics.

Results: 11 patients were managed (7 males and 4 females) with a mean follow up of 2.5 months up to January 2017. One patient underwent appendicectomy at presentation due to localised peritonitis. 10 patients were managed conservatively. 9 out of 10 (90%) was successful. One patient underwent appendicectomy due to continued pain at one week irrespective of normalised blood markers.

Conclusion: Conservative management of acute appendicitis with antibiotics and close monitoring is a viable option.

Disclosure of Interest: None declared
INCIDENCE AND RISK FACTOR OF INCISIONAL HERNIA IN LAPAROSCOPIC GASTROINTESTINAL CANCER SURGERY

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Introduction: Incisional hernia (IH) is one of the most common postoperative complications. Incidence and risk factor of IH in laparoscopic surgery is not clear. This study aimed to evaluate the rate of IH after laparoscopic surgery and to assess the impact of perioperative factors on the risk of IH. Among perioperative factors, we especially focused about small incision for specimen extracted.

Materials & Methods: Patients who underwent laparoscopic gastrointestinal surgery between January 2011 and December 2014 were examined. A total of 578 patients were analyzed. (261 patients of gastric cancer and 311 patients of colorectal cancer)

We usually use new incision or extended port sight in order to extract specimens. In our institution, the small incision was classified into 4 positions; epigastrium horizontal incision at left upper quadrant(LUQ), epigastrium median incision, umbilical incision, and hypogastrum median incision. There were no specific rules to choose the position of a small incision.

IH was diagnosed by physical and imaging examinations including Computed Tomography and ultrasonography retrospectively from the clinical records.

Results: Incidence rate of IH was 9.2%, 52cases. The rates of IH were 1.52% in gastric cancer, 12.3% in colon cancer, and 22.3% in rectal cancer, respectively.

If we focused about the site of a small incision, 0% of epigastrium horizontal incision of LUQ, 2.2% of epigastrium median incision, umbilical incision, and hypogastrum median incision was developed with IH, respectively.

In the multivariable Cox regression analysis, female (hazard ratio (HR) 2.01, 95 percent confidence interval 1.07-3.83), low level of serum albumin or total protein (HR 2.64, 1.15-5.79), wound length over 5cm (HR 2.70, 1.41-5.18), extraction site under umbilical (HR 10.43, 4.48-28.7) had become a independent risk factor for IH. Especially, strong correlation between extraction site and risk of IH was suggested.

We performed subgroup analysis only to colorectal cancer. Incidence rates of IH were 4% in the epigastrium incision, 12.4% in the umbilical incision, and 18.1% in umbilical incision, respectively. As well as the whole of the analysis, incidence of hernia in hypogastrum incision is significantly increased. IH not only occurred in disease-specific, but also the site of small incision and hernia incidence were strongly related.

Conclusion: The site of small incision for specimen extracted is the primary risk factor of hernia.

Disclosure of Interest: None declared
Introduction:
Snake venom toxins affecting haemostasis may exert their effects by secreting:
- coagulant (the thrombin-like enzymes and prothrombin activating toxins)
- anticoagulant (toxins activating Protein C etc.)
- platelet-activating and anti-platelet factors (including the disintegrins)
- fibrinolytic activators
- haemorrhagins

Materials & Methods: We present a case report of a teenage boy who had a history of snake bite 10 days ago and he presented with signs of abdominal distension and was diagnosed as psoas abscess on ultrasound abdomen in Emergency department. On Ct abdomen there was collection in right iliac fossa and laparotomy was done to evacuate the blood and pack the area. Packs were removed after 72 hours and coagulopathies were corrected.

Results: After correction of coagulopathy the drain kept pouring blood for 8 days after which it was removed. The patient was discharged after 16 days in the hospital.

Conclusion: The surgical options of managing hemoperitoneum are Packing/ embolisation of bleeding vessels and Resection of hemorrhagic/ischemic viscera

References:

Disclosure of Interest: None declared
Introduction: Schwannomas are generally benign, slow growing tumors, which can originate from any nerve that has a Schwann cell sheath. Digestive tract schwannomas are rare and are usually asymptomatic.

Materials & Methods: We present the case of a woman with a symptomatic submucosal tumour of the great curvature. The patient underwent partial gastrectomy and the histological and immunohistochemical findings of the resected specimen established the diagnosis of schwannoma.

Results: A 84-year-old woman with a history of a epigastric pain and dysphagia. He performed a endoscopy showed a subepithelial lesion of about 30mm located in the great curvature. For clarification he did a ultrasonography, that showed a heterogeneous lesion was confirmed, in the great curvature / posterior wall of the distal body, extending over the tunica muscularis. The biopsy was inconclusive. A computed tomography showed a exophytic lesion on the posterior slope of the gastric body suggestive of gastric GIST. During the study the patient was admitted to the emergency room with hematemesis and given the hemodynamic instability was proposed for laparotomy. Was submitted to atypical gastrectomy. Histology revealed to be a schwannoma nerve sheaths, with low mitotic index and no tumor necrosis. Immunohistochemically the tumor was S-100 protein, CD56 and Vimentin positive but CD 117, CD 34, β-catenin, SMA, synaptophysin, chromogranin and desmin were negative. The postoperative period was uneventful and the patient was discharged on the 6th postoperative day in good condition. The one year-follow up was unremarkable.

Conclusion: Gastrointestinal schwannomas are biologically benign and patients have an excellent prognosis after their surgical recession. Malignant schwannomas are very rare, as only 8 cases have been reported in the literature till now.


Disclosure of Interest: None declared
Pe282
Irreducible indirect inguinal hernia containing omental lipoma: A case report and a review of literature

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Introduction: Primary omental lipoma represents an extremely rare clinical entity. Only 19 cases have been reported since 1963 to 2016 from the diverse countries worldwide. However, there has been no case in the literature of omental lipoma presented with irreducible indirect inguinal hernia. We report a case of omental lipoma with a literature review.

Materials & Methods: An 81-year-old female presented with a history of nausea and a left groin bulging accompanied by pain. She had been complaining of an occasional left groin bulging for the past 3 years. As the CT density in the irreducible hernia sac was similar to that of the bowel contents, we performed an emergency operation as a preoperative diagnosis of inguinal hernia incarcerated with bowel. However, as a tumor mass originating from the greater omentum was found in a hernia sac, we removed the mass together with the greater omentum, and repaired the indirect inguinal hernia by the method of iliopubic-tract repair.

Results: The cut surface of the encapsulated tumor was multilobular and demonstrated light-yellowish color. The mass was measured 5.5×4.5×2.5 cm in size, and the histopathological diagnosis of lipoma with focal necrosis, hemorrhage and congestion due to the incarceration was obtained. Immunohistochemical study revealed negative for CDK4 and MDM2, both are markers for well-differentiated liposarcoma. No recurrence has been noticed in the 4-year follow-up.

Conclusion: We have experienced an extremely rare case of primary omental lipoma. In the literature review, about half of the reported cases were those of children presented with a symptomless huge abdominal mass, while another half of the patients were those of adults with a relatively smaller mass concomitantly found with another symptomatic diseases or incidentally by the imaging diagnosis only. No preponderance of gender has been noted so far. This is the first report of a primary lipoma of the greater omentum presented with an incarcerated indirect inguinal hernia.

References:

Disclosure of Interest: None declared
Comparing Ticlosan Coated Suture with Intravenous Antibiotics in Preventing Surgical Site Infection Following Mesh Repair of Inguinal Hernia: A Preliminary Report

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Introduction: The role of antibiotics in the mesh repair of inguinal hernia is controversial. The decision to administer antibiotics is in many instances guided by institutional policies. Surgical site infection rates from previous studies in Nigeria justify the continued use of prophylactic antibiotics during hernia repair in our setting. With increased use of antibiotics comes the challenges of antibiotic resistance and toxicity. The use of antimicrobial coated sutures which has been shown to be effective in reducing surgical site infection with less risk of antibiotic resistance and systemic toxicity is being compared with intravenous antibiotics for the repair of inguinal hernia with mesh in this study.

Materials & Methods: Consecutive consenting patients with uncomplicated inguinal hernia scheduled for mesh repair were randomized to either have intravenous antibiotics administered for prophylaxis or to have the subcutaneous layer of the wound closed with Ticlosan coated vicryl 2/0 suture. All hernias were done as day cases and were serially followed up in the out-patient department. During each visit wounds were assessed for the presence of surgical site infection by a blinded reviewer using the Southampton wound grading system. Wound infection rates were compared between the two groups.

Results: We studied 32 patients with 40 hernias whose ages ranged from 25 to 80 years with a mean age of 53 years. The majority were males (93.8%), with a median duration of hernia symptom of 36 months. Hernias were solitary in 75% of cases, the majority of which were right sided, while 25% were bilateral. There were 18 patients in the Intravenous antibiotic group (Group A) and 14 patients with 18 hernias in the group that had Ticlosan suture (Group B). Two patients in each group (9% versus 11.1%, p=0.83) had surgical site infection. All of these were of the superficial type which resolved with wound dressing.

Conclusion: Conclusion Ticlosan coated suture is as effective as intravenous antibiotics in preventing wound infection following mesh repair of inguinal hernia and may serve as a viable alternative to its use.

Disclosure of Interest: None declared
Introduction: Laparoscopic intestinal anastomosis currently asks for a significant surgical learning curve. The aim of this study was to compare the impact of using two-dimensional (2D) versus three-dimensional (3D) imaging to perform latero-lateral intestinal anastomosis in the rabbit model.

Materials & Methods: Sixteen participants from pediatric surgery were enrolled (11 specialists, 5 residents). We collected information regarding training in pediatric surgery (residents vs specialists) as well as previous laparoscopic experience (<30 vs >30 laparoscopies/year). We consider experts as specialists having more than 30 laparoscopies/year. To all them, an initial training was allowed in a simulator. Then, in a random sequence, they performed a latero-lateral intestinal anastomosis using both 2D and 3D imaging in the rabbit model. For each task, a blind assessment of the procedure was carried out using the Operative Structured Assessment of Technical Skills (OSATS), which includes a task-specific checklist (TSC) and a Global Rating Scale (GRS). Time to complete each procedure was recorded. At the end, the animal was sacrificed and leakage rate of the anastomosis was examined using methylene blue.

Results: Results are presented as mean±standard error of mean. Overall, surgical times weren’t significantly different in 2D vs 3D (47±3 vs 42±3 minutes, respectively). This parameter was not influenced by previous experience in laparoscopy. Regarding OSATS, TSC was significantly different in 2D vs 3D (7.3±0.8 vs 9.1±0.7, respectively; p=0.015), similarly GRS was also significantly different in 2D vs 3D (32.9±1.5 vs 35.1±1.4, respectively; p=0.012). Interestingly, experts only kept significant impact of using 3D in GRS (2D vs 3D: 39±2.5 vs 40.6±2; p=0.034), whereas non-experts got significant impact of using 3D in both TSC (2D vs 3D: 6.2±0.8 vs 8.5±0.8; p=0.028) and GRS (2D vs 3D: 30.2±1.3 vs 32.6±1.3; p=0.042). Overall, the leakage rate of the anastomosis was not significantly different in 2D vs 3D (31.3% vs 28.1%, respectively). However, leakage rate was lower in 3D only in non-experts group (2D vs 3D: 36.4% vs 27.3%).

Conclusion: 3D laparoscopy seems to have better results than 2D laparoscopy, especially benefiting the non-experts.

References:

Disclosure of Interest: None declared
ABDOMINAL DAMAGE CONTROL SURGERY: STAGED PROCEDURE FOR CRITICALLY ILL PATIENTS WITH ABDOMINAL SEPSIS

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Introduction: Patients with abdominal sepsis due to intestinal ischemia or perforation frequently undergo discontinuity resection with a high permanent ostomy rate. The aim of this study was to evaluate a 2-stage approach aiming to increase the rate of deferred primary anastomosis.

Materials & Methods: Staged procedure was defined as damage control with resection of the infectious source leaving the bowel disconnected and followed by a planned second look ≥24 hours during daytime. The decision criteria to enter staged procedure were abdominal sepsis with preoperative noradrenaline >10μg/min, intraoperative pH <7.2, base excess (BE) >-6 and/or lactate >5mmol/l. If all 4 criteria were absent, direct anastomosis was proposed.

Results: Since April 2016 staged procedure approach was used for all patients with abdominal sepsis, including 25 patients (56% women, median age 69 yrs (range 22-90)). Sources of abdominal sepsis were intestinal ischemia/necrosis (15 pts), perforation (7 pts) and anastomotic leak (3 pts). Mean operating time for damage control was 83 minutes (±36). Abdominal VAC was placed in 24 patients (96%). 19 patients had intraoperative noradrenaline requirements ranging from 3-80μg/min. Intraoperative blood gaz analysis revealed mean pH of 7.27 (±0.14), BE -5.3 (±6.1) and lactate 3.7mmol/l (±3.7). Two patients fulfilled all 4 inclusion criteria, 2 patients fulfilled 3 criteria, 5 patients fulfilled 2 criteria and 5 patients fulfilled 1 criterion. Eleven patients did not meet any inclusion criteria, but were included due to intraperitoneal soiling (6 pts), mesenteric ischemia of unclear extent (4 pts) and polytrauma (1 patient). Discontinuity resections were performed in 24/25 patients. Planned second look was performed after a mean of 44 hours (±14) with anastomosis in 14/24 patients, stoma formation in 4/24 patients and additional staged procedure in 4/24 patients, all of them had anastomosis during further operations. Two patients died before reconstruction. The overall stoma rate was 18% (4/22). Stoma rate was independent of the number of fulfilled inclusion criteria.

Conclusion: Staged procedure in abdominal sepsis is a novel treatment approach that allows management adapted to the septic condition of the patient. This approach is feasible and can lead to a low permanent ostomy rate.

Disclosure of Interest: None declared
Introduction: Incisional hernias (IH) are iatrogenic abdominal wall defects that occur in 7.4% - 60.0% of patients, with 50.0% detected within a year of operation [1]. Recent evidence suggests laparoscopic repair as a promising alternative to open repair [2]. Our study aims to compare the postoperative outcomes between laparoscopic and open IH repair in an Asian population.

Materials & Methods: A retrospective study was conducted in an acute and general hospital in Singapore. Patients who underwent IH repair between the period of 2010-2015 were included. Subjects' demographics, operative details and postoperative outcomes were collected from the hospital's electronic system. Postoperative outcomes within a year such as recurrence, pain, infection, hematoma, seroma formation and reoperation were analysed with SPSS software.

Results: There were 221 eligible subjects. Mean age was 62.4 (62.4 ± 13.8) years old and majority were females (73.8%) and Chinese (57.1%). Average BMI was 27.5 kg/m². Most common initial operations were gynecological related (29.2%), followed by colonic (16.8%) and exploratory laparotomies (14.6%).

Open IH repair was performed in 56.6% of subjects while 43.4% underwent laparoscopic repair. Mean operation time was 123.5 minutes (123.5 ± 62.4) and 136.0 minutes (136 ± 64.1) (p =0.563) respectively. Mean hernia size defect in open repair group was 53.4 cm² as compared to 55.2 cm² in laparoscopic repair group (p=0.913).

Within a year post open repair, 11.3% of subjects had postoperative wound infection as compared to 1.0% with laparoscopic repair (p=0.030). Laparoscopic repair of IH was significantly associated with lower rate of postoperative wound infection as compared to open repair (OR = 0.083, CI 0.11- 0.646), (p=0.003). Recurrence was seen in 10.9% of open repairs versus 11.3% of laparoscopic repairs (p=0.474). Postoperative pain occurred in 2.3% of subjects with open repair versus laparoscopic repair, 6.2% (p=0.142. There were 3.1% of subjects with hematomas/seromas post open repair as compared to 4.1% with laparoscopic repair (p=0.680). Reoperation rates were 2.3% in open repair versus 1.0% in laparoscopic repair (p=0.465).

Conclusion: Laparoscopic incisional hernia repair was associated with lower risk of infection as compared to open repair. There were no significant differences in operation time, recurrence, pain, hematoma, seroma formation and reoperation rates between the two techniques.


Disclosure of Interest: None declared
PERITONEAL SURFACE CALCULATOR (PESUCA): THE PERITONEAL SURFACE AREA DOES NOT CORRELATE WITH THE BODY SURFACE AREA IN PATIENTS UNDERGOING CYTOREDUCTIVE SURGERY

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Introduction: Prior to the use of cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC), peritoneal surface malignancies were regarded uniformly as a fatal condition. An important, controversial area of discussion has been the calculation of the intraperitoneal chemotherapy dosage. In most institutions drug dose is calculated based on the body surface area (BSA) mirroring the system used to calculate systemic chemotherapy regimens [mg/m²]. These regimens take BSA as a measure for the effective contact area, which is equal to peritoneal surface area (PSA) in the Dedrick formula. The aim of our project is to provide an online software solution that is able to quantify the peritoneal surface area before and after CRS in 40 different peritoneal regions.

Materials & Methods: The peritoneal surface area of 38 consecutive patients undergoing 40 CRS and HIPEC procedures was calculated before and after CRS with a novel proprietary peritoneal surface calculator software (PESUCA). The peritoneal surface was divided based on visceral and parietal location, in addition to a supramesocolic and inframesocolic location which overall, generated 40 different peritoneal regions. Differences between calculations before and after CRS were estimated with the two sample t-test. P values < 0.05 were considered statistically significant.

Results: The body surface area for the 38 patients (40 procedures) with peritoneal surface malignancies (colorectal n=18, gastric n=7, ovarian n=6, mesothelioma n=5, and others n=4) was calculated with the Dubois formula: mean 18720 cm² ± 1924. Automated calculation of the peritoneal surface area (cm²) before CRS using our novel PESUCA software revealed a mean of 18590 ± 1917 compared to 13482 ± 2832 after CRS (P < 0.0001). Regional analysis revealed the following changes in mean PSA: supramesocolic visceral peritoneum (3457 ± 356 vs. 2813 ± 537: P < 0.001), supramesocolic parietal peritoneum (2376 ± 244 vs. 1504 ± 953: P < 0.001), inframesocolic visceral peritoneum (11266 ± 1162 vs. 8540 ± 1915: P < 0.001), and inframesocolic parietal peritoneum (1491 ± 154 vs. 626 ± 520: P < 0.0001).

Conclusion: We hereby present, to the best of our knowledge, the first tool to calculate the peritoneal surface area in patients after cytoreductive surgery. Moreover, our software provides the possibility of quantifying the imperfect correlation between actual peritoneal surface area and calculated body surface area of patients undergoing cytoreductive surgery.

Disclosure of Interest: None declared
LAPAROSCOPIC MANAGEMENT OF ACUTE SMALL BOWEL OBSTRUCTION

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Introduction: Indications for laparoscopic approach in the treatment of acute small bowel obstruction (ASBO) still are not defined well and strong evidence is lacking to confirm successful outcomes.

Materials & Methods: In retrospective study conducted in time period 2011-2015 were analyzed 136 patients with acute SBO: 90 patients (OPEN group) underwent open surgery, 46 patients initially were managed laparoscopically (LAP group). Cases of conversion to open surgery were analyzed within LAP group. Both groups were compared by age, etiology of bowel obstruction, operation length, complications and postoperative outcomes.

Results: Significant difference in median age of patients was found: 49 years in LAP group, 61 year in OPEN group (p=0,003). Complete laparoscopic treatment was performed in 76% of patients. Laparoscopy diagnosed the site of obstruction in 85% of patients. Both groups were statistically comparable by etiology: internal incarceration 48% in LAP group vs 52% in OPEN group, multiple adhesions 39% (LAP) vs 34% (OPEN), other findings 13% (LAP) vs 13% (OPEN) (p>0,05). Conversion to laparotomy was performed in 24% of cases mostly due to limited visualization because of severely distended bowels (6 cases, in 4 cases there was need for intestinal resection and in 1 case due to iatrogenic bowel injury. The median operative time was similar between groups: 75 minutes in LAP group and 70 minutes in OPEN group (p=0,816). There was only 1 (2%) postoperative complication case in LAP group (observed in “converted to open” patient) and 9 cases (10%) in OPEN group (p>0,05). In LAP group 89% of patients tolerated early liquid oral intake (on 0-1 postoperative day), comparing with 60% in OPEN group (p=0,001). Normal peristalsis and passage of flatus (on 0-1 postoperative day) appeared significantly quicker in LAP group - 71% of patients vs 45% in OPEN group (p=0,005). Median postoperative hospital stay was 4 (5-3) and 7 (9-6) days respectively (p=0,001).

Conclusion: Laparoscopic management of acute SBO had tendency to reduce overall complication rate in comparison to open surgery and was associated with quicker gastrointestinal function recovery, shorter postoperative length of stay.

Disclosure of Interest: None declared
PE289
MASSIVE BLEEDING FROM DUODENAL DIVERTICULUM A RARE CAUSE OF GASTROINTESTINAL BLEEDING: CHALLENGING IN DIAGNOSIS AND TREATMENT, A CASE REPORT.
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Introduction: Bleeding from a duodenal diverticulum is a rare cause of gastrointestinal bleeding. The challenging of this condition is to identify the location of bleeding, especially bleeding from diverticulum in the third and fourth part of the duodenum.

Materials & Methods: We report a case of 84-year-old female that present with massive gastrointestinal bleeding and failed to identify the cause of gastrointestinal bleeding by endoscopy initially. The patient has identified the cause of bleeding by computed tomography angiography (CTA) that demonstrated contrast extravasation into a duodenal diverticulum at the third part of the duodenum.

Results: The patient was successfully treated by angiography that revealed active extravasation from a small branch of the inferior pancreaticoduodenal artery and embolization performed with an uneventful recovery. The patient had no recurrence of bleeding after follow-up at one year.

Conclusion: CTA should be considered when endoscopy is failing to diagnose the cause of bleeding, especially in a case that massive and ongoing bleeding. The angiography embolization is one option to treated bleeding from a duodenal diverticulum to avoid surgery.

Disclosure of Interest: None declared
Introduction: Abdominal malignancies namely gastric, hepatobiliary, colonic, and oesophageal malignancies are prevalent in Himalayan population. No current data is available for this Himalayan region due to reluctance of patients to get hospital treatment, misguidance by quacks and local healers. Our centre is trying to accumulate data of gastrointestinal malignancy patients, to formulate methodology for better understanding of disease pattern and identify various problems faced by health professionals in management of gastrointestinal malignancies.

Materials & Methods: This was a retrospective record based study conducted in 800 bedded teaching hospital IGMC Shimla. IRB permission was taken prior to data collection. This hospital is located in Himalayan belt and caters to about 5 million people with large numbers living in remote areas, serving as the only tertiary centre in the region. Epidemiological data for all patients diagnosed with gastric, hepatobiliary, colonic and oesophageal malignancies in I.G. Medical College, Shimla, during past two years was collected. From this data 205 patients of Gastrointestinal malignancy who were operated (curative and palliative) were identified and records analysed.

Results: Among 205 patients included in this study, 60.5% were male with mean age of 57.23yrs, while 39.5% were females with mean age of 54.85yrs. Highest number of patients were operated for colorectal malignancy 39.5% (n=81) followed by gastric malignancy 36.1%(n=71), 11.7%. (n= 24) for hepatobiliary malignancy and 10.7% (n=22) for Oesophageal malignancy. About 34.5% of all surgeries performed were palliative.

Conclusion: A wide spectrum of gastrointestinal malignancies are present in Himalayan population. There is a high degree of social stigma attached to cancer and poor awareness among the general population. Most of the patients present late to hospitals after exhausting treatment options with local healers and quacks and by the time of their contact with definitive hospital facilities, disease is already advanced. Hence large number of surgeries tend to be palliative. There is poor follow up as many patients tend to associate chemo-radiotherapy with non curability and end stage. Greater awareness needs to be generated on part of the medical fraternity, NGOs and Government organisations to promote awareness among general population in this part of India regarding early screening, treatment options available and importance of follow up.

References: 1. igmcsimla.org
Disclosure of Interest: None declared
RETROSPECTIVE STUDY OF SURGICAL GASTROJEJUNOSTOMY FOR MALIGNANT GASTRODUODENAL OBSTRUCTION

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Introduction: Gastrojejunostomy are generally carried out for gastroduodenal obstruction in patients with symptoms (vomit and nausea, no ingestion) by unresectable malignant tumors. But there are a few reports dealing with the results and prognosis who had gastrojejunostomy. We evaluated effects of gastrojejunostomy and discussed its indication.

Materials & Methods: We investigated patients who had gastrojejunostomy for obstruction symptom by malignant tumors from Jan 2008 through Sep 2016, retrospectively; their background factors, postoperative day of starting oral ingestion, cannot intake once more period, and postoperative survival period.

Results: Of the 18 patients in this study. The average age was 66 years; the ratio of men to women was 12 : 6. The most common disease was gastric cancer (10 cases). 15 cases were able to ingest (83.3%). 12 of 15 cases could not ingest it again and died. The median duration of oral ingestion and survival period was 269 (2-1251) and 305 (13-1362) days. The median duration of could not ingest day to died day was 36 (0-151) days.

Conclusion: The success rate of the gastrojejunostomy was reported in a precedent study with 93%. In this study with 83.3%, it was thought that usefulness was high as palliative surgery for quality of life in the patient. On the other hand, we recognize three cases death within 30 days after the surgery. It is necessary to examine operation adaptation more.


Disclosure of Interest: None declared
A STUDY OF SHORT-TERM RESULTS OF PANCREATODUODENECTOMY IN AGED PATIENTS
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Introduction: The feasibility of pancreatoduodenectomy (PD) for elderly patients in high-volume hospitals seems to be proved. Our community-based hospital cannot be considered a high-volume center; Nevertheless, the percentage of senior citizens who need to undergo PD is high. The aim of this study is to evaluate the short-term results of PD in elderly patients from single-institutional experience.

Materials & Methods: In our department of surgery between January 2006 and November 2016, a total of 42 PD were performed. We analyzed the clinicopathological data and short-term outcomes after PD in patients aged≥75 years (Group E: n=19) compared with those in patients<75 years (Group Y: n=23).

Results: There were no statistical differences between patient groups in terms of preoperative morbidity such as liver disease, respiratory disease, renal disease, and diabetes mellitus. Only preoperative cardiovascular disease was significantly higher in Group E (p=0.005). Preoperative mean prognostic nutritional index (PNI) in Group E was 37.8±8.5 and significantly lower than Group Y (p<0.001). There were no significant differences in operation time and blood loss between both groups. However, blood transfusion was more needed in Group E (p=0.043). In terms of postoperative complications, Clavien-Dindo IIIa≥ was 5 cases (26.3%) in Group E and 2 cases (8.7%) in Group Y, which was not significantly different. The rate of postoperative pancreatic fistula, delirium, delayed gastric emptying, and severe infection also tended to be higher in Group E, but no statistical differences. The median length of postoperative hospital stay were 32(13-60)days in Group E and 17(11-35)days in Group Y, which was significantly different (p=0.010).

Conclusion: As the elderly population is getting larger, high-risk operation seems to be increasing. Postoperative complications in elderly patients tend to be higher in younger patients, but there is no significant difference in our data. Even though it takes more time to recover after PD in the elderly patient, PD can be performed safely. Age should not be a contraindication to PD.

Disclosure of Interest: None declared
Introduction: Cancer of the gallbladder has a poor prognosis and the evolved forms are not rare. Hence, the purpose of this retrospective study is to evaluate the obtained results according to the stage of the tumor and the prognostic factors.

Materials & Methods: Patients covered for a cancer of the gallbladder, from 2010 to 2014, are reviewed as part of a retrospective study in which both the criteria of resectability and prognostic factors are analyzed.

Results: The study included 134 patients, 88 women and 46 men; the average age of the participants was about 62 years old. An S4a- S5 hepatectomy was possible in 64 patients. A bile duct resection was required in 08 patients, and a cholecystectomy carrying off the gallbladder bed with lymphadenectomy was performed in 17 patients; however, in 22 patients, a cholecystectomy was considered sufficient. 31 patients had a palliative treatment because of loco-regional and metastatic extension. R0 resection was seen in 70,14% of cases.

Two early resumptions were required, one for bleeding of the liver slice section and the other for a choleperitoneum. T3 or T2 stages with lymph node were given an adjuvant chemotherapy.

The recurrence rate was 14%. The 3-year survival at all stages confounded is 75,37%.

Conclusion: Gallbladder cancer represents 8% of cancers treated in the service during the same period. Early diagnosis that allows radical surgery (R0) remains the only guarantee of a better survival.

Disclosure of Interest: None declared
LAPAROSCOPIC ANATOMICAL RESECTION USING EXTRAHEPATIC GLISSONEAN APPROACH

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Introduction: Recent rapid developments in technological innovations, improved surgical techniques and the accumulation of extensive experience by surgeons have improved the feasibility and safety of laparoscopic liver surgery. However, laparoscopic anatomical liver resection remains a highly specialized field, as major technical difficulties remain, such as hilar dissection and pedicle control.

Materials & Methods: The entire length of the primary branches of the Glissonean pedicle and the origin of the secondary branches are located outside the liver and the trunks of the secondary branches, and even more peripheral branches run inside the liver. The right, left, anterior, or posterior Glissonean pedicle can thus be tied and divided en bloc extrahepatically during open anatomical liver resection. We performed a novel technique by which each Glissonean pedicle could be easily and safely encircled and divided en bloc extrahepatically during laparoscopic anatomical liver resection.

Results: In various types of anatomical liver resections, including right hepatectomy, left hepatectomy, medial sectionectomy, and central bi-sectionectomy. Glissonean pedicles could be encircled en bloc extrahepatically, as planned. No serious complications, including major bleeding or injury of the portal vein, were encountered during procedures.

Conclusion: Extrahepatic Glissonean approach appears feasible and safe for laparoscopic anatomical resection of the liver.

Disclosure of Interest: None declared
Introduction: Biliary injuries are important complications of laparoscopic or conventional surgery, mainly cholecystectomy. Many studies reported an increased incidence of bile duct injuries from 0.1-0.2% to 0.4-0.7% from the era of open cholecystectomy to the laparoscopic approach. Injuries may be identified during procedures, in postoperative period or months to years later. Management requires a multidisciplinary approach based on timing of identification, extent of injury and the availability of expertise in those kind of lesions. Classification is not easy because each lesion isn’t only anatomically unique but also the result of ischemia, thermal injury and transection of ducts.

Materials & Methods: We retrospectively analysed patients with biliary iatrogenic lesions treated in our hospital between January 2012 and December 2016 (5 years).

Results: We found twenty-two patients, 8 females and 14 males with median age of 56 years old (31-83). In 21 of these patients, biliary injury was after cholecystectomy (18 laparoscopic, 1 open and 2 converted to open procedure) and 1 biliary stricture after gastrectomy with linfadenectomy. Eleven of these patients were successful treated using endoscopic procedures by Endoscopic Retrograde Cholangiopancreatography (ERCP) due to biliary leakage. Surgery was necessary in 11 patients, 5 patients underwent urgent surgery: peritoneal lavage and drainage due to mild biliary leakage in 4 patients and drainage and ligations of slipped cystic duct clip in 1 patient. Elective surgery was necessary to definitively treat 6 patients (28.57%), 3 of these patients after an urgent surgery to peritoneal lavage and drainage. In patients successful treated with surgery, Bismuth lesions II and III were the most frequent and the hepaticojejunostomy was the main procedure. There was one case of mortality (4.76%) due to biliary sepsis after re-intervention due to a minor leak (Strasberg A) after urgent cholecystectomy.

Conclusion: There are several treatment options to different kind of iatrogenic lesions and the most important seems to be the multidisciplinary approach, from initial minimal invasive techniques to major surgery in complex lesions.

Disclosure of Interest: None declared
THE RELATIONSHIP BETWEEN THE PRESENCE OF ROUVIERE’S FISSURE AND THE INCIDENCE RATE OF INTRAOPERATIVE EVENTS IN PATIENTS UNDERGOING ELECTIVE LAPAROSCOPIC CHOLECYSTECTOMY

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Introduction: To determine the relationship between the presence of Rouviere’s fissure and the incidence rate of intraoperative events in patients undergoing elective laparoscopic cholecystectomy for uncomplicated gallbladder diseases in a De La Salle University Medical Center, a tertiary hospital in sub-urban Philippines.

Materials & Methods: A video review of recorded laparoscopic cholecystectomy cases for uncomplicated gallbladder disease from January 2010 to December 2015 was done. Subjects were classified either into the group wherein a Rouviere’s fissure is present and another group without the Rouviere’s fissure. Intraoperative events such as bleeding, gallbladder perforation, bile spillage and compared among groups.

Results: A total of 340 patients were included, 170 (50%) were identified to have a Rouviere’s fissure while the other 170 (50%) did not. Among those who presented with intraoperative events, bleeding was shown to be the most frequent event encountered, followed by inadvertent gallbladder perforation and bile spillage. There is a relationship between the presence of Rouviere’s fissure and the incidence of intraoperative events in patients who underwent elective laparoscopic cholecystectomy (χ²=26.02, p-value < 0.001). A protective association was established with a Risk ratio 0.55; 95% confidence interval, 0.43 to 0.69.

Conclusion: Rouviere’s fissure is a useful landmark to use during dissection when performing laparoscopic cholecystectomy. It is protective in that it lessened the incidence of intraoperative events as compared to those patients who do not have the fissure (RR 0.55; 95% CI, 0.43 to 0.69).

References:

Disclosure of Interest: None declared
Introduction: Complete cyst excision with restoration of biliary enteric communication form the basis of Choledochal cyst treatment. Surgical treatment in adults is much more difficult compared to children and incidence of postoperative complication is quite high. Postoperative pancreatic fistula is a rare early complication following choledochal cyst excision. We could isolate 8 cases of pancreatic fistula from multiple articles on choledochal cyst in english literature so far.

Materials & Methods: We encountered a postoperative pancreatic fistula while managing a Todani Type IV A choledochal cyst in a 23 year old male. Standard textbooks did not mention about this unique complication. Hence, we conducted a systematic review of english literature with an aim to identify the risk factors and predictors of pancreatic fistula following cyst excision.

Results: Preoperative cholangiography (MRCP/ERCP) is essential to know the extent of cyst and delineate biliary pancreatic junction. Todani Type Ic, Type IV and Form Fruste type of choledochal cyst are at high risk of pancreatic injury. Recurrent cholangitis makes excision technically more challenging and complete removal is not always possible.

Conclusion: Post operative pancreatic fistula can be anticipated in select group of patients with high risk preoperative findings. Operative technique in these high risk patients needs further evaluation

Disclosure of Interest: None declared
THE INCIDENCE AND IMPACTS OF COMBINED INJURIES OF THE RIGHT HEPATIC ARTERY AND COMMON BILE DUCT ON SUCCESSFUL SURGICAL REPAIR AND POSTOPERATIVE MORBIDITY

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Introduction: The aim of this analytical study was to analyze the incidence and clinical presentation of combined vasculobiliary injuries.

Materials & Methods: Our study included 64 patients with verified bile duct and vascular injuries, all submitted to thorough clinical examination. The Strassberg and Bismuth classifications were used for defining the biliary injuries and strictures. Biliary repair was performed using the Hepp–Couinaud technique, Roux hepaticojejunostomy or direct bile duct suture over T drainage. Moreover, the transjejunal drainage of the biliary tree was performed.

Results: Bile duct injuries occurred during the open cholecystectomy in 59.4% and in 40.6% patients who underwent laparoscopic cholecystectomy. Conjoint vascular and bile duct injuries were present in 17 out of 64 patients, while the majority of them (11/17), sustained the injury of the right hepatic artery. Early diagnosis of bile duct injuries and reconstruction were connected with laparoscopic cholecystectomies.

Conclusion: Our study showed that vascular injuries, which can result in significant liver comorbidity, unfortunately often remain unidentified during the treatment of biliary injuries. The isolated right hepatic artery injury and bile duct injury turned out to have a rather insignificant effect on the morbidity and outcome of the repair of bile duct injuries and often remain unnoticed.


Disclosure of Interest: None declared
LIVER RESECTION FOR HEPATOCELLULAR CARCINOMA WITHOUT RESECTION MARGIN, IS IT POSSIBLE?
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Introduction: Liver resection (LR) remaining a curative option for hepatocellular carcinoma (HCC). As a solid tumor, a wide resection margin was usually recommended. Tumor exposed on the resection surface with a zero resection margin was usually forbidden. However, HCC usually arise from a chronic hepatitic or cirrhotic liver, a wider resection margin may cause inadequate remaining liver function and even operative death. For HCC patients without a sound function and/or adjacent to major intrahepatic vessels, a zero resection margin may be ensued. The aim of this study is to investigate the possibility of HCC resection with a null resection.

Materials & Methods: A retrospective review of 1954 patients who underwent a LR for newly-diagnosed HCC in a 25 year period (from 1991 to 2015) was conducted. After these whose HCC resection was palliative (n=41) or these who needed cardiopulmonary bypass for right atrial tumor thrombi vessel removal (n=8), the shortest resection margin of 1905 HCC specimens was measured grossly. Among them, the resection margin was exposed grossly on 455 patients, the remaining 1450 patients their tumors were surrounded with a layer of non-tumorous liver (Group B) with thickness of 1-62mm (medium 5mm, mean 6.2mm). After pathological examination, tumor cells exposed on resection margin occurred on 142 patients (Group A0), the tumors of 313 patients (Group A1) were surrounded by thin fibrous tissue with thickness 0.1-0.8mm. The clinical pathological characteristics, the early and the long-term outcome after operation among the three groups were compared.

Results: The operative time, blood loss, and blood transfusion incidence were greater in Group A0+A1 than Group B. However, the post operative complications and 90-day mortality rate did not differ in three groups. The disease free (DFS) and overall survival rate (OS) among the three groups were also showed no significant different. 5-years DFS of Group A0+A1, B, A0, and A1 were 38.5%, 39.0%, 35.5%, 36.5%, 40%, respectively. The overall survival rate of Group A0+A1, B, A0, and A1 were 60.5%, 62.0%, 54.5%, 59.6%, respectively. The p-value for DFS: A0+A1 versus B, p=0.989; A0 versus A1, p=0.410; A0 versus B, p=0.530; A1 versus B, p=0.654. The p-value for OS: A0+A1 versus B, p=0.541; A0 versus A1, p=0.075; A0 versus B, p=0.081; A1 versus B, p=0.738.

Conclusion: A wider resection margin of LR for HCC remains desirable. However, a zero-resection margin for nodular type of HCC is also permissible. The long-term survivals are expectable.

Disclosure of Interest: None declared
SEVERE HEPATIC NECROSIS AFTER COMBINED TRANSARTERIAL CHEMOEMBOLIZATION AND RADIOFREQUENCY ABLATION FOR THE TREATMENT OF HEPATOCELLULAR CARCINOMA

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Introduction: In the recent years, the combination of transarterial chemoembolization(TACE) and radiofrequency ablation(RFA) has been widely performed for the treatment of hepatocellular carcinoma(HCC). Reported complication rate of TACE and RFA was 0~27% and the complication rate of combined TACE and RFA has been reported rarely. Recently, we experienced a patient with severe hepatic necrosis after combined TACE and RFA for the treatment of HCC.

Materials & Methods: A 59-year-old women was referred for treatment of HCC. Abdominal CT and MRI showed about 3.5 cm sized single HCC in segment 6 abutting right posterior pedicle and underlying liver cirrhosis. She was chronic hepatitis B patient and the laboratory findings were all within normal range with Child-Pugh class A. Because the patient refused the surgery, combined TACE and RFA were performed.

Results: After the uneventful procedure, post-procedure CT showed complete tumor necrosis and diffuse lipiodol uptake in right hepatic lobe. From the second day after procedure, the patient presented RUQ pain, nausea, and fever. The follow up CT after 10 days showed diffuse hepatic necrosis of segment 5, 6, 7 and abscess pockets in perihepatic space. The pig-tail catheter drainage was performed and bile stained contaminated fluid was drained. After then empyema of right pleural cavity and eventually biliary-pleural fistula developed. After persistent pig-tail catheter drainage and conservative treatment, the patient were improved progressively and discharged on 80 days after the combined procedure.

Conclusion: We report of a case of unusual severe hepatic necrosis developed after combined TACE and RFA for treatment of HCC.

Disclosure of Interest: None declared
Introduction: Persistent biliary fistula after biliary operation is not common, but sometimes it is very difficult problem, especially in case of friable common bile duct (CBD). Herein, we report a case of postoperative intractable biliary leakage treated with trans-T-tube biliary drainage (TTBD).

Materials & Methods: A 65-years-old man visited because of CBD stone and multiple left intrahepatic bile duct (IHBD) stones. After the left hemihepatectomy and choledocholithotomy, primary closure of CBD was performed because there was endoscopic retrograde biliary drainage (ERBD) catheter inserted already. On postoperative day 7, covered stent insertion in right hepatic artery was performed due to bleeding from hepatic artery branch. On the 5th day after the intervention, bile leakage was observed from drain and re-operation was performed. There was necrosis of CBD wall around choledochotomy site and debridement and T-tube insertion was performed. Persistent bile leakage was observed with average amount of 500ml/day even though well-functioning T-tube until 30 days after re-operation. And two times of ERBD tries were failed. T-tube cholangiography revealed bile leakage from CBD more proximal portion to T-tube insertion site. A drainage catheter through T-tube was inserted with positioning the catheter tip in right IHBD.

Results: Two days after the procedure of TTBD, the amount of bile from drain was dramatically decreased and the drain was removed after 6 days after TTBD. Four weeks after the TTBD, T-tube and TTBD catheter were removed without any problem.

Conclusion: For intractable persistent biliary fistula after choledochotomy, TTBD could be useful option for the treatment.

Disclosure of Interest: None declared
LONG-TERM OUTCOME AFTER REVERSE TREATMENT FOR PATIENTS WITH SYNCHRONOUS COLORECTAL LIVER METASTASES

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Introduction: The reverse treatment for patients with advanced synchronous colorectal liver metastases is an approach with systemic chemotherapy, followed by liver resection, and then primary tumor resection. The aim of this study was to assess the feasibility, the radiological tumor response to neoadjuvant therapy, the recurrence and long-term survival after reverse treatment.

Materials & Methods: Data were extracted from our prospective hepato-biliary database and retrospectively analyzed after approval of our institutional review board. Radiological tumor response was assessed by the RECIST (Response Evaluation Criteria In Solid Tumor) criteria. Long-term survival and disease-free survival were calculated with Kaplan-Meier survival curves.

Results: Between August 2008 and October 2016, 44 patients (28 males, 16 females) with a median age of 63 years (range 29-78), underwent a reverse treatment approach. There were 19 rectal and 25 colonic primary tumors. The median number of metastases was 5 (range 1-30), with a median size of 50mm (range 9-151) for the largest lesion. Different chemotherapy regimen were used, whereby most patients received Oxaliplatin based treatment combinations, with a median of 6 cycles (range 2-12) of chemotherapy before liver surgery. Radiological assessment after 2-6 cycles of chemotherapy showed 27 partial remission (61%), 12 stable disease (25%), 1 progressive disease (2%) and 4 patients with missing information (9%). There were 29 major, 11 minor and 4 wedge liver resections. The reverse treatment was completed until primary tumor resection for 41 patients (93%). Among patients who completed the treatment, thirty patients (73%) experienced recurrence (18 liver metastases, 1 colorectal local recurrence, 3 extrahepatic metastases, as well as 8 liver and extrahepatic metastases). Median disease-free survival after primary tumor resection was 10 months (95% CI 5-15). Disease-free survival at 3 and 5 years was 25%. Median overall survival from the time of diagnosis was 50 months (95% CI 42-58). Overall survival at 3 and 5 years was 59% and 39%, respectively.

Conclusion: The reverse treatment approach is feasible with a high rate of patients undergoing the complete program, and offers a promising long-term survival for well selected patients with advanced colorectal liver metastases.

Disclosure of Interest: None declared
A NOVEL APPROACH TO THE THORACOLUMBAR SPINE TO S1 USING VISCERAL ROTATION TO PERFORM MULTILEVEL ANTERIOR LUMBAR INTERBODY FUSION (ALIF) FOR SAGITTAL BALANCE CORRECTION

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Introduction: Sagittal plane misalignment is an increasingly recognised cause of pain and disability. Re-establishing harmonious spino-pelvic alignment is associated with significant improvement in health-related QOL outcome measures. Multilevel ALIF allows for excellent fusion rates and insertion of large lordotic cages to restore sagittal balance and lumbar lordosis. Traditional access to the thoracolumbar junction via an anterior approach involves a thoracotomy, dividing of the diaphragm and opening of the chest cavity with associated morbidity. We describe a novel truly anterior approach to the spine from T11 to S1 involving visceral rotation, preserving the diaphragm and avoiding entry into the chest cavity. We report our approach-related complications and radiological outcomes of T11 to S1 ALIFs performed for adult spinal deformity correction.

Materials & Methods: This is a prospective cohort study of 13 patients having multilevel ALIF cages as part of a 2-stage complex spinal reconstruction for adult deformity from T11 to S1. Data was collected for operative time, blood loss, technical challenges, perioperative complications and need for secondary procedures. Radiological outcomes measured correction of lumbar lordosis and sagittal balance parameters.

Results: All patients underwent a transperitoneal left-sided approach to the lumbar spine with visceral rotation to expose T11/12, T12/L1, L1/2, and L2/3. Mean age was 63 years, 4 male & 9 females. Mean follow-up was 16 months (6-36 months). Mean number of spinal levels that had an ALIF performed was 4.2 levels. Mean blood loss was 400ml and mean time of operation was 5 hours and 15 minutes. There was no neurological complications, 2 vascular injuries, 2 ileus and 1 death from a PE. Lumbar lordosis increased from 5.8° ±/− 23 pre-operatively to -50° ±/−21 post-operatively (p<0.01). Sagittal vertical axis (SVA) reduced from 9.9 cm (4 – 15cm) preoperatively to 4.9cm (range 1.6 - 7cm) post-operatively (p<0.01).

Conclusion: Visceral rotation allows for a truly anterior approach to the spine from the thoracolumbar junction to S1. Although technically demanding, this novel approach carries certain advantages in that it preserves the diaphragm, involves a single midline incision and allows for insertion of multiple large lordotic ALIF cages that lengthens the patient and facilitates restoration of spinopelvic parameters.

Disclosure of Interest: None declared
PLATELET TO LYMPHOZYTE RATIO IS A PREDICTIVE MARKER FOR INVASIVE CARCINOMA IN PATIENTS WITH PANCREATIC INTRA EPITHELIAL NEOPLASIA

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Introduction: Platelet to lymphozyte ratio is an inflammatory marker that has been associated with overall survival in patients with invasive malignancies including pancreatic cancer.

Materials & Methods: We retrospectively reviewed 102 patients (46 female, 56 male) who underwent surgical resection for histologically confirmed pancreatic intraepithelial neoplasia (PANin) from January 2005 to December 2015. PLR was calculated and coevaluated with additional demographic, clinical, and imaging data for possible correlation with PANin-associated carcinoma.

Results: Overall survival was 27.1% and 33% (n=34) of the patients showed invasive pancreatic cancer. PLR was significantly elevated in patients with PANin-associated invasive carcinoma (P 0.006). In the multivariate analysis, invasive carcinomas were significantly more prevalent in patients with PLR above 110 (OR: 4.06, CI 95%: 3.91-4.12, p=0.04). Patients with elevated PLR had a two times higher risk to die in the postoperative period (HR: 2.26, CI 95%: 1.04-2.21, p=0.001).

Conclusion: PLR is an independent predictive marker for the presence of PANin-associated invasive carcinoma.

Disclosure of Interest: None declared
PORTOENTEROSTOMY AS A SALVAGE PROCEDURE FOR MAJOR BILIARY COMPLICATIONS FOLLOWING HEPATICOJEJUNOSTOMY.

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Introduction: Major biliary complications requiring surgical intervention after hepaticojejunostomy are rare and technically challenging. While the hepaticojejunostomy can be refashioned in most patients requiring surgical reexploration after anastomotic dehiscence, a selected few may require a portoenterostomy, which involves anastomosis of the jejunum to a decapsulated area of liver to establish a conduit from the intrahepatic bile ducts to the intestine. Herein we describe the technique where a portoenterostomy has been used to restore biloenteric continuity and present long-term results of the three patients who underwent this procedure over a 14-year period.

Materials & Methods: A retrospective review was undertaken of patients undergoing portoenterostomy between 2003 and 2016, assessing indications, technique and long-term outcomes.

Results: Three male patients aged 24, 68 and 72 years, underwent the procedure over a 14-year period of hepaticojejunostomy-related complications. One has an ischaemic Roux loop two years after liver transplantation and the other two had early presentation of bile duct ischaemia after a left hepatectomy for intrahepatic cholangiocarcinoma and a pancreaticoduodenectomy for intraductal papillary neoplasia. Revision of the hepaticojejunostomy was not feasible because of the critically ill nature of the patients and very short, friable hepatic duct stumps. All patients survived the portoenterostomy with transanastomotic stenting. Two needed percutaneous transhepatic biliary dilatation after five years and six months respectively. One patient died of unrelated causes 12 years after the initial procedure and the other two are alive with normal bilirubin and intrahepatic ducts at 14 and 4 years.

Conclusion: In rare cases where hepaticojejunostomy is not feasible due to small, friable or inflamed hepatic ducts, portoenterostomy with transanastomotic stenting provides an effective way of saving life and restoring biloenteric continuity. Although this is not a procedure to be recommended without due consideration of other options, we have shown it can be life-saving and provide good long-term results in combination with postoperative radiological intervention, when necessary.

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Introduction: Laparoscopic cholecystectomy (LC) remains the gold standard treatment for patients with acute cholecystitis (AC). However, LC may not be feasible in critically ill patients. Percutaneous cholecystostomy tube insertion (PC) may allow quick decompression and aid in resolution of sepsis. Many patients with PC may have prohibitive surgical risks and may not undergo eventual cholecystectomy. Cholecystectomy in patients with previous PC is technically difficult and associated with high open conversion rates and morbidity. We report outcomes of LC in patients with previous PC.

Materials & Methods: All patients who underwent PC and subsequently cholecystectomy from March 2005 to March 2016 were identified. Demographic data, laboratory and imaging findings, operative data and post-operative outcomes were collected retrospectively.

Results: 55 patients with a mean age of 72.6 (SD±12.6) years had cholecystectomy after a PC. 31 (56.4%) patients were male. Perforation of the gallbladder was noted in 18 (33%) patients. Cholecystectomy was performed at a mean of 73 (SD±89) days after PC and LC was attempted in 43 (78.2%) patients. 6 (14%) patients required conversion to open. Overall mean operative time was 159 (SD±61) minutes, with mean operative time 159 (SD±53.8) minutes in the LC subgroup, 150 (SD±50.7) minutes in the laparoscopic converted to open subgroup and 164 (SD±95.5) minutes in the direct open cholecystectomy subgroup. Median American Society of Anaesthesiology (ASA) category was 3. Fifty patients had an uncomplicated recovery. Six complications occurred in five patients. One patient had hospital acquired pneumonia and atrial fibrillation, two patients had superficial wound infections and two had atrial fibrillation. 30-day mortality was 1 (1.8%).

<table>
<thead>
<tr>
<th>Variables</th>
<th>n=55 (%)</th>
<th>or median (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>73 (41 – 105)</td>
<td></td>
</tr>
<tr>
<td>Gender: Male</td>
<td>31 (56.4)</td>
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</tr>
<tr>
<td>APACHE II score</td>
<td>12 (5 – 27)</td>
<td></td>
</tr>
<tr>
<td>Charlson comorbidity index</td>
<td>5 (0 – 12)</td>
<td></td>
</tr>
<tr>
<td>Cholecystostomy details</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days after diagnosis</td>
<td>2 (0 – 8)</td>
<td></td>
</tr>
<tr>
<td>Tube size: 8 French</td>
<td>44 (80)</td>
<td></td>
</tr>
<tr>
<td>Tube size: 10 French</td>
<td>11 (20)</td>
<td></td>
</tr>
<tr>
<td>Method: Direct approach</td>
<td>42 (76.4)</td>
<td></td>
</tr>
<tr>
<td>Method: Transhepatic approach</td>
<td>13 (23.6)</td>
<td></td>
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<tr>
<td>Laparoscopic</td>
<td>37 (67.2)</td>
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<tr>
<td>Conversion</td>
<td>6 (10.9)</td>
<td></td>
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<tr>
<td>Open</td>
<td>12 (21.8)</td>
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</tr>
<tr>
<td>Days after PC</td>
<td>50 (2 – 395)</td>
<td></td>
</tr>
<tr>
<td>Operation duration, minutes</td>
<td>159 (60 – 355)</td>
<td></td>
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<tr>
<td>Blood loss, mean</td>
<td>210 (0 – 1000)</td>
<td></td>
</tr>
<tr>
<td>Complications</td>
<td>5 (9.1)</td>
<td></td>
</tr>
<tr>
<td>30-day mortality</td>
<td>1 (1.8)</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Patient characteristics, cholecystostomy details, operation details and outcomes post-operatively

Conclusion: LC after PC is technically difficult but safe and feasible with acceptable outcomes.

Disclosure of Interest: None declared
Introduction: Laparoscopic cholecystectomy is the gold standard treatment for acute cholecystitis (AC). In high-risk patients, percutaneous drainage (PD) with delayed cholecystectomy (DC) is an alternative. However, data on outcomes of patients with DC after PD are scarce. The aim of this study was to compare the outcomes after DC in patients primarily treated either with antibiotics (ATB) or with PD.

Materials & Methods: Retrospective analysis of all consecutive patients treated primarily either with ATB or PD followed by DC at our institution between January 2006 and December 2015. Patients’ comorbidities, Charlson index at the time of AC, and DC outcomes (including comprehensive complication index (CCI) after surgery) were analyzed.

Results: Twenty-eight patients were treated with PD [median age = 77 years (range = 73-87)] and 77 with ATB [median age = 78 years (range = 73-83)] at the time of AC. Both groups had a similar Charlson comorbidity index at admission. Eighteen patients (64%) initially treated with PD underwent DC, while 10 (36%) required an emergency cholecystectomy for recurrence (n=1) or treatment failure (n=9). In the ATB group, 53 (69%) patients underwent DC, while 24 (31%) had an emergency cholecystectomy for recurrence (n=13) or treatment failure (n=11). The total length of stay after DC was longer for patients initially treated with PD [26 days (range = 15-48) vs 7 days (range = 4-13) in ATB group, p<0.001]. After DC, the PD group had more major complications and higher mean CCI compared to the ATB group [3 vs. 1 (p = 0.048) and 16.4 ± 32.0 vs. 1.8 ± 5.6 (p = 0.006), respectively].

Conclusion: Percutaneous drainage is an effective initial treatment for acute cholecystitis in patients at high risk for surgery, however, delayed cholecystectomy in this group is associated with higher rate of complications and longer hospital stay.

Disclosure of Interest: None declared
Introduc\textit{tion}: Wide range of research and technology applied by modern medicine failed to answer two basic questions: how to diagnose forms of gall stone disease with biliary hypertension and which method to apply for their treatment after being diagnosed. In the surgical treatment of forms with biliary hypertension is not approved rational mini-invasive method of treatment.

Materials & Methods: The patients with complicated forms were divided into two groups from which with biliary hypertension were 615 (13.4%). Applied laparoscopic surgical techniques in patients with biliary disorder and hypertension were - 162 (26.34%). In 34 (5.5%) patients after endoscopic retrograde cholangiopancreatography (ERCP) with endoscopic sphincterotomy, was performed laparoscopic direct exploration of ductus choledechos. From 2012 onwards, laparoscopic operations exceeded conventional. This is due to the accumulation of experience and skills in laparoscopic techniques and procedures for endoscopic exploration of the common bile duct with gallstones extraction, allowing subsequent surgery limited to simple laparoscopic cholecystectomy.

The main diagnostic methods used are clinical laboratory and imaging diagnostic. Imaging diagnostic methods with the greatest burden are abdominal ultrasound and with increasing severity – ERCP. The applied surgical techniques are laparoscopic or conventional. After surgery patients were subjected to clinical monitoring. The obtained data were processed with statistical methods.

Results: We divided patients into 6 groups according to pathological findings. Preoperative abdominal ultrasound was performed on all patients. ERCP has the advantage to be a therapeutic method, when is detected data for common duct lithiasis. A total of 127 cholecystectomy after endoscopic extraction of gallstones (out of 220 ERCP) was made. At 13 (11.93%) patients operated by conventional method was found evidence of residual lithiasis. In the group of laparoscopic bile duct exploration, month after surgery are reported 3 (8.82%) cases of residual concrements.

Conclusion: Due to the applied diagnostic and treatment methods (ERCP and laparoscopic techniques) has been achieved resulting in significantly shortened postoperative hospital stay, reduced downtime in departments of anesthesiology and resuscitation, minimal trauma.

A comprehensive algorithm of behavior in patients with gall stone disease complicated with biliary hypertension in both the diagnostic and the treatment plan was made.

Disclosure of Interest: None declared
Introduction: An anatomical liver resection (ALR) for liver malignancy could achieve curability and functional preservation. However, the conventional demarcation technique (CDT), including segmental inflow occlusion or dye-injection, marks the demarcation line on only the liver surface, and even fails to confirm the demarcation line in some cases. We assessed the clinical value of fluorescence navigation system (Photo dynamic Eye: PDE) with indocyanine green (ICG) to identify the demarcation line during ALR.

Materials & Methods: The subjects were 27 patients with liver malignant disease who underwent ALR from March 2014 to December 2016 at Gastroenterological Surgery, Chiba Cancer Center, Japan. Following portal pedicle ligation to describe the ischemic area or hepatic artery and vein ligation to describe the congestive area for anatomical liver resection, 5mg ICG(2.5mg/ml) was injected systemically. We compared demarcation findings of liver surface between PDE and CDT in 1-3 minute after injection.

Results: PDE achieved the clear demarcation in 26 of all cases. One case failed demarcation line was technical error. Whereas CDT achieved the clear demarcation in 12 cases, the vague in 11, the unidentified in 4. The vague and unidentified cases in CDT included (1) described congestive area of the liver, (2) blue or yellow liver after systemic chemotherapy, (3) liver adheres to peritoneum or diaphragm, (4) liver cirrhosis(LC). Moreover, PDE could provide the parenchymal transection line of the liver during resecting the liver. There were no complications or side-effects relating to ICG.

Conclusion: Fluorescence navigation system with ICG to identify the demarcation line during ALR is the feasible, effective and safe imaging technique. Especially, it is useful for cases of congestive area liver resection, after chemotherapy, adhesion or LC.

Disclosure of Interest: None declared
Introduction: Choledochoduodenostomy (CDD) was very useful alternatives for treatment for patients with common bile duct (CBD) stones, especially recurrent stones, giant stones with choledochal dilatation, and difficult or failed cases by endoscopic treatment. Furthermore, CDD was also applied to biliary bypass by malignant obstruction. In these days, minimal invasive laparoscopic approach is adapted in these disorders.

Materials & Methods: We have conducted to perform a laparoscopic CDD for biliary alleviation for patients with endoscopic management of difficult CBD stone with choledochal dilatation. A side-to-side CDD was created intracorporeally using water-tight running absorbable suture by handmade 4-0 monofilament with double side needles, starting from the right side of choledochus, and continued along posterior wall until the left side of the choledochus followed by anterior-wall anastomosis as the same manner.

Results: Five patients were treated successfully by this laparoscopic procedure and remained well without bile leakage and reflux cholangitis for the short-term follow-up. The median operative time and intracorporeally anastomosis time were 182 (167 - 209) min and 33 (30 - 38) min, respectively. Median blood loss was 32 (little-90) ml, median hospital stay was 7 (5 - 14) days, and median follow-up time was 18 months.

Conclusion: Although this series was relatively small, this laparoscopic technique is feasible and safe for biliary alleviation, especially for endoscopic management of difficult or failed CBD stones, and would also potentially adapt to biliary bypass by malignant obstruction.

Disclosure of Interest: None declared
Introduction: Elderly patients aged 75 years or older who underwent resection of hepatocellular carcinoma (HCC) are increasing in recent years. The postoperative respiratory complications for these patients were evaluated.

Materials & Methods: 711 patients (mean age: 68 years) who underwent resection of HCC were enrolled in this study. The patients background factors, operative factors, tumor factors and prognosis were evaluated in 188 elderly patients aged 75 years or older (23%) and 523 younger patients aged less than 75 years (77%).

Results: In the elderly group, 129 patients were under 80 years old (65%) and 69 patients were 80 years or older (35%). The ratio of patients who had hepatitis C virus was significantly higher (p=0.000) than that of younger patients. As regards of hypertension or diabetes, no differences were found between the two groups. The values of body mass index were 22.8 for elderly group and 24.0 for younger group, respectively, and elderly patients were significantly underweight (p=0.000). Forced expiratory volume in 1 second indicated the low values in elderly patients (74.6 vs. 77.0; p=0.000). Blood examinations revealed lower values of hemoglobin (p=0.000), serum albumin (p=0.000) and total bilirubin (p=0.000) in elderly patients group. There were no differences in intraoperative blood loss, duration of operation, tumor number, tumor size and liver cirrhosis. Although there were no differences in fatal postoperative complications (Grade V), all postoperative complications were higher in elderly patients (41%) than younger patients (27%). The rate of respiratory complications had more occurrences in elderly patients (45% vs. 38%; p=0.000). Five-year survival rate was 50.3% in elderly patients and 60.5% in younger patients with no statistical differences (p=0.08). In regards to cause of death, 69% of the elderly group and 81% of the younger group died with HCC, respectively.

Conclusion: Elderly patients tend to have postoperative respiratory complications after liver resection due to their underweight and failing respiratory functions.

Disclosure of Interest: None declared
Routine Intraoperative Cholangiography During Laparoscopic Cholecystectomy: 17 Years Experience

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Introduction: The controversy on doing elective or routine intraoperative cholangiography (IOC) during laparoscopic cholecystectomy (LC) is as old as the procedure itself and most of cases, worldwide, the decision is made in the OR justified on the anatomic identification when there’s doubt about the dissection of the cystic conduct to avoid biliary injury but radiologic identification of asymptomatic choledocholithiasis is an additional benefit of this contrast-based examination.

Materials & Methods: We present our retrospective 17 year group experience for routine intraoperative cholangiography. 1191 patients suffering from symptomatic gallstones or acute cholecystitis undergoing LC were included in the study. 1169 intraoperative cholangiograms thru cystic conduct were obtained under fluoroscopic examination. Images were obtained and immediately interpreted by an staff radiologist. If satisfactory, catheter was removed from cystic duct and gallbladder removed as usual.

Results: A total of 1191 patients who got cholangiograms were included. Average age was 58 years (27-89) the majority were females 62.1%. 9 cases were converted to open procedure (0.75%), 2 for minor biliary injury by incidental cannulation of the common bile duct and 4 due >2cm choledocolithiasis, for both cases formal exploration of the bile duct were performed and a T-tube and closed drain were installed, the remaining (3 cases) were converted due technical difficulties to complete the laparoscopic procedure. We found 73 choledocholithiasis; 23 were completely asymptomatic (6.1%) at the moment of the surgery but in 50 patients lab test suggested the diagnosis preoperatively without cholangitis or pancreatitis, as commented above 4 patients underwent open biliary exploration and the remaining revived interval ERCP succesfully. No associated morbility or mortality happened.

Conclusion: IOC is a safe technique for the radiologic identification of the anatomic structures of the biliary tree and the absence of incidental choledocholithiasis. Cholangiography itself do not prevent bile duct injury but it does for major bile duct injury and is useful to take decisions on doing a formal bile duct exploration and a T-tube placement or an interval ERCP.


Disclosure of Interest: None declared
THE ROLE OF SURGICAL RESECTION IN THE TREATMENT OF RECURRENT BILIARY TRACT CANCER

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Introduction: The role of surgical procedures for recurrent biliary tract cancer has not been well established. This study aimed to clarify the clinical significance of surgical resection for recurrent biliary tract cancer.

Materials & Methods: A total of 195 patients with recurrent biliary tract cancer (gallbladder, n = 57; perihilar bile ducts, n = 53; distal bile ducts, n = 34; intrahepatic bile ducts, n = 27; ampulla of Vater, n = 24) after radical resection were retrospectively analyzed.

Results: Of the 195 patients, 29 underwent surgery for recurrence. The time to recurrence was significantly longer in patients with surgery than in those without (median, 34 months vs. 10 months; P < 0.001). Survival after recurrence was significantly better in patients with surgery than in those without (34% vs. 1% at 5 years; P < 0.001). Multivariate analysis revealed that surgery for recurrence was an independent prognostic factor after recurrence (P < 0.001; HR, 4.239). In the 29 patients with surgery, morbidity and mortality rates after surgery for recurrence were 61% and 0%, respectively. Survival after surgery for recurrence was significantly better in patients with R0 resection for recurrence (n = 21) than in patients with R1 resection (n = 8) (43% vs. 13% at 5 years; P = 0.006). The 5-year survival rates after surgery for recurrence were 50%, 38%, 38%, 20%, and 0% in patients with ampullary cancer (n = 5), gallbladder cancer (n = 9), intrahepatic cholangiocarcinoma (n = 4), distal cholangiocarcinoma (n = 5), and perihilar cholangiocarcinoma (n = 6), respectively (P = 0.791). The sites of initial recurrence were the liver (n = 16), locoregional (n = 7), distant lymph node (n = 6), liver and distant lymph nodes (n = 1), and right adrenal (n = 1). Survival after surgery for recurrence was significantly worse in patients with locoregional recurrence than in those with other types of recurrence (0% vs. 47% at 5 years; P = 0.008). Of the 29 patients, 7 patients survived for more than 5 years after surgery for recurrence; 4 had isolated liver recurrence and the others had distant lymph node recurrence of gallbladder cancer. All the 7 patients underwent R0 resection for recurrent disease and chemotherapy after surgery for recurrence.

Conclusion: Surgical resection for recurrent biliary tract cancer can be performed safely and may improve survival in selected patients.

Disclosure of Interest: None declared
Introduction: It is unclear whether pT1b gallbladder carcinoma should be treated by simple cholecystectomy or radical resection. The aims of this study were to compare the surgical outcomes of these two procedures and clarify the optimal surgical procedure for pT1b gallbladder carcinoma.

Materials & Methods: A total of 43 patients with pT1b gallbladder carcinoma, 25 of whom underwent simple cholecystectomy and 18 radical resection, were retrospectively analyzed. The depth of invasion was determined by examining multiple sections of the whole gallbladder specimen in each patient. A total of 168 dissected lymph nodes were examined for metastasis. The median follow-up time was 127 months.

Results: Of the 43 patients, 18 (42%) had a diagnosis or suspicion of gallbladder carcinoma preoperatively or intraoperatively; the diagnosis of the depth of invasion was not possible in any of the 18 patients. Radical resection was performed in all of the 18 patients, except for two who had either poor general condition or a preoperative diagnosis of mucosal tumor. Two patients underwent radical resection as a second procedure following simple cholecystectomy for benign disease. The remaining 25 patients underwent simple cholecystectomy. Histological examination revealed that no patient had lymph node metastasis. Lymphatic vessel invasion was detected in one patient, but neither blood vessel nor perineural invasion was identified in any of the patients. The resection margin status was histologically negative in all patients. Survival after simple cholecystectomy (5-year overall survival rate of 86%) was comparable to that after radical resection (5-year overall survival rate of 82%) (P = 0.956). Only two patients who underwent radical resection died from tumor recurrence in distant sites.

Conclusion: Simple cholecystectomy is appropriate for pT1b gallbladder carcinoma with negative resection margins. Considering that preoperative diagnosis of pT1b gallbladder carcinoma is rarely obtained, radical resection for pT1b carcinoma is justified only if pT2 or more advanced carcinoma was not ruled out preoperatively. Postoperative diagnosis of pT1b carcinoma which was obtained by histological examination of the multiple sections of the whole gallbladder specimen does not warrant additional radical resection.

Disclosure of Interest: None declared
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Introduction: Intraoperative detection of common bile duct (CBD) stones currently provided by intraoperative cholangiography is optimal method of choice in many institutions, however obviously safer and more useful is laparoscopic ultrasound (LUS) that become the primary imaging method for intraoperative CBD evaluation in specialized centers. The aim of this study was to evaluate the role of LUS in cases of suspected choledocholithiasis.

Materials & Methods: Data analysis of LUS during laparoscopic cholecystectomy was undertaken of the patients with suspected choledocholithiasis in time period from 2012 to 2016.

Results: Overall LUS was done in 381 patients. The procedure was technically successful in all cases. The median age of patients was 59 years (IQR 71-45) and median time to complete LUS was 2 minutes (IQR 4-2). Choledocholithiasis was detected in 228 patients (60.5%), significantly more frequently due to cholangitis (134 patients, p<0.001) and mechanical jaundice (137 patients, p=0.018) compared with negative group (153 patients). Patients with CBD stones were significantly older, 63 vs 57 years, p=0.003. Biliary pancreatitis was more evident in negative group, p=0.002. One LUS was considered as false negative (sensitivity and specificity of 99.6% and 100%).

Conclusion: According to our experience LUS is highly effective primary intraoperative imaging modality for bile ducts. It permitted to detect CBD stones with a high specificity and sensitivity.

Disclosure of Interest: None declared
Introduction: Cholangiolocellular carcinoma (CoCC) is a rare primary liver cancer. It is considered to originate from hepatic progenitor or stem cells. The purpose of this study was to evaluate the clinical features of cholangiolocellular carcinoma of the liver.

Materials & Methods: Between January 2010 and December 2014, 852 cases of primary liver cancer were surgically resected. 9 cases of CoCC were retrospectively evaluated. All of the patients underwent contrast-enhanced dynamic CT and MRI respectively. Histological evaluation was also performed and was correlated with radiographic findings.

Results: The patients mean age is 68 (23-84) years-old. Male gender is 55.5%. 89% patients had no symptoms referable to the liver tumor. On dynamic CT or MRI, the lesions presented hypervascular tumors with delayed washout in 11% patients (Type I) and in the other 89% patients, the lesions showed peripheral enhancement with concentric delayed filling (Type II). Preoperative diagnosis is intrahepatic cholangiocarcinoma in 89%. Pathologic analysis revealed there were abundant communications between blood sinusoids of the tumor.

Conclusion: In case of liver tumor with early staining and peripheral enhancement on dynamic CT or MRI, we should consider to diagnose cholangiolocellular carcinoma.

Disclosure of Interest: None declared
LONG-TERM FAVORABLE OUTCOMES OF RADIO-FREQUENCY ABLATION FOR HEPATOCELLULAR CARCINOMA AS AN INITIAL TREATMENT: A SINGLE-CENTER EXPERIENCE OVER A 10-YEAR PERIOD

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Introduction: Radio-frequency ablation (RFA) is one of the major therapeutic options for hepatocellular carcinoma (HCC). However, local recurrence or intrahepatic dissemination after RFA is a serious problem, thus, it is important to determine the indication of RFA. Herein, we investigate the long-term outcomes of RFA as an initial treatment for HCC.

Materials & Methods: From January 2000 to December 2014, we treated 1,043 patients with RFA for HCC at Kumamoto University Hospital; 327 of them (31.4%) were treated for primary HCC. After exclusion of 75 patients who underwent combined therapy (67 with hepatic resection, one with microwave coagulation therapy, and eight with percutaneous ethanol injection), 252 patients were enrolled in this study. We retrospectively analyzed the long-term outcomes of RFA and identified the prognostic factors.

Results: The median values of platelet count, prothrombin activity and indocyanine green retention rate at 15 min were $9.1 \times 10^4/\mu l$, 83%, and 26%, respectively. The 5-year overall survival (OS) rate was 69% and the median survival time was 7.0 years. The 5-year recurrence-free survival (RFS) rate was 17%, and the median recurrence-free survival time was 2.0 years. A multivariate analysis revealed that age >80 years (hazard ratio [HR] 7.76, $P=0.011$), tumor diameter >2 cm (HR 1.68, $P=0.047$), and multiple tumors (HR 1.87, $P=0.014$) were independent prognostic factors for OS. As for RFS, des-γ-carboxy prothrombin (DCP) ≥40 mAU/ml (HR 1.47, $P=0.038$) and multiple tumors (HR 1.63, $P=0.0056$) were independent prognostic factors.

Conclusion: Despite the fact that our cohort included patients with relatively impaired liver function, favorable 5-year survival rate was obtained by RFA. Here, we identified age >80 years, tumor diameter >2 cm, and multiple tumors as independent prognostic factors for OS. In addition, we clarified that patients with serum DCP level ≥40 mAU/ml or multiple HCCs had a higher risk of recurrence. Considering the fact that tumor size and the serum DCP level can be confirmed before the treatment decision is made, hepatic resection, not RFA, would be recommended if possible in terms of liver function, and intensive follow-up would be crucial in case of tumor diameter >2 cm or serum DCP level ≥40 mAU/ml.

Disclosure of Interest: None declared
PE318
TOTALLY LAPAROSCOPIC CENTRAL HEPATECTOMY-TIPS AND TECHNIQUES
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Introduction: Central hepatectomy is traditionally done through an open technique. Totally laparoscopic central hepatectomy is an alternative to the open technique.

Materials & Methods: Using a video-based educational format, the author demonstrates the technique of totally laparoscopic central hepatectomy.

Results: The video-based format allows the viewer to understand the principles of totally laparoscopic liver resection, the techniques, and the potential pitfalls and how to avoid them.

Conclusion: Totally laparoscopic central hepatectomy is an alternative to the traditional open technique in selected patients.

Disclosure of Interest: None declared
Introduction: Controversy still exists in surgical management of pancreatitis complicated with early persistent organ failure.

Materials & Methods: From 2000 through 2016, 21 patients with acute pancreatitis complicated with early persistent organ failure were managed surgically. All patients had severe clinical deterioration during initial period of treatment. 15 patients underwent early (during first 2 weeks) open drainage with delayed necrosectomy – group 1, others were operated on 3d or 4th week of the disease (debridement with open packing or closed lavage) - group 2.

Results: Median (IQR) admission APACHE II score didn’t differ between groups amounting 23,5 (18-26) and 20 (18-27) for gr. 1, 2 respectively. There were no any significant differences in local complications severity: gr. 1 Balthazar CT index – 7 (6-10) vs gr. 2 CT index – 7,5 (6-8). All 6 patients of delayed surgery group had infected necrosis at the time of operation. It was significantly more often then in gr. 1 – 26,7% (4/15), p<0,05. Among 15 patients managed with early drainage 7 died (46,7%). Mortality rate in gr. 2 reached 83,3% (5/6). Deaths in all patients were caused by sepsis-induced organ failure. Mortality rate differences between groups didn’t reach statistical significance.

Conclusion: Widely accepted strategy: to delay surgery waiting for pancreatic necrosis demarcation seems to be not as beneficial in acute pancreatitis complicated with early persistent organ failure.

Disclosure of Interest: None declared
SPONTANEOUS REGRESSION OF HEPATOCELLULAR CARCINOMAS: ASSOCIATION WITH TUMOR INFILTRATING T CELLS
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Introduction: Spontaneous regression of cancer is rare events. However, some case reports of spontaneous regression were well documented in hepatocellular carcinoma (HCC). Inflammatory reaction thought to be one of main mechanism of spontaneous regression of HCC. CD8+ T cells (CTL) were believed to play crucial roles in the anti-tumor immune reaction. On the other hands, FoxP3+ regulatory T cells (Treg) were thought to impaired cell-mediated immunity and promoted disease progression. We experienced three cases of temporary spontaneous regressions in HCC. We evaluated in this study tumor infiltrating CTL and Treg in HCC with spontaneous regression and compared these cases to non-specific HCC in our institute.

Materials & Methods: HCC with spontaneous regression were recurrenced tumors after radical resection in two cases and was primary tumor in one case. We examined tumor infiltrating CTL and Treg of these three cases and 45 cases of non-specific HCC between March 2004 and August 2016. The degrees of infiltration of CTL and Treg were evaluated by immuno-staining. The numbers of CTL and Treg were manually counted in randomly three selected areas in the tumors under microscope. The degrees of infiltration of CTL and Treg of all 48 cases were divided in two groups, one was high infiltration group and another was low infiltration group using cutoff value of the median of all cases. The survivals were also compared between high and low groups to evaluate prognostic value of CTL and Treg.

Results: The grade of HCC with spontaneous regression was moderate in two cases, and well in one. Tumor marker AFP was within normal limit in all three cases. The median of CTL number was 20 and Treg was 0.68. The numbers of CTL in three cases with spontaneous regression were extremely high compared to median of all cases; those were 44.7, 95.3 and 120.7 respectively. The numbers of Treg in these three cases were also high; those were 4.3, 16.7 and 2.7 respectively. The CTL high infiltration group tended to have better over all survival than low infiltration group. And the Treg low infiltration group tended to have better relapse free survival than high infiltration group.

Conclusion: This study revealed that tumor-infiltrating CTL had positive and Treg had negative effect for prognostic value in HCC as some previous reports. And tumor-infiltrating CTL might contribute spontaneous regression of HCC.

Disclosure of Interest: None declared
TWO RARE CASES OF SARCOMATOID CARCINOMA OF LIVER

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Introduction: Sarcomatoid Carcinoma of liver is rare tumor. It is known to be a highly aggressive tumor with a poor prognosis, but its pathogenesis remains unclear.

Materials & Methods:

Results: [Case 1] A 62-year-old male presented with three weeks history of fever, detected liver tumor on CT scan. The patient underwent biopsy and histological diagnosis was poorly differentiated carcinoma of the liver. He was referred to our hospital. Dynamic CT scan revealed 11cm tumor located in posterior segment of right hepatic lobe, the peripheral of the tumor was enhanced. MRI revealed the center of the tumor showing high intensity in T2 weighted image (WI), low intensity in diffusion WI and low intensity in the hepatobiliary phase of Gd-EOB-DTPA. Preoperative diagnosis was intrahepatic cholangiocarcinoma. The patient underwent liver resection, and pathological diagnosis was sarcomatoid carcinoma of liver. The patient had recurrence 3 months after surgery.

[Case 2] A 67-year-old male underwent CT scan for a periodic medical check of hepatitis C virus infection. CT scan revealed 5.1cm lobular tumor in segment 8 of liver. MRI revealed the tumor low intensity in T1WI, high intensity in T2WI and high intensity in diffusion WI. In Dynamic MRI, no early enhancement and internal dividing wall was enhanced in late phase. Preoperative diagnosis was ICC. The tumor was pathologically diagnosed sarcomatoid carcinoma of liver, after surgery. The patient had recurrence 6 months after surgery and the patient underwent liver resection again. The patient had brain metastasis 21 months after first surgery, and the patient underwent brain tumor resection. One months later his general condition became worse and died.

Conclusion: In case of recurrence of sarcomatoid carcinoma of liver, we should perform surgical operation if possible.

Disclosure of Interest: None declared
Introduction: Cancer of Gallbladder is quite common in northern part of India. Surgical excision is only chance of cure. Radical cholecystectomy is procedure of choice for management of carcinoma Gallbladder. I want to present a video of this procedure.

Materials & Methods: I recorded the video of Radical Cholecystectomy and edited it for video presentation.

Results: I have done this procedure in a case of carcinoma of Gallbladder. It include portal lymphnode dissection & resection of gallbladder along with wedge of liver. The video after recording have been edited for presentation.

Conclusion: I think this video can be a could video for presentation in congress. It will be very helpful for surgical trainees.

Disclosure of Interest: None declared
OUTCOMES OF GAS FORMING PYOGENIC LIVER ABSCESS ARE COMPARABLE TO NON-GAS FORMING PYOGENIC LIVER ABSCESS IN THE ERA OF MULTIMODAL CARE

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Introduction: Pyogenic liver abscess (PLA) is a potentially life threatening infection with 4-30% mortality risk. Gas forming pyogenic liver abscess (GFPLA) accounts for 7-24% of PLA, is associated with diabetes mellitus (DM) and has a higher mortality risk (27.7-37%). Our aim is report outcomes of GFPLA in the era of multimodal care.

Materials & Methods: A retrospective medical records review of all patients treated with PLA from 2007-2011 was conducted. Demographic profile, clinical data, serum biochemistry, radiologic investigations and outcomes are reported.

Results: 213 patients were treated for PLA and 41 patients (19.7%) had GFPLA. There was no difference in mean age between GFPLA and non-gas forming PLA (60.4 vs. 60.6, p = 0.953). In both groups, majority were males (60.5% for NGFPLA and 65.9% for GFPLA). Overall prevalence of DM was 34.7% and patients with GFPLA had similar incidence of DM (44% vs. 32.7%, p = 0.170). GFPLA and NGFPLA had comparable incidence of hypertension (34.1% vs. 50%, p = 0.067) and chronic kidney disease (4.87% vs. 8.72%, p = 0.414). GFPLA patients showed a tendency to present with septic shock (14.6% vs. 5.8%, p = 0.091). GFPLA are larger compared to non-gas forming PLA (6.5 vs. 5.3 cm, p =0.02). There was no difference in hospital stay between both the GFPLA and NGFPLA groups (16.35 vs. 18.78 days, p=0.404).

Overall PLA mortality was 13.3% and there was no difference in mortality between GFPLA and non-gas forming PLA (9.8% vs 14.1%, p=0.46)

Conclusion: Outcomes of GFPLA are similar to non-gas forming PLA in the era of multimodal care.

Disclosure of Interest: None declared
PE324
IMMEDIATE AND ATYPICAL BILIARY TRACT REPAIR AFTER MAJOR BILIARY DUCT INJURY AND DELAYED SURGICAL-ASSISTED TRANSGASTRIC ERCP IN A PATIENT WITH ROUX-EN-Y GASTRIC BYPASS: A CASE REPORT.
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Introduction: Laparoscopic cholecystectomy is associated with an increased rate of bile duct injury (BDI). Although Roux-en-Y hepaticojjunostomy is the most recommended therapeutic option, immediate repair after in situ identification could also be an attractive strategy after iatrogenic BDI. In addition, the treatment of intra-hepatic lithiasis is challenging in patients with Roux-en-Y gastric bypass (RYGB) due to the new anatomical setting. Surgical-assisted transgastric or transjejunal ERCP is now described as a valuable treatment option.

Materials & Methods: We here report the case of a 49 year-old patient who underwent both procedures. His past surgical history was relevant as an extramucosal pyloromyotomy performed in the early childhood, followed years later by a silastic ring vertical gastroplasty for obesity. The patient underwent afterwards a RYGB following gastro-gastric fistula-associated weight regain. An episode of cholangitis and biliary pancreatitis was diagnosed few months later and treated by antibiotics and adapted ERCP. During the elective laparoscopic cholecystectomy which followed, a major BDI occurred with unexpected transection of left and right biliary ducts (LBD, RBD) and tissue loss at the convergence with the common biliary duct (CBD). After immediate conversion, duct-to-duct anastomoses were performed between LBD and CBD and between RBD and the cystic duct. Both anastomoses were protected by Kehr tubes that were removed after 3 months. Eighteen months later, the patient was again admitted for a new episode of cholangitis due to a retrostenotic lithiasis in LBD. Few weeks after an adapted antibiotic treatment, he underwent a successful surgical-assisted transgastric ERCP procedure of LBD with lithiasis fragmentation and dilation of the underneath stricture.

Results: Twenty months after bile duct reconstruction, the clinical, biological and radiological evaluations show a perfect clearance of the bile flow.

Conclusion: This case report indicates that immediate repair after major BDI could be an alternative to the mostly recommended hepaticojejunoscopy in patient with multiple adherences and a RYGB. In addition, surgical-assisted transgastric ERCP is a valuable method to treat biliary complications in such cases.

Disclosure of Interest: None declared
Introduction: Resection method for malignancies should be performed with minimal manipulation of the lesioned part using non-touch isolation technique. We use preceding glissonean pedicle isolation by extrahepatic hilar approach for resection for perihilar cholangiocarcinoma. It enables appropriate liver transection plane and clarification of the vessels which should be spared.

Materials & Methods: Proximal and dorsal resection line of the bile duct was decided using preoperative 3D images which were reconstructed from dynamic computed tomography (CT) or CT with hepatic arteriography (CTHA) and CT with arterial portography (CTAP) and CT cholangiography. In the early stage of surgery, we isolated the glissonian pedicle responsible for the remnant liver, directly at the preoperatively planned resection point, called preceding extrahepatic glissonian isolation method that allowed us to understand the peripheral limit of skeletonization and to approach the appropriate cutting line of the bile duct directly. After liver resection, skeletonization of the hepatoduodenal ligament was performed according to the minimal requirement, and when tumor involved vessels between the proximal and peripheral sides, a radical combined resection and reconstruction of vessels was performed.

Results: From January 2013 to December 2015, 55 major hepatectomies combined with bile duct resection for perihilar cholangiocarcinoma were performed using this method (21 right hepatectomy, 24 left hepatectomy, 9 left trisectionectomy). A total of 16 portal vein reconstruction and 9 hepatic artery reconstruction were performed in this case series. Histological results of the bile duct stump were negative in 84% cases (CIS in 10% and invasive cancer in 6%), and R0 resection rate was 69%.

Conclusion: This surgical method are effective for clarification of the appropriate liver transection plane and the spared vessels with minimal manipulation of the lesioned part.

Disclosure of Interest: None declared
COMPARATIVE EVALUATION OF POST-OPERATIVE COSMETIC OUTCOME BETWEEN CONVENTIONAL LAPAROSCOPIC CHOLECYSTECTOMY AND SINGLE INCISION LAPAROSCOPIC CHOLECYSTECTOMY IN HIMALAYAN PATIENTS.

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Introduction: Laparoscopic cholecystectomy has become the treatment of choice for patients with symptomatic cholelithiasis. In recent years, a search for even more minimally invasive approach has led to innovative technique of single incision laparoscopic surgery(SILS). Conventional laparoscopic cholecystectomy (cLC) is done using four ports. To minimise the number of ports, single incision laparoscopic surgery(SILS) has come into practice. SILS is being considered as no-scar surgery because the incision is placed within the umbilicus and hence the scar being invisible. The objective of this study is to evaluate cosmetic outcomes between conventional laparoscopic cholecystectomy and SILS.

Materials & Methods: It is a prospective study conducted in the department of general surgery, Indira Gandhi Medical College (IGMC) Shimla. A total of 50 patients who underwent elective cholecystectomy, were randomised to either receive SILS or traditional four port laparoscopic cholecystectomy. Institutional review board permission was obtained.Patients with acute cholecystitis, choledocholithiasis, jaundice, malignancy, hypoprotienemia, history of allergy, steroid intake, pregnancy and patients who underwent conversion to open cholecystectomy were excluded from the study. The cosmetic end point between SILS and traditional four port laparoscopic cholecystectomy was compared using Cosmesis and Body Image Score which has been previously validated in surgeries for Crohns disease and donor nephrectomy. On follow-up, patients were asked to fill the questionnaire after twelve weeks of surgery. The data was, statistically analysed with the help of Chi Square test and t test and SPSS statistical software. Level of significance set at 0.05.

Results: Age of study population ranged between 15 and 65 years. Mean age of patient in SILS cohort was 35.92 as compared to 37.76 years in cLC cohort . The body image score for SILS group ranged from 30 to 44 with mean score of 40.76 +/- 2.773 while that of traditional laparoscopic cholecystectomy group ranged from 33 to 42 with mean score of 38.28 +/-1.969. p-value for comparison stands at 0.001.

Conclusion: Present study shows that SILS can offer better alternative for patients who are concerned about body image post-surgery.


Disclosure of Interest: None declared
Introduction: Gallbladder polyps (GBPs) is a common clinical condition, while gallbladder cancer is rare and usually presents at a late stage (5-year survival 3%). GBPs 1-2cm are associated with 43-77% cancer incidence, while polyps >2cm are almost always malignant (100% cancer incidence). Cancer risk factors include gallstones, age >50, chronic cholecystitis, 1ry sclerosing cholangitis, GBPs, adenomyomatosis & porcelain GB. Our aim was to assess follow-up & management trends of GBPs in the absence of national UK guidelines.

Materials & Methods: Retrospective analysis of a prospectively maintained database. 1743 ultrasound scans (USS) & clinic/MDT (Multi Disciplinary Team) letters reviewed from Hospital database.

Results: 115 patients were diagnosed with GBPs over the six-year period from January 2011 to December 2016. Male to Female ratio was 48:67 with a median age of 55 (range 24 to 83). 18 patients required further imaging to confirm diagnosis, where 15 patients had MRI (Magnetic Resonance Imaging) & three had CT (Computerized Tomography). USS showed increase in size of GBPs in 52 patients over a median period of 12 months (range 8 to 60). Seven out of 115 patients underwent laparoscopic cholecystectomy. All seven patients had evidence of chronic cholecystitis with Rokitansky Aschoff hyperplastic sinuses.

35 patients were discharged from the outpatient clinic back to their general practitioner (GP). 30 patients are being followed up in the Upper Gastro-intestinal (UGI) clinic, where one is under surveillance for Barrett's oesophagus. 29 are being followed up in the Gastroenterology clinic and 17 had unclear follow-up plans. GP was requested to continue annual USS follow-up for three other patients and refer back if the polyps increased in size or if the patient became symptomatic. One patient declined further follow-up.

Conclusion: USS is the preferred imaging of choice for follow-up, but is operator dependent. For GBPs which are increasing in size or in cases with discrepancies, we advise to have their follow-up USS by the same experienced sonographer or a consultant Radiologist. Annual follow-up USS is advised for all patients with GBPs ≥5mm as no remarkable increase in size occurred within less than a one-year period. All patients with GBPs ≥8mm should be offered laparoscopic cholecystectomy in the surgical clinic. Elective Daycase surgery for GBPs is safe and preventative as all patients had only evidence of chronic cholecystitis with Rokitansky Aschoff sinuses which can be associated with gallbladder cancer.


Disclosure of Interest: None declared
LAPAROSCOPIC CHOLECYSTECTOMY PORT PLACEMENT OUR EXPERIENCE: INDICATIONS AND CONTRAINDICATIONS.
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Introduction: Currently, laparoscopic cholecystectomy is standard of surgical treatment of gallstone disease. As is known, the optimum port placement is one of the key factors of successful surgery. Most wide used patient position are - with the position of the surgeon between the patient's legs - the manipulation of two instruments - the "French method", and the position of the operator to the right of the patient - the manipulation of a manipulator and the camera - "American technique". In our analysis, we set the task to evaluate both methods.

Materials & Methods: Analysis was applied to the results of surgical treatment of 81 patients, mean age was 60.5 ± 15.12 years, 2 groups - the first N 39 "French port setting" N 42 and the second "American arrangement of ports." Patients with gallstone disease without previous surgical interventions was included in our analysis. In both groups, access to the abdominal rug was performed by the method of Hassan - installation of the first trocar in supraumbilical area, which subsequently used for the evacuation of the specimen. Clipping of the cystic duct and cistic artery was performed by standard tantalum clips.

Results: The average duration of the surgery in the first group was 84.2 ± 25.6 minutes, in the second group 72.8 ± 13.7 minutes. The need for a non-narcotic analgesics postoperatively remained 2 days. Drainage subhepatic spaces are mandatory - drain was removed on 1 day after surgery. The postoperative hospital stay was the day the first group 2.5 ± 1.5 in the second group 2.3 ± 1.2 days.

Conclusion: Regardless of the option port placement - planned cholecystectomy is safe intervention subject Critical View guidelines - both using one a working tool + cam and using two working tools.

Disclosure of Interest: None declared
Introduction: The several proposed versions of TNM staging (editions of 1997, 2003, 2009,…) for gallbladder cancer have a lot of problems for 2 elements which are a mixture between parietal infiltration, node infiltration and its level precisely.

Materials & Methods: All patients who have benefited from R0 resection associated to lymphadenectomy and were followed up at minimally 5years were included. The new classification proposed here is as follow: Confined stage: tumor confined to wall of gallbladder without node or visceral metastasis. Visceral stage: tumor which has infiltrated neighboring viscera without node or visceral metastasis. Nodal stage: tumor with infiltrative node divided in two subgroups: GG1 infiltrative node of portal pedicle and GG2 infiltrative node of node behind portal pedicle. Metastatic stage: tumor with visceral metastasis.

Results: One hundred twenty nine patients respond were included. Forty-six had confined tumor, 13 had visceral stage, 17 had GG1 stage, 24 had GG2 stage and 29 had metastatic stage. The 5year-survival rate is as follow in decreasing rate: 89,1% for the confined stage, 53% for the GG1 stage, 30,8% for visceral stage, 25% for GG2 stage 24,1% for the metastatic stage. Our results show that the infiltrative transparietal tumor from the mucosa to the serosa had the same 5year survival rate when there is no infiltrative node (pT1-pT2-pT3 with N0M0). This group had also the same 5year survival rate with or without adjuvant chemotherapy. It is then not useful to differentiate between mucosal, muscular and serosal tumor without infiltrative node. Isolated infiltrative node confined to the pedicle node (GG1) has the second better 5year survival rate and indicates that it is the first pejorative element for the gallbladder cancer. The visceral stage comes after the GG1 for the 5year survival with 30,8% and is better than the GG2 stage with 25%. The GG2 has the same 5year survival rate as the metastatic stage. Another observational fact is that all patients alive without recurrence at 3years were also alive at 5year without recurrence.

Conclusion: Our new classification seems respond to the clinical needs and permit to better face this disease in preoperative and postoperative period. The first conclusion is that the confined group is curable with only radical surgery. The second conclusion is that other groups (GG1, Visceral, GG2 and metastatic) need adjuvant therapy after radical surgery.

Disclosure of Interest: None declared
IDENTIFYING PREDICTORS OF EARLY DEATH AFTER HEPATECTOMY IN PATIENTS WITH HEPATOCELLULAR CARCINOMA.

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Introduction:
Hepatocellular carcinoma (HCC) is the second most common cause of cancer death and recurrence rate of up to 70% is reported even after curative resection. We analysed early cancer death (ECD) predictors from before, during and after hepatectomy.

Materials & Methods:
304 patients underwent liver resection at Tan Tock Seng Hospital between Jan 2007 and April 2016. We conducted a retrospective study of the 145 patients who underwent hepatectomy for HCC, analysing the risk factor for ECD. We defined ECD as death within one year of curative hepatectomy.

Results:
The mean age of HCC patients was 65.8 and majority were male (83.4%). 78 patients (53.8%) were Hepatitis B positive and 17 (11.7%) had Child B cirrhosis. Mean tumour diameter was 56.5mm and 15 patients (10.3%) had more than two tumours. 66 (45.5%) underwent a major liver resection. Overall 1, 3 and 5 year recurrence free survival (RFS) was 85.5%, 41.6% and 21.1% respectively. 21 patients (14.5%) had ECD. In univariate analysis, ECD was associated with ASA status (p=0.037), Child B cirrhosis (p=0.063), platelet-lymphocyte-ratio(p=0.035), prognostic-nutritional-index (p=0.083), anatomical resection (p=0.010), tumour numbers (p=0.028) and sizes (p=0.046), macro-vascular (p=0.001) and micro-vascular (p=0.004) invasion, bile leak (p=0.009), pulmonary morbidity (p=0.005) and post-hepatectomy liver failure (PHLF) criterions (p<0.001). Pre-operative factors such as macro-vascular invasion, micro-vascular invasion and presence of more than 2 tumours each had an odds ratio (OR) of more than 3.5. Presence of bile leak (OR=12.9), PHLF 50-50 Criteria (OR=12.6) and PHLF INR-BIL criteria (OR=10.3) were the most predictive of ECD. On multivariate analysis, ASA score > 2 (p=0.038) and peak serum bilirubin >7mg/dL (p=0.056) were associated with ECD.

Conclusion:
ASA score > 2 and peak bilirubin >7mg/dL are associated with ECD in our study. Patients at risk of ECD may benefit from enrolment in adjuvant therapy clinical trials.

Disclosure of Interest: None declared
Introduction: Previous reports suggest that liver transplantation for patients with high-titer anti-donor HLA specific antibodies (DSAs) carries a high risk for early allograft loss by antibody mediated rejection (AMR). We experienced a successful living donor liver transplant case where the recipient had a preformed high titer DSA for a class I HLA allele, the presence of which generally contraindicated liver transplantation. In our case, we were able to avoid graft loss by perioperative desensitization and powerful immunosuppression to suppress DSA-induced rejection. We herein report our desensitization protocol and the patient’s clinical course.

Materials & Methods: The patient was a 49-year-old female with decompensated alcoholic liver cirrhosis with Child-Pugh score of 11 points (grade C) and MELD score of 23. T-cell cross-match test was strongly positive for all donor candidates, her son, daughter and husband. LabScreen Single Antigen analysis showed that DSA titer for the allele HLA-B44:03 counted 21007 MFI, which was classified to be strongly positive. As there were no other potential living donors who did not have this allele, we finally decided to select her son as the donor and to transplant the patient under strong perioperative desensitization therapy. Our preoperative desensitization protocol was composed of rituximab (500mg per body) at 3 weeks before transplant, 1-week administration of tacrolimus (Tac) and mycophenolate mofetil (MMF) and 3 sessions of plasma exchange. Additionally, we performed intraoperative splenectomy in combination with postoperative intraportal infusion of prostaglandin E1, Gabexate mesilate and steroid and routine systemic immunosuppression using Tac, MMF and steroid.

Results: The patient has had no episode of ACR or AMR for 20 months after transplantation. Her DSA rapidly decreased after transplant and completely disappeared from 1 posttransplant month and has remained negative so far.

Conclusion: Our desensitization and immunosuppression protocol may potentially suppress immunologic events in liver transplantation in the presence of DSA.

Disclosure of Interest: None declared
Introduction:
Severe acute pancreatitis is often accompanied by a high mortality rate. Patients in this group usually require prolonged hospitalization or intensive care. In infected pancreatic necrosis appear indications for surgical intervention. At the same time the standard open necrosectomy associated with many complications and high mortality, as is most often the presence of severe condition of the patient. In order to reduce mortality are used minimally invasive techniques such as percutaneous drainage, endoscopic and laparoscopic necrosectomy. Percutaneous drainage is often carried out under the control of CT.

Materials & Methods: The aim of this study was to evaluate percutaneous drainage in patients with necrotizing pancreatitis under the ultrasound control. We examined 92 patients with acute necrotizing pancreatitis.

Results: Open necrosectomy was performed in 43 patients, in 4 patients it was supplemented by resection of the colon. In 6 (13.95%) patients in the postoperative period occurred arrosive bleeding, which required emergency reoperation. In addition, relaparotomy held 7 (16.28%) patients due to the spread of the necrotic process. In three (6.98%) patients in the postoperative period external pancreatic fistula was formed and in 2 (4.65%) – colonic. Postoperative mortality was 27.91% (12 patients). Percutaneous drainage under ultrasound control was performed in 49 patients. Primary percutaneous drainage was conducted in patients with fluid collections and the degree of necrosis of the pancreas at least 30% on contrast CT. We use the drain tube 10Fr and 12Fr. Drainages were introduced as much as possible in fluid collection. Irrigation of drainages started the next day. Ultrasonography-guided drainage was the only intervention in 33 (67.35%) patients. We performed open necrosectomy in sixteen patients, if not observed clinical improvement (retention or recurrent clinical manifestations of sepsis), was inadequate drainage outflow. Bleeding occurred in two patients (4.08%), 5 (10.20%) patients are died

Conclusion: Minimally invasive interventions can be an alternative to the traditional surgical treatment for patients with limited or necrotic processes considered as the first stage of treatment in patients with advanced process in order to stabilize the vital functions and prepare for the traditional surgery. Percutaneous drainage under ultrasound control in necrotizing pancreatitis reduces the number of complications and mortality.

Disclosure of Interest: None declared
ENOXAPARIN IN THE MANAGEMENT OF SEVERE ACUTE PANCREATITIS PATIENTS
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Introduction: The problem of acute pancreatitis treatment in the present time remains unsolved, and the main difficulty is to assist patients with severe disease. Despite the success of diagnostics, intensive care, improved methods of surgical treatment, mortality in this category is 30-50%. This is due to the development of serious complications, including sepsis and multiple organ dysfunction. Recently, interest increased in the use of heparin in the treatment of acute pancreatitis patients. Anticoagulation mechanism of heparin is also linked to its anti-inflammatory effect in the inhibition of the secondary stimulation of macrophages and monocytes.

Materials & Methods: We used enoxaparin in the treatment of 35 patients with moderate severe acute pancreatitis (MAP) (control group included 63 patients) and 31 patients with severe acute pancreatitis (SAP) (control group included 26 patients). The drug was administered at a dose of 0.5 mg/kg subcutaneously once daily for 12-14 days. We are not observed the complications.

Results: The use of enoxaparin in patients with MAP contributes to the improvement of hemostasis and had an anti-inflammatory effect. One patient is died (2.86%) from 35, which received enoxaparin treatment, and 5 (7.94%) from 63, in which LMWH treatment is not ($\chi^2=1.01; p=0.3149$). The enoxaparin improved the condition of patients, reduced the severity of the pathological process of APACHE II from $9.54\pm1.01$ to $5.52 \pm 1.31$ (in the comparison group from $9.48 \pm 1.01$ to $7.49 \pm 1.58$) ($p<0.05$). Four (11.42%) patients from 35 patients, which received enoxaparin, and 19 (30.16%) patients from 63 control group ($\chi^2=4.39; p=0.0361$) are required the open necrosectomy. Enoxaparin is improved the condition of SAP patients, considering APACHE II assessment (from $11.94 \pm 1.39$ to $6.96 \pm 1.63$; control group from $12.42 \pm 1.42$ to $10.18 \pm 1.44$, $p<0.05$) and severity of organ dysfunction (SOFA) (from $5.74 \pm 1.39$ points to $1.04 \pm 1.60$; control group from $5.38 \pm 1.36$ to $3.05 \pm 1.21$; $p<0.05$). Three (9.68%) patients with SAP in enoxaparin group are died, and 8 (30.77%) patients in control group ($\chi^2=4.04; p=0.0445$). We operated the 14 (45.16%) patients in main group, and 9 (34.62%) patients in control group ($\chi^2=0.65; p=0.4149$). Two patients (14.29%) died in enoxaparin group, and 4 (44.44%) in control group ($\chi^2=2.58, p=0.1079$).

Conclusion: Enoxaparin improves outcomes in patients with severe acute pancreatitis.

Disclosure of Interest: None declared
Introduction: Gallbladder volvulus (GBV) due to rotation of the gallbladder (GB) around its own mesentery, is a rare surgical emergency and often identified intraoperatively. Typically cholecystitis is the initial clinical diagnosis but a high index of suspicion on imaging can alert the physician for the possibility of GBV requiring urgent surgical intervention.

Materials & Methods: We describe a case of a young female patient with hypoplasia / atrophy of posterior segment of right liver lobe giving rise to a GB with no hepatic attachments but only mesenteric pedicle. She presented with first episode of sudden onset severe right subcostal pain. The ultrasonogram and magnetic resonance cholangiopancreatogram findings were suggestive of GBV.

Results: She underwent laparoscopic exploration that confirmed GBV. The GB was detorted and cholecystectomy was performed. She had an uneventful postoperative course and was discharged with no complications. Histopathologic examination showed intramural hematoma of GB with wall necrosis.

Conclusion: GBV is a rare and serious condition which occurs in patients with predisposing anatomical findings. Fewer than 10% of the cases are diagnosed pre-operatively due to lack of specific clinical, laboratory and radiological
findings. High degree of clinical suspicion is the key to optimal and timely treatment of the condition. Cholecystectomy either via open laparoscopic approach is the definitive treatment of GBV.

References:

Disclosure of Interest: None declared
INTRODUCTION: Early laparoscopic cholecystectomy is recommended in the management of patients with acute cholecystitis. However, the risk of emergency biliary surgery is higher than elective surgery and some smaller hospitals lack the resources to perform emergency surgery. We undertook this study to evaluate the efficacy of initial non-operative management of patients with acute cholecystitis, including percutaneous transhepatic gallbladder aspiration (PTGBA) when indicated.

MATERIALS & METHODS: The data for 202 patients with acute cholecystitis were retrospectively reviewed. The mean age is 77y. Of the 202 patients, 146 (72%) patients were considered to have mild cholecystitis (Grade I), 49 patients (24%) had moderate (Grade II), and 7 (4%) had severe (Grade III) disease. Patients were initially managed non-operatively and discharged. Elective cholecystectomy was then performed if the patients agreed to undergo surgery. Urgent cholecystectomy was performed for patients with gangrenous cholecystitis or gallbladder torsion with biliary peritonitis.

RESULTS: Of 202 patients, 16 underwent emergency surgery and 186 were managed non-operatively. PTGBA was also performed in 54 patients. There was no mortality in this group. Following initial non-operative management, 87 patients then underwent cholecystectomy (65 laparoscopic, 22 open). Of patients who underwent surgery, there were significantly more patients with moderate to severe cholecystitis who had undergone PTGBA in addition to non-operative management (p<0.01). The operative blood loss and length of hospital stay was similar in both groups, but operative time was significantly longer in patients who had undergone PTGBA. Of 99 patients who did not undergo cholecystectomy, only 6 patient developed recurrent cholecystitis. The average age of the 99 patients who did not undergo cholecystectomy was significantly higher than that of patients who underwent cholecystectomy group (83 y. vs 61 y., p<0.001).

CONCLUSION: These results suggest that initial non-operative management, with or without PTGBA, of patients with acute cholecystitis is safe and effective, especially in elderly patients and those with comorbidities to avoid emergency surgery. This is not intended to supplant the Tokyo guidelines for the management of patients with acute cholecystitis, but only to demonstrate that this approach appears to be reasonable treatment options in elderly patients and those with comorbidities.


DISCLOSURE OF INTEREST: None declared
CLINICOPATHOLOGIC ANALYSIS OF INTRAHEPATIC RECURRENCE OF HEPATOCELLULAR CARCINOMA AFTER RADIOFREQUENCY ABLATION THERAPY TREATED WITH HEPATIC RESECTION.
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Introduction: Percutaneous radiofrequency ablation (RFA) has been proven effective for treating small hepatocellular carcinoma (HCC) nodules, however, local recurrence after RFA still remains a major problem. The aim of this study is to evaluate the outcomes and the background characteristics of hepatic resection after RFA recurrence and investigate the two types (local and multifocal) of post-RFA recurrence.

Materials & Methods: First, a retrospective analysis was conducted of 80 intrahepatic recurrent HCC after RFA who underwent surgical resection for recurrence between January 2006 and December 2015. Fifty three patients who underwent hepatectomy for tumor recurrence within or at the periphery of the original ablated lesion were assigned to local recurrence group and multifocal recurrence (n=27) was defined as tumor recurrence located distant from the treated primary lesion by RFA.

Results: The overall survival (OS) and disease-free survival (DFS) rates after hepatectomy at 1, 3, 5 years were 86.7%, 58.3%; 73.0%, 32.6%; 63.5% and 32.6%, respectively. Histologic differentiation (poorly/undifferentiated : well/moderately), portal and bile duct invasion were identified as independent prognostic factors for OS. The OS and DFS rates at 1, 3, 5 years were 85.5%, 57.8%; 73.6%, 39.0%; 68.0%, and 39.0% in local recurrence group and 88.9%, 59.3%; 72.4%, 20.6%; 60.5%, and 20.6% in multifocal recurrence group. Although the ratio of prognostic factors (histologic differentiation, portal and bile duct invasion) were 24.5%, 18.9%, and 28.3% in local recurrence group, and 3.7%, 14.8%, and 14.8% in multifocal recurrence group, neither the OS nor DFS rate was significantly different between the two groups.

Image:

Postoperative OS and DFS after RFA Recurrence

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<td>1-year</td>
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<tr>
<td>Local</td>
<td>85.5%</td>
<td>73.6%</td>
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<td>Multifocal</td>
<td>88.9%</td>
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Conclusion: Hepatectomy is an acceptable treatment for patients with local or multifocal recurrence of hepatocellular carcinoma after ablation therapy. Although, local recurrence after RFA have characteristics of poor differentiation.
degree and are associated with aggressive vascular invasiveness, there is not significant difference between local and multifocal recurrence in OS and DFS.


Disclosure of Interest: None declared
Introduction: Laparoscopic hepatectomy is difficult because surgeons must perform the transection using many energy devices and no direct manual maneuvers. Hepatic transection by the classical method with a few energy devices is introduced.

Materials & Methods: We performed laparoscopic hepatectomy for 48 patients with hepatic tumor and liver dysfunction as follows. For parenchymal transection, we used bipolar radiofrequency coagulation forceps connected to a voltage-controlled electrosurgical generator and ultrasonic dissector. The demarcation of the liver surface was made by an ultrasonic dissector. Along the demarcation line, the blades of a BiClamp were opened slightly and inserted into the hepatic parenchyma, and we clamped slowly, softly, and gradually, and a small amount of hepatic parenchyma was consequently coagulated and fractured. After the crush, the small vessels and intrahepatic bile duct that were sealed were left as atrophic strings, and the strings were divided by an ultrasonic dissector. Large vessels and Glisson’s sheaths were left because of the small clamp. Large Glisson’s sheaths and hepatic veins were ligated with a titanium clip or autosutures, and cut without bile leakage or bleeding.

Results: The mean operation time of the present procedure was 201 minutes, mean blood loss was 72 cc, and mean postoperative hospitalization was 9.6 days. No blood transfusions were needed. Two cases had perioperative complications, right shoulder pain and ascites due to liver dysfunction, and there were no serious postoperative complication.

Conclusion: The present results appear to demonstrate that this simple and safe method contribute to decrease intraoperative bleeding and days of hospital stay.

Disclosure of Interest: None declared
Introduction: Hepatic resection and transplantation remain the standard curative therapies for HCC. These treatments are limited to either patients with early-stage tumors in the case of transplantation or patients with preserved liver function in the case of resection. (Lei et al., 2013).

Hepatocellular carcinoma (HCC) is a major global health problem. It is the fifth most common type of cancer and the third most common cause of cancer-related mortality in the world. Over 80% of HCC develops in cirrhotic liver, and is mainly attributable to chronic viral infection with hepatitis B or C. (Nordenstedt et al., 2010).

Both MRI and CT have got nearly equivalent diagnostic performance on a lesion-by-lesion basis. Small tumor nodules were the most common cause of missed HCCs with all tests. (Sharlene et al., 2003).

Materials & Methods: A total of 101 HCC patients who had surgical treatment (77 for cadaveric Liver Transplantation and 24 for Liver Resection) in the Liver unit at Queen Elizabeth Hospital, University of Birmingham NHS Trust, Birmingham, UK were both retrospectively and prospectively evaluated by chart review. In the transplantation group we have chosen five parameters to assess the accuracy of different pre-operative radiological methods; CT, MRI, in determining tumor characteristics in comparison with their post-operative histopathological results. These parameters were: (1) Number of nodules, (2) Total tumor size, (3) Vascular invasion, (4) Diameter of the largest nodule and (5) Tumor multi-nodularity.

Results: Both post-operative nodular number (2.12 ± 1.24) and total tumor sizes (4.75 ± 2.22 cm.) were significantly higher than pre-operative tumors number (1.64 ± 1.10) and total tumors sizes (4.08 ± 2.41) (P < 0.005, P < 0.051, respectively) (Table 1). Also radiological methods were of least sensitivity in detecting vascular invasion (sensitivity was 4.17%) while radiological methods were accurate in determining the diameter of the largest tumor as well as the tumor multi-nodularity (sensitivity 45.24%).

Image:
Conclusion: We concluded that small sub-centimeter HCC might be missed on 5–10 mm sectioning, potentially accounting for some of the supposed false-positive findings of CT and MRI. Also, the imaging pathology correlation might have been improved with less false positives if the pathologists had been prospectively informed of detailed imaging findings.

References:


Disclosure of Interest: None declared
PROGNOSTIC IMPACT OF SEVERE POSTOPERATIVE COMPLICATIONS IN PATIENTS WITH HEPATOCELLULAR CARCINOMA AFTER HEPATIC RESECTIONS: A RETROSPECTIVE SINGLE INSTITUTION STUDY

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Introduction: The postoperative complication was reported to be an indicator of poor prognosis in patients with several gastroenterological cancers after curative operations. The aim of this study is to investigate prognostic impact of postoperative complications in patients with hepatocellular carcinoma (HCC) after hepatic resections with curative intent.

Materials & Methods: This was a retrospective analysis of 485 patients who underwent hepatic resections for HCC with curative intent in at Kumamoto University Hospital between January 1994 to July 2015. Postoperative complication was defined as III or more in Clavien-Dindo classification. Prognostic impacts of postoperative complications were analyzed using log-rank test.

Results: The median age of the patients was 66.7 years and the majority of patients were male (79.1%). A total of 94 patients (19.4%) developed Clavien III or more postoperative complications. Clavien III complications occurred in 87 patients (92.5%), Clavien IV in 4 patients (4.3%), and grade V in 3 patients (3.2%). There were significant difference in alpha-fetoprotein (p=0.0005), prothrombin time (p=0.0323), blood loss (p<0.001), operative time (p<0.0001) and transfusion (p<0.0001) in clinical and operative factors between two groups. There were not significant difference in recurrence pattern (intrahepatic or extrahepatic) between two groups (p=0.608). The patients with postoperative complications (Clavien III and IV) were poor survival in relapse-free survival (log-rank p=0.0283) and overall survival (log-rank p=0.0091). The most postoperative complication was abdominal and pleural effusion (n=42: 44.7%) and these were not a long prognostic factors compared to other complications such as bile leak, abdominal bleeding and organ failure. However, patients with abdominal and pleural effusion had poor survival in 1-years survival (log-rank p=0.0115). Bile duct resection, blood loss and intraoperative transfusion were independent predictors of postoperative complications.

Conclusion: Postoperative complications would have poor prognostic impacts in patients with HCC after curative hepatic resections. Therefore, we should pay attention to decide the indications of liver resection, perform safety operations and perioperative careful management.

Disclosure of Interest: None declared
Introduction: Right hepatectomy with caudate lobectomy (RHx) was considered as an appropriate procedure for Bismuth type I/II perihilar cholangiocarcinoma, because it often involve the right hepatic artery. However, right liver volume is generally 60-70% of the total liver volume. Some patients with extremely small left liver have the risk of postoperative liver failure despite the portal vein embolization. The aim of this study is to clarify the feasibility of left hepatectomy with caudate lobectomy (LHx) concomitant with arterial resection and reconstruction (AR) for Bismuth type I/II perihilar cholangiocarcinoma.

Materials & Methods: A total of 36 patients with Bismuth type I/II perihilar cholangiocarcinoma between 2002 and 2013 were studied. Our standard procedure for Bismuth type I/II cholangiocarcinoma was RHx, while in patients who had insufficient functional reserve of the left liver, LHx was selected irrespective the necessity of AR. Surgical procedures comprised of LHx+AR in 12 and RHx in 24. Clinicopathologic and perioperative outcomes after LHx+AR were investigated and compared with those after RHx.

Results: In comparison of LHx+AR and RHx, the left liver volume and left liver functional reserve were lower (left liver volume: 28.0% vs. 33.7%, \( p = 0.053 \), and estimated value of indocyanine green clearance of the left liver: 0.036 vs. 0.046, \( p = 0.003 \)). Although operation time of LHx+AR was significantly longer than RHx (682 min vs. 574 min, \( p = 0.025 \)), surgical morbidity was almost identical between LHx+AR and RHx. No arterial reconstruction related complication was occurred. No patient undergoing LHx+AR developed local recurrence at the dissection plane. Disease-free 3- and 5-year survival rate and median survival time was 41.7%, 25.0% and 22 months in LHx+AR and 54.2%, 45.1% and 45 months in RHx (\( p = 0.236 \)). Overall 3- and 5-year survival rate and median survival time was 66.7%, 41.7% and 44 months in LHx+AR and 75.0%, 56.3% and 79 months in RHx (\( p = 0.357 \)).

Conclusion: LHx+AR for Bismuth type I/II perihilar cholangiocarcinoma is a feasible alternative to RHx in case of insufficient left liver functional reserve.

Disclosure of Interest: None declared
Bayesian Analysis Discredits Deranged Liver Function Tests as a Useful Predictor of Bile Duct Stones in the Non-Jaundiced Patient Undergoing Cholecystectomy.

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Introduction: Normal liver function tests (LFTs) in patients undergoing cholecystectomy for acute gallstone disease (GS) provides reassurance that there is a low risk of common bile duct (CBD) stones. However, scant evidence supports the assumption that the opposite is the case; that deranged LFTs effectively predict CBD stones and constitute a valid indication for use of resources such as preoperative MRCP or operative cholangiography. We present a Bayesian analysis of derangement of LFTs as a binary classifier that predicts CBD stones.

Materials & Methods: Retrospective review was undertaken of consecutive patients having cholecystectomy for GS, within a single centre between Apr and Dec 2013. LFTs were considered deranged if any of bilirubin, alkaline phosphatase or alanine transferase were above the upper limit of the reference range on any occasion between presentation and surgery. Patients with, or a history of, cholangitis, clinical jaundice or bilirubin above 30 mmol/l were excluded. CBD stones were considered present if seen radiologically (CT/ MRCP), endoscopically (EUS/ ERCP) or surgically (operative cholangiogram/ duct exploration). A 2x2 confusion matrix was constructed and operating characteristics of LFTs as a test for CBD stones were calculated.

Results: 255 non-jaundiced patients underwent cholecystectomy for GS. As a test for CBD stones, deranged LFTs had sensitivity 73%, specificity 39%, false positive rate 61% and false negative rate 27%. The positive predictive value of deranged LFTs (5.1%) was almost equal to the overall prevalence, or pre-test probability, of 4.3%, and the difference was not significant (P=0.8 by Fisher’s Exact Test). Matthews correlation coefficient, a measure of the quality of a binary classifying test, is 0.05 (1 represents perfect prediction and 0 is no better than random) and the diagnostic odds ratio is 1.7 (where infinity represents perfect prediction and 1 provides no information).

Conclusion: Deranged LFTs cannot not be considered a useful binary classifier that predicts CBD stones in a non-jaundiced patient undergoing cholecystectomy for GS, performing little better than chance. Routine pre-operative MRCP for patients with deranged LFTs is unlikely to represent an efficient use of resources.

Disclosure of Interest: None declared
Introduction: The prevalence of hepatocellular carcinoma (HCC) is an increasing world-wide. As an endemic Hepatitis B virus (HBV) infected area in Taiwan, HCC is remaining the first or second (followed by or led to lung cancer) common cancer death in the past 20 years. On the other hand, the life expectancy of general population is prolonging. Many people lead to oldest old group (defined as age > 85 years).

Because liver resection is still a curative option and higher comorbidities in oldest old patients, the benefit of liver resection is remaining controversial.

Materials & Methods: Patients:
Between 1993 and 2015, 1842 patients who underwent a curative liver hepatectomy for newly-diagnosed HCC. Retrospectively investigated, among them, the clinical pathological characteristics, early and long-term outcomes after hepatectomy in 31 patients whose age was > 85 years (group A) were compared with those on the other 1810 patients whose age < 84 years (group B).

There were 18 patients whose HCCs were judged as resectable refused operation (group C) received non-operative treatment.

Only those with American society of Anesthesiolog (ASA) class one or two with controllable comorbidities and Forced expiratory volume at one second (FEV 1) ≥ 70% in spirometry, Left ventricular ejection fraction ≥ 50% in echocardiogram were considered operable.

The disease free survival (DFS) and overall survival (OS) were compared in Group A and B.

The OS of group A and C were also compared.

Results: The incidence of comorbidites of Group A (82.3%) was higher than Group B (25%) (p<0.001). The other pathological characteristic between Group A and B did not significantly differ. The post operative morbidities of group A and B were 23.3% and 20.3% (p=0.683), 90-day mortality 0 and 0.8% (p=0.56). The DFS of group A and B were 29.6% and 32% (p=0.284). The OS of group A and B were 40.5% and 59.5% (p=0.040). The OS of group C was 8% (p=0.024) compared with OS of group A.

Conclusion: In highly selective oldest old patients with controllable comorbidities, liver resection for HCC remained justified.

Disclosure of Interest: None declared
Introduction: The pancreatic groove area, between duodenum, bile duct and pancreatic head, usually lacks pancreatic tissue and is composed of fibrous connective tissue permitting the passage of blood vessels and nerves. Occasionally, heterotopic pancreatic tissue exists at this location, with variable relationship to the layers of the duodenal wall. Inflammation (groove pancreatitis) and malignancy (pancreatic groove cancer) have been described. We present a series of groove pathologies and report two conditions; groove neuroendocrine carcinoma; and groove carcinoma in-situ, which have to our knowledge not yet been described.

Materials & Methods: A retrospective review was undertaken of cases of groove pathology identified from pancreaticoduodenectomy (PD) specimens in a single centre between 2011 and 2016, assessing preoperative investigations, histological details and outcomes.

Results: Groove pathology was found in six patients having PD for presumed cancer (4♀, 2♂, median age 58 y, range 47-78 y). All had histological evidence of groove pancreatitis. Two patients had neoplastic change within groove heterotopia; one had a synchronous groove neuroendocrine carcinoma (with synaptophysin and chromogranin A staining), identified after PD for duodenal adenocarcinoma presenting with anaemia; and one had groove carcinoma in-situ (PaIEN G3) in dilated heterotopic ducts diagnosed after PD for pancreatic ductal adenocarcinoma (PDAC) presenting with pain. In two patients, groove pancreatitis accompanied other neoplasms; one PDAC presenting with jaundice and one intraductal pancreatic mucinous neoplasia presenting with recurrent pancreatitis. Finally, in two patients presenting with jaundice, groove pancreatitis was the only pathology. Both had PD for presumed cancer with preoperative brush cytological highly suspicious of malignancy (C4). All six had preoperative CT pancreas and EUS and/or ERCP; none diagnosed groove pathology. One CT described “distinct hyperattenuated foci in the region between D2 and pancreatic head” but attributed this to food residue in a fold or diverticulum. All six survive, median follow-up 10 months.

Conclusion: Pancreatic groove carcinoma in-situ and groove neuroendocrine carcinoma are newly reported conditions. Groove pancreatitis may be seen associated with other pancreatic neoplasia; it is not well assessed with conventional cross sectional imaging and may provide brush cytology highly suspicious for malignancy. PD offers the best prospect of definitive management of groove pathologies.

Disclosure of Interest: None declared
Introduction: Whilst pancreaticoduodenectomy (PD) remains the principal surgical option for periampullary neoplasia, segmental resection by pancreas preserving distal duodenectomy (PPDD) has been described in the management of infra-papillary disease. This may avoid the morbidity and mortality of a pancreatic anastomosis and may reduce postoperative length of stay (LOS) versus PD.

Materials & Methods: Patients were identified from a prospectively maintained database of PPDD undertaken in a large teaching hospital. Retrospective review of the case notes identified mode of presentation, co-morbidities, surgical detail, pathological results and outcome.

After full Kocherisation of the duodenum, with selective intraoperative side-viewing duodenoscopy to assess the relationship of papilla to lesion, and canulation of the papilla via duodenotomy if they are close, the proximal jejunum is transected and delivered into the supracolic compartment. After division of the short vessels to the distal duodenum, the resection is completed before retro-colic, isoperistaltic side-to-side duodenojejunostomy.

Results: Surgical exploration with a view to PPDD was undertaken in 24 patients between 2003 and 2016. Three had palliative bypass for unresectable disease and two proceeded to PD; 19 had PPDD. The commonest presenting symptoms were epigastric pain, vomiting and weight loss. Underlying pathology included duodenal adenocarcinoma (N=6), adenoma (N=5) and gastrointestinal stromal tumor (N=4), as well as lipoma, SMA syndrome, bleeding diverticulum and locally advanced colon cancer (N=1 each). Median LOS was 9 days (versus 11.5 days for PD in same institution, P<0.05 by Fisher’s Exact Test). Median follow-up was 32 months. There has been no 90-day mortality and 16 of 19 patients are still alive (1 death from recurrent duodenal adenocarcinoma, 2 from unrelated conditions). One patient underwent surgical revision after 2 years for anastomotic stricture.

Conclusion: PPDD is a versatile operation and can be used effectively in the management of a range of infra-papillary lesions with shorter LOS than PD and without the morbidity and mortality of a pancreatic anastomosis. It should be undertaken with facilities available to permit conversion to PD.

Disclosure of Interest: None declared
Introduction: Poor physical health and fitness contributes to increased perioperative morbidity. Prehabilitation is a process to optimize physical functions of the patient preoperatively with the intent to improve outcomes. A program of aerobic exercises, strength training and nutritional modification was introduced by our hepatobiliary and pancreatic (HPB) surgery unit from 1st Jan 2016. We report our early experience and discuss the challenges and short term outcomes.

Materials & Methods: A retrospective analysis was performed for all patients from January to December 2016 who underwent major elective HPB surgery and managed with prehabilitation program.

Results: 81 patients with a median age of 64 years (range 33-89) were enrolled into the prehabilitation programme. 70% were male, 55 patients underwent major liver resection and 26 had pancreatic resections. 38% of patients had diabetes and 42 patients had ASA score of 3. Mean operative time for liver resection was 242 minutes (range 62-511 minutes) and pancreas resection was 438 minutes (range 115-709 minutes). Median length of stay was 6 days for liver resection and 12 days for pancreatic resections. 17 patients had pulmonary morbidity (pneumonia, atelectasis or pleural effusion) and there was nil 30 days mortality.

Conclusion: Our early experience with prehabilitation program for major HPB and pancreatic surgeries have shown promising outcome with nil 30 days mortality and few pulmonary morbidity. Further study needs to be carried out to validate our early results.

Disclosure of Interest: None declared
Introduction: Our objectives were to identify predictors of the recurrence of intrahepatic cholangiocarcinoma (ICC), and evaluate the survival benefit of adjuvant chemotherapy and surgical treatment for ICC recurrence.

Materials & Methods: A multi-institutional retrospective study was performed in 356 patients with ICC who underwent curative surgery at one of 14 institutions belonging to the Kyushu Study Group of Liver Surgery.

Results: A total of 214 patients (60%) had recurrence. The predictors of ICC recurrence were as follows: positive for pathological intrahepatic metastasis (im), positive for lymph node metastasis (n), positive for pathological lymphatic infiltration (ly), pathological bile duct invasion (b), and the tumor size≥4.4 cm. Adjuvant chemotherapy was administrated to 120 patients (34%), and in the patients with im or tumor size≥4.4 cm, adjuvant chemotherapy showed a survival benefit. Only 37 patients (17%) underwent surgical treatment for ICC recurrence. The surgical treatments resulted in a good 5-year survival rate (44%), which is similar to the rate obtained by the first operation for primary ICC. The prognosis of patients with primary im after the second operation was significantly worse (5-year survival 18%) compared to the patients without primary im.

Conclusion: The predictors for ICC recurrence are as follows: im (+), n (+), ly (+), b (+), and the tumor size≥4.4 cm. Adjuvant chemotherapy for patients with im or the tumor size≥4.4 cm has a survival benefit. Surgical treatment for ICC recurrence resulted in a 44% 5-year survival rate. Primary im+ should be considered a contraindication for surgical treatment for ICC recurrence.

Disclosure of Interest: None declared
LONG-TERM OUTCOMES FOLLOWING RESECTION FOR PANCREATIC DUCTAL ADENOCARCINOMA OF THE HEAD WITH PORTOMESENTERIC VENOUS INVASION.

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Introduction: The aim of this study was to clarify the influence of histologic portal (PV) or superior mesenteric vein (SMV) invasion on the long-term outcomes of patients who underwent surgical resection for pancreatic head adenocarcinoma.

Materials & Methods: A total of 641 consecutive patients who underwent surgical resection for ductal adenocarcinoma of pancreatic head between May 1995 and December 2014 were retrospectively reviewed. The survival rates were compared between patients with a pathologically confirmed PV-SMV invasion and those without invasion.

Results: The 5-year survival rate of all patients was 22.2%. 133 patients (20.7%) underwent PV-SMV resection during pancreaticoduodenectomy or total pancreatectomy and among them, pathologic PV-SMV invasion was observed in 101 patients (77.1%). The median survival of patients underwent PV-SMV resection was significantly decreased compared with those without PV-SMV resection (16.2 versus 19.1 months; \( p = 0.026 \)). Similarly the overall survival of the patients with pathologic PV-SMV invasion was significantly lower than those without invasion (median survival of 14.7 versus 19.1 months; \( p = 0.014 \)). Among patients underwent PV-SMV resection, there was no significant difference in overall survival between patients with a pathologic PV-SMV invasion and those without invasion (median survival of 19.8 versus 14.7 months; \( p = 0.456 \)). 450 patients (70.2%) underwent R0 resections and among them, 50 patients (11.1%) were diagnosed as PV-SMV invasion. Survival between patients underwent R0 resection without PV-SMV invasion and those with PV-SMV invasion was not significantly different (median survival of 19.3 versus 17.4 months; \( p = 0.164 \)). Poorly differentiated or undifferentiated histology, tumor size over 3cm, nodal involvement, intraoperative transfusion, blood loss over 680ml were revealed as independent prognostic factors.

Conclusion: The PV-SMV invasion itself resulted in decrease of overall survival in the ductal adenocarcinoma of pancreatic head. Venous resection of PV-SMV combined with pancreaticoduodenectomy or total pancreatectomy did not increase survival rates. However, in patients with PV-SMV invasion the survival rate is not significantly inferior to those without PV-SMV invasion when R0 resection was done. Therefore, PV-SMV resection should be considered in patients with suspected PV-SMV invasion.

Disclosure of Interest: None declared
ANATOMIC VS NONANATOMIC RESECTION FOR T1-T2 HEPATOCELLULAR CARCINOMA

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Introduction: Hepatocellular carcinoma (HCC) spreads mainly by vascular invasion. Anatomic resection (AR) has been considered as theoretically effective because it allows for eradicating the intrahepatic metastases via vascular route. However, survival benefits of AR remains controversial. The aim of this study was to determine which hepatectomy procedure—AR or nonanatomic resection (NAR)—is more beneficial for patients with pathologic T1-T2 (pT1-T2) HCC.

Materials & Methods: A retrospective analysis was conducted of 288 patients who underwent either AR (n = 189) or NAR (n = 99) for pT1-T2 HCC. Anatomic resection was defined as the complete removal of at least one Couinaud segment containing the tumor. NAR was defined as removal of the tumor plus a rim of nonneoplastic parenchyma. To determine factors influencing long-term outcomes after resection, 21 clinicopathological factors were examined in all 288 patients. The median follow-up time was 117 months.

Results: The cumulative 5-year overall survival (OS) after resection was 63.7%, and median survival time (MST) was 100 months. Patients who underwent AR were significantly associated with lower prevalence of cirrhosis, more favorable hepatic function, higher platelet counts (> 10 × 10^4), longer operative time (> 300 minutes), more blood loss (> 1000 mL), larger tumor size (> 3 cm), and higher frequency of vascular invasion, pT2 tumor, and R0 resection. Vascular invasion was positive for 58 (20.1%) patients, and the OS was significantly worse in patients with vascular invasion (VI group) than in those without vascular invasion (non-VI group) (5-year OS 23.1% vs 68.1%; MST 47 months vs 110 months; P = 0.006). In the VI group, the OS and the recurrence free survival (RFS) was better in patients who underwent AR than in those who underwent NAR (P = 0.023 and 0.002, respectively). In the VI group, multivariate Cox regression model showed that hepatectomy procedure—AR or NAR—was the independent prognostic factor in the OS (HR, 1.223; P = 0.008) and the RFS between patients who underwent AR and those who underwent NAR.

Conclusion: Anatomic resection for HCC with vascular invasion independently improves long-term survival. As the status of vascular invasion cannot be evaluated accurately before resection, anatomic resection should be considered for all clinical T1-T2 HCC when feasible.

Disclosure of Interest: None declared
Introduction: Abundant mucin production is often observed in intraductal papillary neoplasm of the bile duct (IPNB). On the other hand, cases with poor mucin secretion are included in IPNB. Clinicopathological features of IPNB with clinical mucin production remain unknown. The aim of this study was to elucidate clinicopathological features of IPNB with clinical mucin production.

Materials & Methods: Between 1999 and 2015, a total of 36 consecutive patients who underwent surgical resection for IPNB at our institute were retrospectively reviewed. IPNB arising from intrahepatic or extrahepatic bile duct was examined. In accordance with presence or absence of clinical mucin production, the IPNB patients were divided into two groups; Mucin(+) group (12 cases) and Mucin(-) group (24 cases). Clinicopathological factors, prognosis and recurrence were compared between the two groups.

Results: 24 men and 12 women were included in this study. Mean age was 68.3 (46-82) years old. Median follow-up time was 60.7 months. Intrahepatic origin of Mucin(+) group was significantly more than that of Mucin(-) group (Mucin(+) vs. Mucin(-), 10 cases (83.3%) vs 6 cases (25.0%), p=0.0021). There were no cases of low- or intermediate-grade in the two groups. High-grade (carcinoma-in-situ) was seen in 10 cases (83.3%) of Mucin(+) group and 8 cases (33.3%) of Mucin(-) group, showing a significant difference between the groups (p=0.0047). 5 case (20.8%) of Mucin(-) group had lymph node metastasis, whereas no cases of Mucin(+) had. 5-year disease-specific survival rate showed 100 and 65.4% in Mucin(+) and Mucin(-) group, respectively, indicating a significant difference (p=0.0315). There was no significant difference in disease free survival (DFS) between Mucin(+) and Mucin(-) group (5-year DFS rate; 79.5% vs. 60.9% p=0.1959). 2 cases of Mucin(+) group had recurrence after surgical resection (liver: 1 case, metachronous IPNB: 1 case). In Mucin(-) group recurrence was seen in 10 cases (local: 2 cases, liver: 1 case, peritoneum: 3 cases, lung: 2 cases, bone 1 case, brain 1 case).

Conclusion: IPNB with clinical mucin production shows a better prognosis, compared to IPNB with no that. Clinicopathological features of IPNB are different in presence of clinical mucin production.

Disclosure of Interest: None declared
Introduction: The cardiomyotomy with or without fundoplication is mainstay of surgical treatment of achalasia cardia. The aim of this paper is to determine the effectiveness of various surgical management in patients with achalasia in a tertiary center.

Materials & Methods: We analysed the prospectively maintained database of patients of achalasia cardia, treated surgically between January, 2006 through December, 2015. Data was reviewed based on type of procedure. Any previous intervention morbidity and mortality in post-op period were analysed and compared.

Results: Total 64 patients were operated. Of these, 10 patients underwent esophagectomy, 1 patient underwent cervical esophagostomy with repair of esophageal perforation, and rest (n=53, 82.8%) underwent laparoscopic cardiomyotomy with or without some sort of antireflux procedure. Of 53 patients, there were 18 females and 35 males. 34 patients had previous attempts of pneumatic dilatation. In 2 patients procedures were converted to open and 1 had planned open surgery in view of emergent condition. 8/53 (15.1%) patients had mucosal injury which were repaired primarily in all patients. 1 patient had pleural injury. Median time for starting orals was 2 days. 5/53 (9.43%) patients had post-op morbidity which were less than or equal to grade 2 on Clavin-Dindo Scale. Mean post-op stay was 5 days. In 53 patients of cardiomyotomy, laparoscopic Dor fundoplication were added in 27 (51%), laparoscopic Toupet in 12 (22.6%) and in 14 (26.4%) no anti-reflux procedure were performed. In these 3 groups, there were no difference in post-op stay, cardiomyotomy length in esophagus and stomach, blood loss and removal of NG tube in post-op period and starting of orals. The presence or absence of previous pneumatic dilatation did not affect the incidence of intra-op mucosal perforation (p = 0.153). Time taken and intra-op blood loss for all these procedures were similar. All patient had relief of symptoms in immediate post-op period. In short term follow-up there were no significant difference in symptoms relief among 3 groups.

Conclusion: Laparoscopic cardiomyotomy is a proven surgical procedure to treat achalasia cardia with excellent results. The presence or absence of pneumatic dilatation do not alter the incidence of intra-operative mucosal injury. The addition of anti-reflux procedure is not necessary to treat anticipatory reflux following incompetent lower esophageal sphincter in short term follow-up. However, long term follow-up may reveal the incidence of reflux needing further management.

Disclosure of Interest: None declared
USE OF TRANSFASCIAL SUTURE FIXATION VERSUS FIXATION TACK IN ENDOSCOPIC INGUINAL HERNIA REPAIR – A PROSPECTIVE NON RANDOMIZED DATA FROM A DEVELOPING COUNTRY

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Introduction: Endoscopic inguinal hernia (EIH) repair has proved its superiority over open inguinal hernia (OIH) repair in regards of cosmesis, faster recovery, and early return to work beyond doubt barring the cost effectiness due to need of fixation device for secure placement of larger mesh. The cost of healthcare in endoscopic surgery is a major limiting factor in its wider use especially in a developing country where most of the population is also not covered under health insurance.

This prospective study was done to determine the feasibility and cost effectiveness of transfascial suture fixation compared to use of fixation tack during EIH.

Materials & Methods: A prospective non-randomized study from September 2015 to August 2016 included all patients (n=69) who underwent elective primary EIH (TEP/TAPP) - Group 1 (n=44) with fixation tack (Protack from Covidien) and Group II (n=25) with transfascial suture fixation (to anterior abdominal wall using 18G iv cannula) with 3-0 prolene suture. Baseline patient characteristics were recorded in addition to mean operating time, intraoperative and postoperative complications, return to work, quality of life and cost effectiveness.

Results: There was no significant difference in the mean operative duration between Group I and Group II (102.5±11.9 minutes vs 94.9±12.7 minutes, p>0.05). Mean duration of hospital stay, time to return to routine work, and intraoperative and postoperative complications were comparable in both the groups. Quality of life was better in Group II with a significant decrease in terms of sensation of mesh, postoperative pain and movement limitation. Also Group II also scored high over Group I in terms of cost. Mean follow up duration was 9.5 months with no recurrence in either groups.

Conclusion: Transfascial fixation reduces the cost of endoscopic hernia surgery drastically and can be a better alternative to tacker making the procedure cost-effective like open hernia surgery. This helps the surgeon to offer the benefits of endoscopic surgery to economically weak patients especially in a developing country.

Disclosure of Interest: None declared
PE352
LAPAROSCOPIC RIGHT HEMICOLECTOMY WITH WEDGE EXCISION OF D2 FOR LOCALLY ADVANCED HEPATIC FLEXURE ADENOCARCINOMA AND SUBTOTAL GASTRECTOMY BILLROTH II RECONSTRUCTION FOR CHRONIC GASTRIC ULCER STRicture.

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Introduction: Surgical treatment for locally advanced colonic hepatic flexure adenocarcinoma with direct invasion to duodenum is a challenging case even to skilled surgeon. The standard surgical treatment includes right radical hemicolecetomy with en bloc pancreaticoduodenectomy. However, in selected case, right radical hemicolecetomy with enbloc wedge excision of duodenum is a feasible option as it enhances early recovery and reduces morbidity. We present an unusual case of patient presented with symptoms of gastric outlet obstruction with chronic gastric ulcer stricture with locally advanced hepatic flexure tumour with direct invasion to D2 who underwent successfully laparoscopic surgery.

Materials & Methods: A 73 years old lady presented with symptoms of vomiting and change in bowel habit. She underwent upper endoscopy that showed chronic gastric ulcer stricture causing gastric outlet obstruction. Biopsy was taken that showed chronic gastritis. She also underwent colonoscopy which showed hepatic flexure tumour. CT-scan of abdomen and pelvic showed locally advance hepatic flexure tumour with duodenum invasion. There were no liver or lung metastases.

Results: Patient underwent laparoscopic right hemicolecetoy with wedge excision of D2 with Subtotal Gastrectomy Billroth II reconstruction. Four 10-12mm Ports placed at supraumbilical, suprapubic, right and left iliac fossa region and another two 5mm working ports at right and left upper outer quadrant. Standard Right Hemicolecetomy performed with wedge excision of duodenum. Primary closure of duodenotomy performed laparoscopically. It was followed by Subtotal gastrectomy Billroth II reconstruction. Total operating time was 5 hours with intra-operative blood loss about 200ml. Post-operatively, patient was started on oral feeding from Day 4. Patient was discharged well on post-operative Day 7. Final histology showed poorly differentiated adenocarcinoma with pT4bN0 (0/20 Lymph Node positive) Tumour penetrated to the surface of the visceral peritoneum (serosa) and directly invaded adjacent subserosal soft tissue of the duodenum. Proximal, Distal and Circumferential Margins were negative. Histology of subtotal gastrectomy showed chronic inflammation. Patient subsequently started on adjuvant chemotherapy.

Conclusion: Laparoscopic Right Hemicolecetomy with wedge excision of D2 for locally advanced hepatic flexure adenocarcinoma and Subtotal Gastrectomy with Billroth II reconstruction for chronic gastric ulcer stricture is safe and feasible selected case.

Disclosure of Interest: None declared
Introduction: Postoperative LC pain is an unwanted condition where the relationship between residual intraperitoneal CO₂ and pain level has not been clearly proved. There is an explanation about inflammation caused by CO₂ leading to pain stimulation, but not much research has been done to study about this. Moreover, pain score given by the patients is used for pain measurement in most studies, which is not quite accurate due to variable individual pain thresholds.

Materials & Methods: Eligible patients with an indication for LC were randomly assigned preoperatively either to have the conventional CO₂ releasing method or an additional 60 seconds of suction after LC. Data was collected, including demographic data, indication for LC, postoperative pain by visual analog scale at 6, 12 and 24 hours, residual intraperitoneal pressure, operative time, intraoperative morphine amount, morphine PCA amount in 24 hours, and postoperative complications. Pain evaluation by PCA amount was designed to get more accurate primary outcomes.

Results: The patients were similarly distributed. The most frequent diagnosis is symptomatic gallstones. The residual intraperitoneal pressure was 4.1±2.1 and 5.7±3.5 mmHg with statistically significant difference. Morphine PCA amount in the suction group was 0.085±0.016 mg/kg and 0.104±0.019 mg/kg in the non-suction group, which were not significantly different. Postoperative pain level at 6, 12, and 24 hours as secondary outcomes showed that suction group seemed to have slightly higher pain score than non-suction group at 6 and 12 hours, but tended to be a bit lower at 24 hours with p-value 0.093, which was not significant different.

Conclusion: Additional CO₂ suction from this study does not reduce postoperative pain. However, with a larger study population, it might help us to consider results in the intervention group better.


**Disclosure of Interest:** None declared
Introduction: Pneumoperitoneum during laparoscopic surgery requires muscle relaxation and general anesthesia which needs preoperative preparation and post-operative recovery process. On the other hand, open surgery for inguinal hernia, such as Lichtenstein repair, can be safely performed under local anesthesia and ensures early recovery and safety. We developed a novel minimally invasive technique of single-port laparoscopic totally extraperitoneal (TEP) inguinal hernioplasty under local anesthesia which is suitable for overnight hospital admission.

Materials & Methods: From January 2012 to February 2014, a consecutive group of 65 patients with bilateral inguinal hernia was included. Obese patients, patients with giant hernia or irreducible hernia were excluded. We used 0.5% lidocaine with epinephrine as local anesthesia. An incision of 30 mm in the lower abdomen was made and a wound protector with sealing silicon cap was placed. We used three 5-mm trocars and a 5-mm flexible laparoscope. A flat self-fixating mesh with resorbable microgrip was installed and spread over the myopectineal orifice. No tacking devices were used.

Results: The mean ± SD age was 67 ± 10 and male sex was 94%. The mean operating time was 171 ± 38 minutes. Surgical complications were not observed except for 9 cases of minor seromas. Pneumoperitoneum due to peritoneal injury was occurred in 6 cases and managed by suturing the defect. During median follow-up of 12 months, we observed no hernia recurrence or complications other than seromas.

Conclusion: The short- to mid-term outcomes were similar to those of conventional TEP or open hernia repair. Surgical invasiveness of this technique was minimal because the area of dissection in the preperitoneal space is smaller than that of umbilical TEP. Postoperative recovery was rapid and patients can walk soon after surgery. This novel procedure may be feasible in ambulatory setting.

Disclosure of Interest: None declared
Introduction: Laparoscopic restorative proctocolectomy and ileal pouch-anal anastomosis (IPAA) is the intervention of choice for patients with refractory ulcerative colitis (UC). Despite its excellent outcome, laparoscopic dissection is still a technical challenge, especially in the most distal part of the pelvis or in the presence of severe rectal inflammation. These patients can benefit from the transanal and transabdominal combined approach, especially during the proctectomy and IPAA.

Materials & Methods: We present the case of a 73-year-old woman with a past medical history of laparoscopic total colectomy and terminal ileostomy due to refractory ulcerative colitis. Patient presented with recurrent rectal bleeding despite medical treatment. Proctectomy and IPAA by simultaneous transanal and transabdominal approach was then proposed. The abdominal team started with the exteriorization of the terminal ileum through the ileostomy orifice and fashioning of the J-pouch. A purse-string suture was placed at the end of the pouch, inserting the anvil for the future mechanical anastomosis. Simultaneously, the perineal team started the proctectomy with laparoscopic instruments. After transanal insertion of a GelPoint device and CO₂ insufflation, the first maneuver was to occlude the rectal lumen with a purse-string suture just above the dentate line leaving a short rectal cuff. Full-thickness section of the rectal wall was then performed and a close rectal dissection in a down-to-up fashion was completed until the rendezvous with the abdominal team. The rectum was extracted transanally and a mechanical anastomosis was performed. The abdominal team finished the surgery with the construction of a diverting ileostomy.

Results: Operative time was 140 minutes. Patient started oral intake 24 hours after surgery and was discharged 3 days later. After 2 years of follow-up, the patient has not presented any complication with good pouch function after ileostomy closure.

Conclusion: Proctectomy and ileal pouch-anal anastomosis by simultaneous transanal and transabdominal approach is safe and feasible for patients with refractory UC. Further investigation is justified to assess any benefit when compared to previous techniques.

Disclosure of Interest: None declared
Introduction: In selected cases of ulcerative colitis (UC), restorative proctocolectomy with a J-pouch and ileal pouch-anal anastomosis (IPAA) is the treatment of choice. Total mesorectal excision has been preferred to perform the proctectomy, although a close rectal dissection (without following the holy plane) has also been described. Hybrid transanal CRD (TaCRD) appears to be the next step in the evolution of minimally invasive transanal surgery. We present the short-term outcomes and complications of our series.

Materials & Methods: All consecutive patients with UC treated at our hospital by TaCRD between September 2012 and November 2016 were prospectively included in a standardized database. In the majority of cases a three-stage procedure was performed.

Results: A total of 26 patients were analyzed. Mean age was 45.15 (SD 15.26) years with 65.4% male (n=17). Six patients (23.0%) were obese (BMI > 24.9). Mean operative time for TaCRD and IPAA was 154.79min (SD 50.1) without any conversion to pure laparoscopic or open approach. Three patients (11.5%) received a total colectomy and proctectomy with IPAA and loop ileostomy in the same intervention (as opposed to the standard two-step procedure). Stapled IPAA was performed in 22 patients (84.6%) and hand-sewn in four (15.4%). No intraoperative complications were reported. In the 30-day postoperative period, major (Clavien Dindo IIIb) complications were reported in two patients (7.69%). One presented pouch bleeding requiring blood transfusion and surgical hemostasis. The other presented early anastomotic leakage requiring a pouch redo. There was no report of pelvis sepsis or mortality. The mean follow-up time was 29.36 (SD 16.02) months. Three cases of pouchitis were reported, one of them requiring a terminal ileostomy. Functional evaluation was available for 18 (69.23%) patients, with a mean Oresland score of 4.7 and Wexner score of 1.4.

Conclusion: For patients with UC requiring surgery, TaCRD provided good short-term morbidity. Further investigation is justified to assess any benefit when compared to TME and abdominal CRD. Evaluation of functional results is still to be completed.

Disclosure of Interest: None declared
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Introduction: With intent to improved patient satisfaction and cosmetic acceptance, the surgical removal of gall bladder has undergone many modifications in terms of number, size and locations of the ports. We introduced a new technique of laparoscopic cholecystectomy using 3 ports without the conventional epigastric port, New 3 ports laparoscopic cholecystectomy (NTLC) and conducted a study to look for its safety and short term postoperative outcomes and comparing it with other time tested methods of laparoscopic cholecystectomy the classical 4 ports (CFLC) and conventional 3 ports (CTLC).

Materials & Methods: RCT was conducted for duration of 2 years. Total of 450 patients enrolled in the study and assigned to three groups CFLC, CTLC and NTLC (n= 150 each). Intra-operative complications, conversion rate, operative time, postoperative pain, length of hospital stay, cosmetic satisfaction and quality of life were assessed.

Results: Mean operative time was maximum in CFLC (30.6±8.55 min) and minimum in CTLC Group (26.4±7.52 min) while 27.4±8.12 min in NTLC group. Length of hospital stay and quality of life had no significant difference among groups. In terms of cosmetic satisfaction and postoperative pain the NTLC group was superior to others.

Conclusion: NTLC provides better cosmetic acceptance and less postoperative pain with comparative efficacy and without increased risk of intra-operative complications.

Disclosure of Interest: None declared
Introduction: Infected pancreatic necrosis is a severe form of acute pancreatitis and has high in-hospital morbidity and mortality rate. This case study aim was recognized for management of infected pancreatic necrosis via minimally invasive single-port incision retroperitoneoscopic necrosectomy approach.

Materials & Methods: A 40 years old Thai woman with chronic alcohol drinking presented with severe epigastrum pain. Laboratory and computerized tomography (CT) abdominal scan were confirmed diagnosis infected pancreatic necrosis with abscess. Single-port retroperitoneoscopic necrosectomy was operated to debridement and drainage infected pancreatic parts. The patient was on semi-supine position. An incision was done at anterior to mid axillary line of left flank below costal margin length 20 mm. for inserting single port (camera port 10 mm and working port 5 mm). Necrotic pancreatic tissues were debrided via endoscopic grasping forceps. Abscess fluid was suctioned and irrigation with warm normal saline via suction irrigator. All process was done under direct visual observation to prevent bleeding and injury to adjacent organ.

Results: Operative time was 40 minutes with minimal blood loss. Tube drain was placed via skin incision. The patient’s fever gradually decreased in the postoperative period. She was discharged from hospital without any post-operative complication. Follow up CT scan at 1 and 3 months was presented significant decrease fluid collection and complete resolution respectively.

Conclusion: Single-port retroperitoneoscopic necrosectomy is minimally invasive and effective surgical technique for management infected pancreatic necrosis. This approach is a novel option technique to deal with the fatal therapeutically challenging condition.


Disclosure of Interest: None declared
Introduction: Barrett's esophagus (BE) is a complication of longstanding GERD, resulting in the replacement of the normal squamous lining of the distal esophagus by columnar epithelium containing specialized intestinal metaplasia. Endoscopic surveillance is recommended for patients with BE in the hope of detecting dysplasia before it progresses to adenocarcinoma. Esophagectomy has traditionally been recommended for patients found to have high-grade dysplasia or early cancer. Endoscopic therapy has been proven to be a safe, effective, and less invasive alternative to surgery for treating such patients.

Endoscopic resection (ER) is an endoscopic approach in which the neoplastic epithelium is excised, allowing a (safe & effective) definitive histologic diagnosis, while also potentially being curative. ER does not impair subsequent ablative therapy (eg, [PDT], [APC], or [RFA]) for treatment of larger areas of residual Barrett's mucosa. Ablative therapy alone provides no specimen for histopathologic evaluation. ER is the cornerstone of endoscopic management, and ablative techniques are mainly used as an adjunct to it.

AIM: To evaluate endoscopic mucosal resection (EMR) in patients with high-grade dysplasia (HGD) and/or intramucosal cancer (IMC) in Barrett's esophagus (BE).

Materials & Methods: METHODS: Between June 2010 and December 2013, 20 consecutive patients with HGD (18) and/or IMC (2) underwent EMR. BE >30 mm was present in 13 patients. In three patients with short segment BE, HGD was detected in a normal appearing BE. Lesions had a mean diameter of 14.8±10.3 mm. Mucosal resection was carried out using the cap method.

Results: RESULTS: The average size of resections was 19.7± 9.4×14.6±8.2 mm. Histopathologic assessment post resection revealed 3 low-grade dysplasia (LGD) (15%), 14 HGD (70%), 2 IMC (10%), and 1 SMC (5%). EMR changed the pre-treatment diagnosis in 5 patients (25%). One patient with SMC underwent surgery. Histology of the surgical specimen revealed T1N0 lesion. A metachronous lesion was detected after 25 mo in one patient with HGD. Intra-procedural bleeding, controlled at endoscopy, occurred in four patients (20%). After a median follow up of 34.9 mo, all patients remained in remission.

Conclusion: CONCLUSION: In the medium term, EMR is effective and safe to treat HGD and/or IMC within BE and is a valuable staging method. It could become an alternative to surgery.

Disclosure of Interest: None declared
PE360
TO STUDY FEASIBILITY AND OUTCOMES OF SINGLE INCISION TRANSUMBILICAL LAPAROSCOPIC APPENDECTOMY USING CONVENTIONAL INSTRUMENTS.
A SINGLE INSTITUTION EXPERIENCE

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Introduction: During the era of laparoscopic surgery common trend has been towards less invasive techniques and a natural extension of the trend is to perform operations without scars. The most prominent techniques representing scarless surgery are transumbilical single-incision laparoscopic surgery (SILS) and natural orifice transluminal endoscopic surgery (NOTES). As the latter is still struggling with some technical and equipmental difficulties, SILS seems to be more ready for wider use in surgical community. our aim is to study the feasibility and outcome of single incision transumbilical laparoscopic appendectomy using the conventional laparoscopic instruments.

Materials & Methods: The study subjects were consists of follow up cases of acute appendicitis proven by clinical examination and sonograph abdomen. which was manage conservatively will underwent single incision laparoscopic interval appendectomy during October 2015-2016 admitted in the general surgery department in the sms medical college.

Results: The procedure was successful in 28 of 30 patients. Mean operative time was 38.40 minutes (range 31-50 min).There was no mortality or major postoperative complication. The median hospital stay was 2.76 days (range 2 to 7 days).The mean visual analogue scale score at the time of discharge was 2.2 (range 1 to 4).Patient satisfaction score 9.32 (range 7-10).Average wound length was 2 cm (range 1.3 to 2.1 mm). Mean time to return to normal activity 2.76 ± 1.13 (range 2 – 7 days)

Conclusion: From our study, it is concluded that single incision laparoscopic appendectomy (SILA) with conventional instruments and ports is feasible, safe, cost effective with excellent cosmetic results.

In future, the above procedure could be ideal especially young females who are more concerned about cosmetic results and have uncomplicated cases and have favourable intraoperative finding after putting the scope. Umbilical hernia can also be repaired at the same time.

Disclosure of Interest: None declared
PE361
NEOADJUVANT THERAPY IN PATIENTS WITH ESOPHAGEAL CANCER: EXPERIENCE IN PAKISTAN
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Introduction: An esophageal cancer is a highly aggressive cancer often associated with poor prognosis. Surgery was considered the mainstay of treatment but despite improvements in operative and perioperative outcomes, a large proportion of patients succumb to recurrence of the disease. Recent literature has shown that multimodality treatment (Neoadjuvant Chemoradiotherapy (NAC-DXRT) followed by surgery) increases disease free survival(1-3), especially in patients who have a complete pathological response (pCR)(3). Squamous cell carcinoma (SCC) is more prevalent in our population as compared to western literature. With introduction of CROSS trial(3), better outcomes are achievable in patients with esophageal cancer.

Materials & Methods: We designed a single center retrospective cohort to identify outcomes of NAC-DXRT in patients with esophageal cancer. This included patients receiving NAC-DXRT from January 2011 to December 2015. Data was retrieved from hospital records. Crosstabs were used to determine the association between variables, Chi Square for samples above 5 and Fisher’s Exact test for samples below 5. A p-value of <0.05 was considered significant.

Results: 46 Patient had received NAC-DXRT for esophageal cancer. The mean age of presentation was 48.26±12.98 years. 87% were SCC and 23.9% had developed some form of complication to NAC-DXRT. Out of 46 patients receiving NAC-DXRT, 37 underwent surgery, out of 37 patients 54.1% developed pCR, 21.6% had developed Near-pCR with a cumulative 81.3% pCR to Near pCR in SCC. and 28.9% developed postoperative complications.

Conclusion: In our short study, a significant number of patients were deferred from surgery after NAC-DXRT. A significant number of patients had developed pCR. Pathologic response of squamous cell carcinoma is highest reported in literature.


Disclosure of Interest: None declared
PE362
LAPAROSCOPIC TRANS HIATAL ESOPHAGECTOMY: OUR EXPERIENCE

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Introduction: Esophageal cancer is increasing in the last decade. Different types of treatments are available, including minimally invasive esophagectomy. The aim of this study is to evaluate the results of minimally invasive trans hiatal esophagectomy.

Materials & Methods: Patients with esophageal cancer who presented to Emam Reza hospital were assessed and their eligibility for type of surgery were investigated. After ruling out the metastasis and inability to tolerate surgery they were candidate for trans hiatal esophagectomy either open or laparoscopic.

Results: Between May 2012 to January 2014 we perform 93 esophagectomy. We had 57 patients in open group and 36 patients in laparoscopic one. There were no demographic differences between groups. Mortality occurred in 3 patients in open group and 7 patients in laparoscopic group (P<.05). Chylothorax happened in 4 patients in open group and only in one patient in laparoscopic group but without significant differences. Mean operation time was 75+16 min in open group and 125+25 min in laparoscopic group (P<.05). Hospital staying was 8+1.7 days in open group and 7+1.9 in laparoscopic group without significant statistical difference.

Conclusion: Minimally invasive trans hiatal esophagectomy is an available option for treatment of esophageal cancer but our results should be interpreted with caution due to low volume and our primary experience in patient selection.

Disclosure of Interest: None declared.
PE363
PREDICTIVE VALUE OF THE NUMBER OF SYMPTOMS DURING PH MONITORING FOR THE DIAGNOSIS OF GASTROESOPHAGEAL REFLUX DISEASE
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Introduction: Symptoms have a low accuracy for the diagnosis of gastroesophageal reflux disease (GERD) compared to pH monitoring. The absence of GERD in patients with reflux symptoms may be explained by esophageal dysmotility, visceral hypersensitivity and hypervigilance. We believe hypervigilance can be estimated by the number of symptoms in 24 hours. This study aims to correlate the number of symptoms during pH monitoring with the diagnosis of GERD.

Materials & Methods: We studied 424 non-selected patients (58% females, mean age 43) that underwent a pH monitoring for suspected GERD. Esophageal symptoms, extraesophageal symptoms, and no symptoms were reported in 199 (47%), 129 (30%), and 150 (35%) of the tests, respectively. Patients were grouped in GERD+ and GERD- according to the DeMeester score. Symptom association was defined by the Symptom Index.

Results: We studied 424 non-selected patients (58% females, mean age 43) that underwent a pH monitoring for suspected GERD. Esophageal symptoms, extraesophageal symptoms, and no symptoms were reported in 199 (47%), 129 (30%), and 150 (35%) of the tests, respectively. Patients were grouped in GERD+ and GERD- according to the DeMeester score. Symptom association was defined by the Symptom Index.

Conclusion: In conclusion, our results show that the number of symptoms reported in 24 hours is not a good predictor for GERD.

Disclosure of Interest: None declared
PE364
A PICTORIAL ANALYSIS OF DIFFERENT THERAPEUTIC SWALLOWING MANEUVERS AT THE LIGHT OF HIGH RESOLUTION MANOMETRY
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Introduction: Various swallowing maneuvers are used to rehabilitate patients with oropharyngeal dysphagia. The assessment of the motility of the pharynx, upper esophageal sphincter (UES) and proximal esophagus provoked by these maneuvers are still elusive. These structures have anatomical and functional peculiarities that hinder the accurate study of their motility with the technology traditionally available. High-resolution manometry (HRM) has characteristics that make it more suitable for the study of the upper digestive tract. This study aims to present a pictorial atlas of HRM findings during therapeutic swallowing maneuvers.

Materials & Methods: We studied 4 (50% males, mean age 27 years) volunteers that underwent HRM. Individuals were asked to perform the following swallowing maneuvers: chin tuck, head back, supraglottic swallow, super-supraglottic swallow, effortful swallow and Mendelsohn maneuver. UES pressures and position were recorded. All plots were reviewed by 2 experienced researchers.

Results: No changes were observed during chin tuck maneuver. Head back maneuver created an increase in the UES pressure before and after swallow. Supraglottic swallow incited a raise in pharyngeal pressure. Super-supraglottic swallow incited a raise in pharyngeal and esophageal pressures. Effortful swallow provoked a raise in pharyngeal and esophageal pressures, pressurization of the UES before swallow and elevation of the UES after swallow. Finally, Mendelsohn maneuver incited all described findings except esophageal pressurization (Figure 1).

Conclusion: The studied maneuvers triggered different responses of pharyngeal, UES and esophageal motility. Therapeutic maneuvers should be tailored to individual patients.

Disclosure of Interest: None declared
Introduction: Intrathoracic anastomosis in restoring continuity after oesophageal cancer resection is technically challenging and crucial. Patients recover faster and complain less postoperative pain if thoracotomy is avoided. In our opinion previous thoracoscopic techniques included some important limitations especially performing the anastomosis. The latest generation of da Vinci Xi System can be an important tool to overcome those obstacles.

Materials & Methods: In this video, we demonstrate the positioning of the patient and the placement of accesses for thoracic phase of the operation with the latest da Vinci Xi surgical robot. Furthermore, we demonstrate our complete intrathoracic performed termino-lateral oesophagogastrostomy. The dorsal part of the anastomosis we staple with a linear 30mm da Vinci Xi device, whereas the ventral portion we suture robotic-assisted in a double layer technique.

Results: With this video we show that a minimally invasive intrathoracic anastomosis can be performed safely using da Vinci Xi System. So far we have not encountered severe complications, especially no anastomotic leakage.

Conclusion: This new technique has convinced us to continue with minimally invasive esophageal surgery for the thoracic part. Of course these first results will have to be compared in prospective studies with established techniques.

Disclosure of Interest: None declared
Introduction: Esophageal resection is an essential part in the treatment of esophageal cancer but remains a highly delicate procedure. To facilitate the operation and to reduce morbidity, minimally invasive techniques have gained popularity within the last years. Here we present our concept and our first results of robotic assisted operations in esophageal cancer surgery.

Materials & Methods: In October 2015 we have started robotic esophageal resection in our institution using the latest da Vinci Xi System. Due to our concept we perform the abdominal part through a laparotomy using the robotic assistance in the thoracic part of the Ivor Lewis procedure at this stage. Gastroesophageal anastomoses were performed completely intracorporal by using the robotic system without a thoracotomy.

Results: So far 10 patients have been operated on using this new approach. 80% (n=8) were male and 20% (n=2) were female and the average age was 65 years ± 14.77. Adenocarcinoma occurred in 8 patients (80%), whereas neuroendocrine tumor and squamous cell carcinoma occurred in 1 patient each (10%). 80% (n=8) of the patients received neoadjuvant radiochemotherapy whereas one patient received only neoadjuvant chemotherapy. In none of the patients conversion to the open procedure was necessary. Anastomoses were performed with a robotic assisted continuous suture in 7 patients whereas a robotic stapler anastomosis was performed in 3 patients. Mean operation time was 511.9 minutes ± 47.65. RO resection was achieved in all patients (100%, n=10). Anastomotic leakage occurred in 1 patient (10%). Reoperation rate and mortality <30 days was both 0% (n=0).

Conclusion: Robotic assisted esophageal resection using the latest da Vinci Xi System is feasible and the first results are promising. The new technique has to be evaluated meticulously and further studies are required to evaluate the significance of robotic assisted operations in esophagus cancer surgery.

Disclosure of Interest: None declared
Introduction: Spontaneous Esophageal Rupture (SER) or Boerhaave’s syndrome are a complete disruption of the esophageal wall in the absence of pre-existing and occurs with a sudden rise intraesophageal pressure. Herman Boerhaave in 1724 reported the first case of SER with autopsy data. SER is very rare and life threatening emergency disease with high morbidity and mortality. The incidence is 3.1/1,000,000 per year and overall mortality still range from 20 to 40%. However, there are some retrospective studies about SER which have small numbers. The aim of this study is to review our cases.

Materials & Methods: We reviewed retrospectively 13 consecutive patients with SER in our hospital for ten years [2007-2016]. We divided the patients who underwent operation in two groups: Early treatment group (<24 hour) and delay treatment group (>24 hour). The various parameters for clinical data were collected from demographic characteristics, preoperative examination blood test, several time from onset, Operation time and the length of hospital and ICU stay were reviewed.

Results: A total of 13 patients are available statistically. There were a total of 9 men (69%) and 4 women (31%) and the mean age was 68 (26-84 years). The time of diagnosis from onset was 10 (1-144 hours). 11 patients (85%) had emergency surgery, whereas 2 patients (15%) were managed conservatively. The lengths of ICU Stay and Hospital stay were 10 (0-52 days) and 34 (9-143 days). Total mortality rate was 15%. There are 11 patients who underwent operation. Rupture site of left side was 64%. The length of esophageal injury was 1.5 (1.0-4.0 cm). Operation time was 215 (86-248 min). The surgical technique employed was primary suture in 9 patients (82%) and T-tube in 2 patients (18%). They divided into two groups: 7 patients in early group and 4 patients in delay group. Univariate analysis of two groups showed statistically significant different of CRP [early 0.3 (0.01-581) and delay 14.3 (4.9-23.5) P<0.01], diagnosis from onset [early 4 (1-11 hours) and delay 59 (48-144 hours) P<0.01], Operation from onset [early 5.3 (3.4-9.5 hours) and delay 64 (48-264 hours) P<0.01], the length of ICU Stay [early 8.0 (0-26 days) and delay 39 (12-52 days) P<0.01]. Mortality rate were 0% (early group) and 50% (delay group), but there were no statically significant (P=0.11)

Conclusion: In this study, we reviewed our SER cases. SER is a very rare entity with an elevated mortality rate. The best outcomes in SER are associated with early diagnosis and surgical treatment.

Disclosure of Interest: None declared
SIGNIFICANCE OF ENDOSCOPIC BIOPSY NEGATIVE CONVERSION AFTER PREOPERATIVE TREATMENT IN ESOPHAGEAL CANCER PATIENTS

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Introduction: Improvement of preoperative treatment have increased complete response and endoscopic biopsy negative conversion (Bx-negative) rates after preoperative treatment in esophageal cancer patients. However, the significance of Bx-negative after preoperative treatment in esophageal cancer patients is not clear. The aim of this study was to determine whether Bx-negative after preoperative treatment affect the long-term results in patients with esophageal cancer.

Materials & Methods: Prospectively, we have classified esophageal cancer patients and performed treatments based on our treatment criteria since April, 2002. We have classified resectable esophageal cancer without extensive nodal metastases as Category 1, initially unresectable cT4 esophageal cancer as Category 2, and resectable but associated with extensive nodal metastases as Category 3. Category 1 patients have been assigned immediate esophagectomy ± NAC, Category 2 patients have been assigned induction treatment followed by esophagectomy if feasible, and Category 3 patients have been assigned NAC followed by esophagectomy. Sixty-eight patients with endoscopic biopsy after preoperative treatment in esophageal cancer were subjects of the present analyses. We evaluated whether Bx-negative after preoperative treatment affect the long-term results in patients with esophageal cancer. And we added subanalyses each category (Category1 n=13, Category2 n=44, and Category3 n=29). Pretreatment cT1/T2/T3/T4 and cStage I/II/III/IV were found in 2/14/26/44 and 0/14/30/42, respectively.

Results: Of all the 86 patients, 48 (55.8%) had Bx-negative and 38 (44.2%) showed endoscopic biopsy positive continuation (Bx-positive) after preoperative treatment. Bx-negative rate was 46.2%, 70.5%, and 37.9% in Category1, Category2, and Category3, respectively (p=0.017). The 5-years overall survival (OS) was 69.9% and 42.0% in all patients with Bx-negative and Bx-positive, respectively (p=0.044). No significant difference was present between the survival curves in Category1 and Category3 patients. However, in Category2 patients, the 5-years OS was 58.6% and 11.4% with Bx-negative and Bx-positive, respectively (p=0.009).

Conclusion: The endoscopic biopsy negative conversion after preoperative treatment is a significant and useful parameter predicting long-term survival in cT4 esophageal cancer patients before surgery.

Disclosure of Interest: None declared
Introduction: Thoracoscopic esophagectomy with mediastinal lymphadenectomy has been shown to be a feasible technique for the treatment of esophageal cancer, and performed in many institutes recently. In our institute, we have performed thoracoscopic esophagectomy with mediastinal lymphadenectomy for patients with T1-3 stage esophageal cancer using 2D high-definition (HD) imaging systems. In recent years, we experienced thoracoscopic esophagectomy using 4K ultrahigh-definition (UHD) imaging systems. In this study, we examined the usefulness of 4K UHD systems for thoracoscopic esophagectomy.

Materials & Methods: Between January 2015 and December 2016, we performed thoracoscopic esophagectomy with mediastinal lymphadenectomy for 14 esophageal cancer patients using Olympus VISERA ELITE® Full HD systems with a 2D flexible endoscopy and 26 inch monitor (full HD group), and for 13 patients using Olympus VISERA 4K UHD® systems with a 30° ULTRA Telescope and 51 inch monitor (4K UHD group). Thoracoscopic esophagectomy was performed under prone position with artificial pneumothorax by CO₂ insufflation in all cases. Patients’ characteristics, operation time, blood loss, and frequency to wipe a scope were retrospectively compared between the two groups.

Results: There was no significant difference in tumor depth and tumor stage between full HD group and 4K UHD group. 4K UHD systems provided brighter images on larger screen with rich color reproducibility in addition to a four times more information than Full HD systems. This helped us to perform accurate and rapid hemostasis without a loss of brightness due to red color signals by blood. We normally used an electric zoom at 1.2 X, which allows for the scope to be moved from the operating field in order to avoid mist or smoke. As a result, the frequency to wipe a scope was significantly less in 4K UHD group than full HD group. Thoracoscopic surgery time tended to be shorter in 4K UHD group although it was not significant. There was no significant differences in blood loss between the two groups perhaps due to a variety of surgical procedure in the abdomen and cervix such as open or laparoscopic, esophagectomy alone or combined surgery with cervical cancer, and gastric tube or colon reconstruction.

Conclusion: 4K UHD systems appear to provide brighter images as well as more information with higher resolution, decrease the frequency to wipe a scope due to mist or smoke, and help us to perform more accurate and fine esophagectomy with mediastinal lymphadenectomy.

Disclosure of Interest: None declared
PE370
EFFICACY OF CO2 INSUFFLATION DURING THORACOSCOPIC ESOPHAGECTOMY IN THE LEFT LATERAL POSITION
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Introduction: Thoracoscopic esophagectomy (TE) is widely performed as a minimally invasive technique in the management of esophageal cancer. During TE in the left lateral position, right lung was decompressed manually by assistant. To minimize the assistant’s effort, we have utilized intrathoracic carbon dioxide (CO2) insufflation. Although intrathoracic CO2 insufflation can be safely performed during thoracoscopic surgery, few reports have described the use of intrathoracic CO2 insufflation during TE in the left lateral position. The aim of this study was to estimate the efficacy of intrathoracic CO2 insufflation during TE in the left lateral position.

Materials & Methods: From January 2010 to December 2014, 58 patients with esophageal cancer underwent TE without intrathoracic CO2 insufflation (Group N). From December 2014 to April 2016, 37 patients with esophageal cancer underwent TE with intrathoracic CO2 insufflation (Group C). The operation results and respiratory parameters during the thoracic procedure were compared in both groups.

Results: A satisfactory surgical field was obtained by CO2 insufflation. There was no difference in the duration of the thoracic procedure or number of dissected mediastinal lymph nodes between the two groups. The amount of thoracic blood loss in Group C was significantly less than that in Group N (P < 0.05). Intrathoracic CO2 insufflation did not affect oxygenation during single-lung ventilation. However, both end-tidal CO2 (ETCO2) 1 h after single-lung ventilation and maximum ETCO2 in Group C were significantly higher than those in Group N. Intraoperative hypercapnia in Group C was permissible. The rate of extubation in the operation room, mortality and morbidity were not different between the two groups.

Conclusion: Intrathoracic CO2 insufflation is beneficial to make satisfactory surgical field and to reduce thoracic blood loss in TE. Application of intrathoracic CO2 insufflation may contribute to the widespread adoption of TE in the left lateral position.

Disclosure of Interest: None declared
Introduction: It was standardized to perform 2 cycles of CF therapy (CDDP+5-FU) before surgery for resectable cStage2/3 esophageal squamous cell carcinoma (ESCC) in Japan, but the effectiveness is insufficient especially for cStage3 ESCC. Since 2012, our hospital has adopted to perform 2-3 cycles of DCF (Docetaxel+CDDP+5-FU), as a preoperative chemotherapy to aim for further improvement in treatment outcome.

Materials & Methods: Preoperative DCF therapy and earlier preoperative CF therapy were evaluated and compared by clinical response, histological treatment effect of resected primary regions, and associated adverse events.

Results: CF therapy was performed in 7 cases from 2008 to 2012, and in all cases 2 cycles were performed. On the other hand, DCF therapy was performed in 16 cases. 3 cycles were performed in 3 cases and 2 cycles were performed in 9 cases, but in 4 cases only one cycle was performed or other chemotherapy was introduced after one cycle of DCF. We classified as the group A with 2-3 cycles of DCF, the group B with only one cycle of DCF, and the group C with 2 cycles of CF. The average age were 60.3 (41-78) in group A, 76.3 (71-78) in group B, 70.6 (62-77) in group C. The ratio of male/female was 8/4 in group A, 3/1 in group B and 6/1 in group C. About the ratio of cStage2 and cStage3 there was no difference among groups. As the evaluation of clinical response based on RECIST, CR/PR/SD/PD/NA is 1/2/5/0/4 in group A, 0/0/3/0/1 in group B, and 0/0/5/2/0 in the group C. As the evaluation of histological treatment effects, G3/G2/G1b/G1a/G0 was 3/4/0/5/0 in group A, 0/0/3/1 in group B, and 0/0/0/7/0 in group C. Except for one case with pT4b tumor in group C, curative resection of R0 was performed in all cases. CF was administered for a total of 15 cycles, but adverse events of G3/4 were not observed. Totally DCF administration was performed for 31 cycles. Among 25 cycles with RDI of 0.8 or more relative to the standard dose, G3/4 neutropenia was observed in 18 and G3 febrile neutropenia was observed in 5. Although preoperative DCF therapy is strongly hematologically toxic, it can be handled with G-CSF and there were no cases that surgery was canceled.

Conclusion: DCF has a higher therapeutic effect as preoperative chemotherapy than CF, suggesting the possibility of contributing to improvement in the treatment outcome of ESCC.

Disclosure of Interest: None declared
**Introduction:** Gastroesophageal Reflux Disease (GERD) is an epidemic clinical presentation in community practice. Sliding hiatal hernia is often present. Large paraesophageal hiatal hernias represent a different entity which requires a mandatory surgical intervention to avoid critical complication. GERD with sliding hiatal hernia are easily treated by minimally invasive techniques. Large paraesophageal hiatal hernias constitute a surgical challenge and robotic surgery is still considered a novel approach in its treatment.

**Materials & Methods:** Between January 2014 and October 2016, 45 patients, 18 males and 27 females with mean age of 61 years old (24-89 years), underwent robotic fundoplication with bio-synthetic mesh for large paraesophageal hiatal hernia. Average preoperative symptomatology was 96 months in all, but 4 patients who presented with acute onset of symptoms (3 severe gastric outlet obstruction and 1 hematemesis due to Cameron ulcer). Heartburn was present in 76%, regurgitation in 60%, dysphagia in 80%, chest pain in 49% and cough in 33%. All patients underwent upper endoscopy and upper GI series (UGI). Esophageal manometry and pH monitoring study were performed in 36 patients. We favored robotic fundoplication with biosynthetic mesh as surgical approach.

**Results:** All patients were completed robotically. No mortality was recorded. Forty-one patients underwent total fundoplication, 1 patient had Collis-Nissen, 3 patients had partial fundoplication. Mean operative time was 228 minutes (180-420). A gastric perforation was experienced and it was repaired robotically. All patients were discharged on full liquid diet. Mean hospital length was 28 hours (24-48). Mean clinical follow up was 15 months (3-36). Follow up was obtained at 14, 30, 90 days and yearly after. Eight patients experienced dysphagia which eventually resolved within 4 weeks. UGI was obtained on day 1, day 90 and day 365 independently of symptomatology. Four patients recurred. Two were symptomatic and they underwent robotic redo Nissen fundoplication. No mesh complications were observed.

**Conclusion:** Robotic fundoplication in treating large paraesophageal hiatal hernia is feasible and safe, but challenging. The operation is difficult, but good results hinge on the operative technique and the surgeon experience. The high dexterity of robotic surgery leads the esophageal surgeon to apply all the technical elements of fundoplication replicating the minimally invasive principles and achieving the best outcome for the patient.

**Disclosure of Interest:** None declared
Introduction: Currently, the chest X-ray (CXR) is the first radiological tool used to investigate patient deterioration post-oesophagectomy. However, fluoroscopic contrast swallow or CT with oral contrast is usually the key diagnostic tool in these deteriorating patients. This study thus aims to determine the usefulness of this first CXR in directing further focused investigation/management, or alternatively excluding a significant surgical complication such as an anastomotic leak.

Materials & Methods: A retrospective analysis of 102 patients who underwent an oesophagectomy/oesophago-gastrectomy was conducted. The first CXR’s taken during patient deterioration were reviewed by an independent radiologist assessing for pleural effusion, pneumothorax, collapse/consolidation; pneumomediastinum, pneumoperitoneum or pulmonary oedema. Spearman’s Rho statistical calculation was used to determine if there was any correlation between the particular CXR findings and whether the patients’ deterioration was due to a surgical or pulmonary/medical complication.

Results: 62 of 102 patients deteriorated post oesophagectomy/oesophago-gastrectomy. 19 patients (18.63%) had a surgical complication such as an anastomotic leak (9 patients - 8.82%) or chyle leak (7 patients - 6.86%). 35 patients (34.31%) had a pulmonary/medical complication. There was no statistically significant correlation between any of the CXR findings and whether the resulting complication was surgical or pulmonary/medical. As can be seen in the table below all Rho coefficients had a p-value > 0.05.

<table>
<thead>
<tr>
<th>CXR Finding</th>
<th>Rho</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Pleural Effusion</td>
<td>0.216</td>
<td>0.091</td>
</tr>
<tr>
<td>Right Pleural Effusion</td>
<td>0.142</td>
<td>0.270</td>
</tr>
<tr>
<td>Left Pneumothorax</td>
<td>0.080</td>
<td>0.537</td>
</tr>
<tr>
<td>Right Pneumothorax</td>
<td>0.128</td>
<td>0.323</td>
</tr>
<tr>
<td>Pneumomediastinum</td>
<td>0.041</td>
<td>0.753</td>
</tr>
<tr>
<td>Left Collapse/Consolidation</td>
<td>0.203</td>
<td>0.114</td>
</tr>
<tr>
<td>Right Collapse/Consolidation</td>
<td>0.248</td>
<td>0.052</td>
</tr>
<tr>
<td>Pneumoperitoneum</td>
<td>-0.190</td>
<td>0.245</td>
</tr>
<tr>
<td>Oedema</td>
<td>-0.150</td>
<td>0.663</td>
</tr>
<tr>
<td>Pleural Effusion total</td>
<td>0.104</td>
<td>0.422</td>
</tr>
<tr>
<td>Pneumothorax total</td>
<td>0.168</td>
<td>0.192</td>
</tr>
<tr>
<td>Collapse/Consolidation total</td>
<td>0.019</td>
<td>0.883</td>
</tr>
</tbody>
</table>

Conclusion: Based on our data, there was no significant predictive value of the CXR findings and whether a surgical or respiratory complication was more likely. As such, the usefulness of the CXR in informing decision making is limited and resources may be better spent organising a CT scan. Further studies of a larger data set may be helpful in identifying a significant correlation.

Disclosure of Interest: None declared
Introduction: Achalasia is an uncommon motility disorder characterised by distal oesophageal aperistalsis and failure of relaxation of the lower oesophageal sphincter. Treatment is directed at decreasing the pressure at the lower oesophageal sphincter and options have classically involved endoscopic balloon dilatation, injection of botulinum toxin or laparoscopic Heller myotomy. Peroral endoscopic myotomy (POEM) is a novel technique which involves performing a myotomy endoscopically after creating a submucosal tunnel. Despite been widely adopted in USA, Europe and Asia, its introduction into the UK has been limited. We describe one of the first series of POEM in the UK, assessing its feasibility, safety and efficacy.

Materials & Methods: POEM was performed as inpatient under general anaesthesia with endotracheal intubation using the Olympus video endoscopy system. Two experienced endoscopists performed the procedures after undergoing hands-on training on live animal models. The anterior approach was adopted and the procedure involved mucosal entry, submucosal tunnelling, myotomy and clip closure of mucosal defect. The endoscopic functional luminal imaging probe (EndoFLIP) was used to assess distensibility of the gastro-oesophageal junction at balloon volumes of 30 and 40ml at the start and end of procedure. Contrast swallows were performed 24-48 hours prior to discharge. Eckardt scores were prospectively recorded at the time of initial clinic visit and at follow up, 8 weeks post procedure.

Results: Twenty-one patients, median (IQR) age 50 (42-64) years underwent POEM at our institution. These included 6 with Type I achalasia, 9 with Type II achalasia and 2 with Type III achalasia. The remainder could not be classified pre-operatively on high resolution manometry. There were 14 males and 7 females. Median (IQR) length of hospital stay was 3 (3-3.5) days. Median (IQR) Eckardt score was 8 (7-9) preprocedure and 2 (1-1.5) post procedure. Median (IQR) preoperative basal lower oesophageal sphincter pressure at 30ml volume was 27.3 (11.2-25.7) mm² at start and 14.7 (11-13) mm² at end of procedure. There were no significant complications noted immediately post-procedure and at follow-up in 8 weeks.

Conclusion: Evidence from one of the early series of endoscopic myotomy in the UK confirms its feasibility, safety and efficacy in the treatment of achalasia by experienced endoscopists with adequate training. The use of EndoFLIP assists in assessing response to myotomy immediately post-procedure.

Disclosure of Interest: None declared
Introduction: The extraesophageal manifestations of gastroesophageal reflux disease (GERD) include chronic cough, laryngopharyngeal reflux, and asthma. They are responsible for significant morbidity in affected patients, and a high economic burden on healthcare resources. We recently published a larger review on the symptoms, diagnosis, medical, and surgical treatment of the extraesophageal manifestations of GERD. Through our investigation, we found that the role of ARS for respiratory symptoms was unclear. Hence, we resorted through the data of our previous meta-analysis to compile a comprehensive and focused review on the role of ARS for respiratory symptoms.

Materials & Methods: Using the archive of our previous meta-analysis, we selected studies extracted from the MEDLINE, Cochran, PubMed, Google Scholar, and Embase databases pertaining to the surgical treatment of extraesophageal manifestations of reflux (cough laryngopharyngeal reflux, and asthma). We applied a similar reporting methodology as was used in our previous manuscript, then hand searched the bibliographies of included studies yielding a total of 27 articles for review. We graded the level of evidence and classified recommendations by size of treatment effect per the American Heart Association Task Force on Practice Guidelines.

Results: Observational data indicated that syndromes of chronic cough, laryngopharyngeal reflux, and asthma might improve after antireflux surgery only in highly selected patients – likely those with non-acid reflux - while those patients with objective markers of asthma severity do not. Because of the varied methods of diagnosis and surgical technique, non-comparative observational data may be unreliable. Additionally, our search found no randomized controlled trials (RCTs) comparing antireflux surgery to medical therapy in the treatment of cough or laryngopharyngeal reflux. One RCT compared medical treatment to antireflux surgery in patients with asthma, but medical treatment included high-dose H2 blockers instead of PPIs.

Conclusion: Extraesophageal manifestations of GERD are common, costly, and difficult to treat. ARS might be effective in highly selected patients, especially in those whose extraesophageal manifestations are caused by non-acid reflux. The available data to date is generally of poor quality or outdated. Well-designed randomized controlled trials or large-scale observational cohort studies are urgently needed.

Disclosure of Interest: None declared
PRELIMINARY DATA ABOUT THE USE OF INTRAOPERATIVE HIGH-RESOLUTION MANOMETRY DURING HELLER MYOTOMY FOR TYPE III ESOPHAGEAL ACHALASIA. COULD IT GIVE BETTER RESULTS?

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Introduction: The diagnostic criteria for achalasia have recently been changed. Achalasia was also subtyped by the Chicago Classification with type 3 (spastic) being associated with the worst outcome after surgical or endoscopic treatment. The good outcomes of laparoscopic Heller myotomy (LHM) for type III achalasia has been reported with a rates of 69.3% to 86% . The lower response rates are presumably because of the limitation of the proximal extent of esophageal myotomy. It has been speculated that intraoperative high-resolution manometry (IHRM) can drive the exact extension of myotomy throughout the esophagus. We believe that the use of IHRM can gives better results in patients with type III achalasia.

Materials & Methods: We studied 12 patients by preoperative high-resolution manometry (HRM) that showed type III achalasia with mean Integrated Relaxation Pressure (IRP) 34.7 mmHg, no normal peristalsis, preserved fragments of distal peristalsis or premature (spastic) contractions with ≥20% of swallows with a mean distal latency 3.5s. We performed LHM and anterior fundoplication. IHRM compared with the preoperative HRM guided the length of myotomy throughout the esophagus in the area with spastic contractions in the distal esophagus. The mean length of myotomy was 9 cm above the lower esophageal sphincter. We collected the Eckardt score for each patients pre end postoperatively.

Results: Patients were discharged home in second postoperative day. Mean rest pressure diminished from 52,2 to 8,1 Hg postoperatively (Figure 1). Median Eckardt score was decreased from 8 to (Table 1)

<table>
<thead>
<tr>
<th>Patients (male; female)</th>
<th>12 (7; 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>71</td>
</tr>
<tr>
<td>Mean IRP</td>
<td>34,7 mmHg</td>
</tr>
<tr>
<td>Mean DL in &gt;20% of swallows</td>
<td>3,5 sec</td>
</tr>
<tr>
<td>Preoperative mean LES resting pressure</td>
<td>58,3 mmHg</td>
</tr>
<tr>
<td>Postoperative mean LES resting pressure</td>
<td>8,1 mmHg</td>
</tr>
<tr>
<td>Preoperative Median Eckardt score</td>
<td>8</td>
</tr>
<tr>
<td>Postoperative Median Eckardt score</td>
<td>1</td>
</tr>
<tr>
<td>Mean length of esophageal myotomy</td>
<td>9 cm</td>
</tr>
</tbody>
</table>

Table 1 Characteristics of patients who underwent LHM and anterior fundoplication with IHRM

Preoperative manometry

Intraoperative manometry
Conclusion: IHRM can give a great contribution in treatment of type III achalasia driving the length of esophageal myotomy. The only parameter that is possible intraoperatively collect is the mean rest pressure. IHRM can give us the exact length of myotomy throughout the esophageal body comparing the preoperative and intraoperative manometric graphics. These are preliminary data; we need more patients, medium and long term follow up and a postoperative HRM at 12 month.

Disclosure of Interest: None declared
Introduction: Esophageal cancer frequently metastasizes to the lymph nodes along the left recurrent nerve (LRN). Thus, removal of these nodes is an important maneuver in R0 esophagectomy for esophageal cancer. However, these nodes, particularly at the sub-aortic arch area, are located in a deep and narrow operative field. Furthermore, the bronchial arteries (BAs) pass close to the LRN at the sub-aortic arch area in some cases. Therefore, to safely remove the lymph nodes along the LRN at this area during a radical esophagectomy for esophageal cancer, we macro-anatomically investigated the spatial relationships of the BAs to the LRN, using adult cadavers.

Materials & Methods: Arteries giving blood supply to the tracheobronchus (TB) were dissected at a simulated operative field of radical esophagectomy via the right thoracotomy in 72 cadavers.

Results: There were 195 arteries giving blood supply to the TB: the right BA (n = 71), the left BA (n = 96), and the common trunk of both BAs (n = 28). Of the 195 arteries, 188 originated from the descending aorta distal to the LRN, and 7 originated from the aortic arch proximal to the LRN. Of the 188 arteries, 175 ran directly to the TB (Type A), and 13 ran dorsally across the LRN (Type B). Likewise, of the 7 arteries originating from the aortic arch, 2 ran dorsally across the LRN (Type C), and 5 ran directly to the TB (Type D). Thus, of the 195 arteries, 15 (7.7%), i.e. Type B plus Type C, ran dorsally across the LRN. These 15 arteries included 4 right BAs, 5 left BAs, and 6 common trunks of the right and left BAs. In addition, 14 (93%) of the 15 arteries ran anteriorly along the left side of the esophagus.

Conclusion: Arteries giving blood supply to the TB can be classified into 4 types (Type A, B, C, and D) according to the spatial relationships to the LRN. Of those, the arteries running dorsally across the LRN (Type B and C) are at higher risk of mechanical injury during the removal of the lymph nodes along the LRN. The frequency of such arteries was 7.7% in the present study. The right BA, left BA, and the common trunk of both BAs can show such a running course. However, almost all of these arteries run anteriorly along the left side of the esophagus.

Disclosure of Interest: None declared
Esophageal Tuberculosis (A Rare Entity)

V. Khanna

Introduction: Esophageal Tuberculosis is a rare condition (2.8% of all cases of gastrointestinal TB). Usually occurs as a result of direct spread from mediastinal nodes (rarely from the lungs or bloodstream). Mostly presents as dysphagia and histopathology confirms the diagnosis.

Materials & Methods: A 60 years old female came to our hospital with complaints of dysphagia for 4 months (primarily for solids), with loss of weight and appetite. No history of cough with expectoration. No history of fever. Blood investigations revealed leucocytosis, with an elevated Erythrocyte Sedimentation Rate, HIV negative. Patient underwent Upper Gastrointestinal Endoscopy which revealed a hemi circumferential ulcerative growth from 30 cm to 34 cm in the distal esophagus from which biopsy was taken (figure 1). Contrast enhanced computed tomography of the thorax showed circumferential thickening involving the distal esophagus, no evidence of invasion of adjacent structures seen, enlarged aortopulmonary lymph node with necrosis. Histopathology revealed ill defined epithelioid granulomas with giant cells and caseating necrosis, no evidence of malignancy, no acid-fast bacilli seen. TB-PCR was positive. Patient was started on ATT and was asked to review after 2 months of intensive phase of ATT with isoniazid, rifampicin, pyrazinamide, and ethambutol. On follow up patient had symptomatically improved and repeat UGI scopy showed complete resolution of the lesion (figure 1). Patient was advised to continue ATT. Patient was completely relieved of the symptoms after 6 months of treatment.

Results: Esophageal tuberculosis is a rare condition, which accounts for 2.8% of all cases of gastrointestinal tuberculosis [1]. Dysphagia is the commonest symptom. Usually occurs as a result of direct extension of infection from mediastinal nodes, rarely the infection my spread from the lungs or blood stream [1]. Esophageal involvement usually occurs at the middle third of the esophagus at the level of carina [2]. Apprx. 65% of the patients with esophageal tuberculosis have non-specific findings on chest radiograph, computed tomography of the chest shows characteristic tuberculous lymphadenitis [3]. Histopathology is gold standard for confirming esophageal tuberculosis [4]. Most of the patients respond well with ATT [4].

Conclusion: Dysphagia is the commonest presenting feature of esophageal tuberculosis. Histopathology and TB-PCR are the key to confirm the diagnosis. Delay in the diagnosis can lead to complications, which might require surgical intervention.

References:

Disclosure of Interest: None declared
The "Larynx Rotation Method" – A Novel Surgical Procedure for Larynx-Preserving Cervical Esophagectomy

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Introduction: At our institution, larynx-preserving surgery has been aggressively performed, even when the oral side of the tumor margin is extended beyond the esophageal orifice into the hypopharynx. Our aim was to demonstrate our surgical procedure the "larynx rotation method" and clarify the clinical outcomes.

Materials & Methods: In the "larynx rotation method," the larynx and hypopharynx are manually rotated counterclockwise more than 90 degrees by holding down the thyroid cartilage. Thanks to this maneuver, the transection of the cervical esophagus and hypopharynx from the membranous portion of the trachea, beyond the oral side of the tumor, with the dissection of the cricopharyngeus muscle and anastomosis with a substitute organ can be achieved under direct vision, even around the narrow area surrounded by the larynx, trachea and vertebral body (Figure). The oral side of the tumor margin was extended around the esophageal orifice and larynx-preserving surgery using the "larynx rotation method" was planned in 16 of the 52 patients who were diagnosed with advanced cervical esophageal carcinoma at our institution after 2008. These 16 patients were enrolled in the present study.

Results: The larynx was preserved in all patients. There were no cases of anastomotic leakage. Although 14 (87.5%) patients developed recurrent nerve paralysis, including 2 (16.5%) patients who showed bilateral recurrent nerve paralysis, it was temporary in all cases. Postoperative pneumonia occurred in 3 patients, including one patient who suffered severe aspiration pneumonia and required mechanical ventilation. The median postoperative hospital stay was 18 (range 10–42) days. There were no cases of in-hospital death. Although 7 patients showed postoperative recurrence, no patients showed recurrence on the oral side of the anastomotic line.

Image:
Conclusion: Larynx-preserving surgery using the “larynx rotation method” is considered to be acceptable because both organ preservation and functional preservation can be achieved with tolerable short-term clinical outcomes.

Disclosure of Interest: None declared
PREOPERATIVE CHEMOTHERAPY CONSISTING OF DOCETAXEL, CISPLATIN AND S-1 IN PATIENTS WITH ADVANCED ESOPHAGEAL CANCER.
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Introduction: Standard treatment for unresectable locally advanced esophageal cancer is concurrent chemoradiotherapy. But survival is still limited. Lately, some study showed the efficacy of induction chemotherapy with docetaxel, cisplatin and fluorouracil (DCF). In this study, we assessed the effectiveness and safety of docetaxel, cisplatin and S-1 (DCS) chemotherapy in the preoperative setting.

Materials & Methods: Patients received docetaxel (35mg/m2) plus cisplatin (35mg/m2) intravenously on day1 and 15, and S-1 (80mg/m2) on days 1-14, of a 28 day cycle. If the adverse event was tolerable, they were planned to receive three cycles before surgery. The response was evaluated on computed tomography in each cycle, and followed by the surgery when the tumor was considered as resectable.

Results: Between January 2013 to September 2016, 21 patients were treated with the systemic regimen (initially resectable advanced esophageal cancer 12 cases, initially unresectable cancer 9 cases). Pretreatment cT2/T3/T4 and cStageII/III/IV were found in 2/9/10 and 4/16/1 respectively. The average of baseline tumor size (maximum thickness) was 11.8mm. The average number of applied cycles of DCS was 3.23. The average tumor shrinkage rate after 1st/2nd/3rd cycle were 31.6%/45.3%/51.3%, respectively. In all patients, complete response (CR), partial response (PR), and stable disease (SD) rates were 28.6%, 66.7%, 4.8%, respectively. The response rate was 95.2%. Grade 3-4 toxicity were observed in 66.7% but manageable. Sixteen (76.2%) patients received radical esophagectomy after DCS. Surgical complication was occurred on 13 patients. Two experienced pathological CR in resected specimen. Five (23.8%) patients who experienced clinical CR after DCS, avoided surgery and converted to chemoradiotherapy.

Conclusion: Preoperative DCS for esophageal cancer was highly effective, and its toxicity was acceptable.

Disclosure of Interest: None declared
Introduction: Presence of pancreatic and peri-pancreatic necrosis is seen in 10-20% of cases of AP. This is an evolving phenomenon. Superinfection of pancreatic necrosis suspected or proven, responsible for a septic syndrome not controlled by antibiotics. Endoscopic pancreatic necrosectomy is a new weapon in the therapeutic arsenal of infected necrosis. Minimally invasive technique, recommended according to the evolution of sepsis; is one of the NOTES techniques radiological percutaneous drainage. Debridement by retroperitoneal route Pancreatic necrosectomy under laparoscopy. The main objective of the step-up strategy is to control infection rather than obtain complete removal of all infected necrosis.

Materials & Methods: Evacuation of the purulent material and the collection. Specific endoscopic treatment of a stenosis or possible communication with the pancreatic ducts. 1st stage: Access to the retroperitoneal cavity by transgastric or transduodenal route. Endoscopic US at the 19Gauge needle and then a widening of the opening by a cystotome. Endoscopic US control: Optimal site of drainage and control of vessels. Insertion of a guide wire in the collection under fluoroscopic guidance. Installation of a nasokystic drain for washing and a pig-tail prosthesis or Metal prosthesis for drainage. Ducts by the installation of a ductal prosthesis by retrograde catheterization of the Wirsung control sepsis by debriding the pancreatic infected tissues. 2nd stage: Dilatation of the orifice by a balloon of larger diameter. Introduction of a gastroscope in the cavity for irrigation, aspiration and debridement (pliers, handles, baskets). Several sessions (1-4) separated from 2-4 days. Drainage is left in place 6-12 weeks.

Results: Transgastric necrosectomy retroperitoneal video assisted or transperitoneal necrosiectomy. Evolution of the inflammatory profile in post-procedure: interleukin 6. The rate of pro-inflammatory IL6 decreased in 80% of patients in the endoscopy group versus 20% in the surgery group (RR = 0.60, 95% CI (0.16-0.80), p=0.004). Occurrence of complications (multi-visceral failure, intra-abdominal bleeding, enterocutaneous or pancreatic fistula and death).

Conclusion: Multidisciplinary "step up" approach to infected necrosis should be favored. Endoscopic necrosis is be discussed in the event of a necrosis infection, more than 4 weeks after the onset of acute pancreatitis. The dual expertise in interventional endoscopy and in the management of severe acute pancreatitis is necessary because of the morbidity and mortality associated with this approach.

Disclosure of Interest: None declared
Introduction: Pancreatoduodenectomy (PD) combined with mesenterico-portal vascular resection is an accepted treatment option for patients suffering from suspected pancreatic carcinoma or distal bile duct carcinoma. However, the clinical benefit is still controversially discussed. In this retrospective analysis we investigated 90 days morbidity and mortality in patients undergoing pancreatectoduodenectomy with vascular resection at our center.

Materials & Methods: Between January 2010 and December 2015 a total of 101 PD were performed for malignancy of the pancreatic head or distal bile duct. In 16 patients (15.8%) vascular resection was necessary due to tumour extent (81.25 % pylorus preserving, 12.5% Whipple, 6.25% pancreatectomy). In 6 out of 16 (37.5%) patients wedge resection or segmental resection of the portal vein (PV), in 4 out of 16 (25%) resection of the superior mesenteric vein (SMV), in 3 out of 16 (18%) arterial resection of an accessory hepatic artery and in 3 out of 16 (18%) a combined resection was performed. Postoperative complications were classified according to the Dindo-Clavien-classification.

Results: Major complications (grade 3 and more) occurred in 31.25%. These included one grade C pancreatic fistula (6.25%), three grade B postpancreatectomy hemorrhages (18.75%) and one grade C delayed gastric emptying (6.25%). Relaparotomy occurred in two patients (12.5%) due to abdominal wound dehiscence and pancreatic fistula. Median postoperative hospital stay was 23.14 ± 13.4 days. In our series both in-hospital as well as 90-days mortality were 0%.

Conclusion: In summary, perioperative morbidity in patients undergoing PD with vascular resection is comparable to those with PD only. Hence in cases where tumour adherence or partial vascular infiltration is suspected exploratory laparotomy should be performed and a combined resection of the pancreatic head and the vein should be considered as long as other contraindications for resection such as broad infiltration of the superior mesenteric artery, multiple metastases and peritoneal carcinomatosis are missing.

Disclosure of Interest: None declared
A CASE OF INTRAHEPATIC PSEUDOCYST: A RARE COMPLICATION OF ACUTE PANCREATITIS
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Introduction: Pancreatic pseudocyst is a common complication of acute pancreatitis. Pseudocysts are located usually in lesser sac and peripancreatic space. The intrahepatic location of pseudocyst following acute pancreatitis is extremely rare.

Materials & Methods: A 70-year-old woman was referred because of upper abdominal pain of 3 days’ duration. An abdominal CT scan revealed 11x10 cm sized cystic mass in the left lateral section of liver. On EUS findings, a huge hypoechoic lesion with internal echogenicity was noted in the lesser sac. When the cystic lesion was punctured, dark green colored turbid fluid was aspirated. EUS-guided gastrocystostomy was performed and analysis of cystic fluid showed a high level of amylase (21,200 U/L). After the endoscopic procedure, severe abdominal pain developed and physical examination showed severe irritation sign. An emergency operation was performed.

Results: On operation findings, a huge cystic tumor was located in the left lateral section of liver. There was no communication with pancreas or peripancreatic space. However, mass-like necrotic tissue was filled with in the hepatoduodenal ligament, hepatogastric ligament, and Glisson sheath of the left hepatic lobe. Left lateral sectionectomy was performed. Pathologic examination confirmed the pseudocyst with findings of non-epithelialized granulation tissue of the cystic wall.

Conclusion: The presence of intrahepatic cystic lesions in patients with acute pancreatitis should raise the possibility of intrahepatic pseudocysts, even when they are not associated directly with pancreas or peripancreatic tissue.

Disclosure of Interest: None declared
TRANSCATHETER ARTERIAL EMBOLIZATION FOR ARTERIOVENOUS MALFORMATION OF PANCREAS

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Introduction: Arteriovenous malformation (AVM) of pancreas is an extremely rare condition and the patients are asymptomatic to be diagnosed incidentally in most cases. The AVM of pancreas present with a wide spectrum of symptoms and it can be accompanied sometimes by fatal complications as like catastrophic bleeding. Traditionally surgery has been considered the treatment of choice, however, alternative approaches, such as transcatheter arterial embolization (TAE), could be a useful treatment option.

Materials & Methods: A 50-year-old man visited due to AVM of pancreas which was detected incidentally in general health examination. He had no history of trauma, pancreatitis, or other systemic disease. In the clinical examination, there were no specific clinical findings including abdominal pain or tenderness, gastrointestinal bleeding, and laboratory findings including tumor markers were all within normal range. The abdominal CT and MRI revealed 5cm sized multilobulated AVM in pancreas body. Abdominal CT angiography showed a mass with hypervascular staining in pancreas body.

Results: For the treatment, TAE was planned instead of surgery. Selective catheterization for feeding branches from proper hepatic artery was performed, and then, TAE was done in dorsal pancreatic artery by interlock coil. In follow up dynamic enhanced CT, we confirmed the change of attenuation of hypervascular staining of the mass in pancreas body. The patient discharged without any complication after one week following TAE. In serial follow-up evaluations so far 2 years after TAE, the AVM was reduced markedly without any complication.

Conclusion: TAE is one of useful treatment option for pancreas AVM.

Disclosure of Interest: None declared
PE385
SURVIVAL OF PATIENTS WITH PANCREATIC CANCER IN A SINGLE CENTER: A RETROSPECTIVE COHORT STUDY INVOLVING 1646 PATIENTS FROM THE SEOUL NATIONAL UNIVERSITY HOSPITAL
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Introduction: Pancreatic cancer has a poor prognosis, not only in patients with surgical resection but also in patients with adjuvant therapy. Recently, neoadjuvant therapy has been introduced to optimize outcomes, especially in patients with borderline resectable and locally advanced pancreatic cancer. The objective of this study was to utilize a large single center database and evaluate the impact of treatment modalities on survival in patients with pancreatic cancer in Seoul National university hospital (SNUH).

Materials & Methods: Patients with clinically grouped into four stages; resectable, borderline resectable, locally advanced, and metastatic pancreatic cancer who underwent treatment including neoadjuvant therapy or surgery or chemo therapy or palliative care in the 2007-2014 SNUH prospectively collected database were included. Univariate statistics were used to compare characteristics between treatment groups. Kaplan-Meier and multivariate survival analyses using Cox proportional hazards models were also performed.

Results: 794 patients who underwent chemotherapy (CT) without surgery, 497 patients who underwent surgery without neoadjuvant therapy (NAT), 322 patients who received palliative care only, and 35 patients who underwent surgery after NAT were studied. In patients with clinical resectable stage, surgery after NAT was associated with similar median survival to surgery without NAT, which was greater than CT without surgery and palliative care only (29, 22, 8, and 11 months, p=0.577, <0.001). In borderline resectable stage, there was no significant difference median survival between surgery without NAT and CT without surgery (11 and 12 months, p=0.091). Also, in locally advanced stage, there was no significant difference median survival between surgery without NAT, CT without surgery (10 and 13 months, p=0.142). In multivariate survival analysis, patients who received surgery with NAT had a 36% lower hazard of mortality, however patients who received CT without surgery had a 34% more hazard of mortality up to 5 years, as compared to surgery without NAT (p=0.042, 0.040, respectively).

Conclusion: Surgery after NAT is associated with a survival benefit, as compared to other treatment in patients with pancreatic cancer. Surgery without NAT is associated with a survival benefit, as compared to CT without surgery, only in resectable stage.

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Image:

Disclosure of Interest: None declared
SARCOPENIC OBESITY PROMOTES INVASIVE CARCINOMAS IN PATIENTS WITH IPMN OR PANIN

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Introduction: Muscle protein breakdown precedes pancreatic tumor development. We investigated a potential relation between the loss of muscle mass and the occurrence of invasive carcinoma in patients with intraductal papillary mucinous neoplasm (IPMN) and pancreati neoplasia (PANin).

Materials & Methods: We retrospectively reviewed 177 patients (98 male, 79 female) who underwent surgical resection for histologically confirmed IPMN and PANin from 2005 - 2016. Loss of muscle mass was defined as sarcopenia and sarcopenic obesity using the skeletal muscle index (SMI) and co evaluated with additional demographic, clinical, and imaging data for possible correlation with IPMN or PANin-associated carcinoma.

Results: Fifty nine (33%) patients showed PANin and IPMN associated invasive malignancies after resection, 41 (23%) of the patients were sarcopenic and 13 (7%) had sarcopenic obesity. Patients with sarcopenia had a 6 times higher risk to develop an invasive carcinoma (OR: 6.14; CI 95%: 1.23-6.19, p=0.013), the risk for patients with sarcopenic obesity was higher (OR 7.6; CI95%: 0.33-0.7, p=0.008). In multivariate analysis sarcopenic obesity evaluated against other known predictors for malignancy (C reactive protein, white blood cell count, platelets, age, comorbidities and sarcopenia defined by the SMI) showed the highest association with the occurrence of invasive carcinomas (OR: 2.84; CI95%: 0.43-1.27, p=0.05).

Conclusion: Sarcopenic obesity is an independent predictive marker for invasive IPMN and PANin related carcinoma. Further prospective studies are needed to confirm the relation and undertake possible preventive measures.


Disclosure of Interest: None declared
ANTIBIOTIC PROPHYLAXIS IN PATIENTS WITH PANCREATIC NECROSIS.

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Introduction: The most common cause of death in patients with acute pancreatitis is infection of pancreatic necrosis. Although, experimental studies have provided evidence that antibacterial prophylaxis can reduce mortality, randomised control trials (RCTs) provide conflicting results.

Materials & Methods: An electronic literature search was performed on MEDLINE, EMBASE and CINAHL, supplemented by hand searching of conference proceedings, for RCTs that used contrast-enhanced CT as an entry criterion. Meta-analysis was performed using "RevMan 5.2".

Results: Eleven RCTs were identified with eight of them being doubly blinded. Eight RCTs evaluated beta-lactams and three quinolone/imidazolame. Meta-analysis demonstrated a non-significant reduction in mortality after antibiotic prophylaxis (33/319, 10%) compared with controls (42/323, 13%) with odds ratio (OR) 0.75 95% and CI 0.46-1.22. Infected necrosis was also non-significantly reduced after the use of antibiotics (65/319, 20%) compared with controls (73/323, 23%) with OR 0.87 95% CI 0.66-1.65. Extra-pancreatic infection showed a non-significant reduction in incidence with antibiotic prophylaxis (61/236, 26%) versus controls (78/240, 33%), OR 0.67 95% CI 0.45-1.00. All sites infection also showed a non-significantly reduced incidence after antibiotics (108/276, 39%) compared with controls (127/280, 45%). Fungal infections were increased but non-significantly after antibiotic prophylaxis (14/233, 6%) compared with controls (13/230, 5.65%), OR 1.06 95% CI 0.51-2.22. Operative treatment rates demonstrated a non-significant increase after antibiotics (77/306, 25%) compared with controls (73/310, 24%), OR 1.02 95% CI 0.70-1.49.

Conclusion: Antibiotic prophylaxis in patients with acute pancreatitis was associated with a non-significantly reduced incidence of mortality, pancreatic, extra-pancreatic and overall infection. None of the included RCTs was adequately powered and there were variations in quality, treatment regimens and inadequate adverse effects. Therefore, more, adequately powered, doubly-blinded studies are still needed.

Disclosure of Interest: E. Psaltis Grant/Research Support from: State Scholarships Foundation (IKY), E. Villatoro: None declared, M. Larvin: None declared
VASCULAR RECONSTRUCTION AS PART OF RADICAL RESECTIONS OF THE PANCREAS

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Introduction: Vascular infiltration by pancreatic cancer(Ca) does not necessarily mean unresectability.

Materials & Methods: In a tertiary surgical center, all consecutive cases who underwent vascular reconstruction as part of pancreas resection during a well defined time period were retrospectively analyzed in a unicenter observational study. Patient-, local finding- & treatment-associated aspects as well early postop. & long-term oncosurgical outcome were determined.

Results: Over 10 years, 34 patients (20 men/14 women) were documented (mean age, 59 years). In 27 patients, Ca within the pancreatic head was found, in 3 cases a Ca lesion of the body, in 2 subjects a metastasis within the pancreas as well as one individuum each with a pancreas-caput-corpus Ca & Klatskin Tu lesion, resp. The majority of patients underwent Traverso/Longmire procedure; furthermore, procedure by Kausch-Whipple as well as total/subtotal pancreateoduodenectomy & left resection. Most frequently, tumor(Tu) infiltration of the portal vein was diagnosed followed by superior mesenteric vein, hepatic artery, inferior mesenteric vein, splenic vessels, gastroduodenal artery, superior mesenteric artery, median colic artery & inferior vena cava. Depending on the vascular segment infiltrated with Tu, vascular resection was performed followed by vascular reconstruction using simple suture (re-anastomosis by means of a direct suture) or vascular graft (PTFE prosthesis, interponate by saphenic vein, autologous venous patch).

In 56% of patients, R0-resection status was achieved. Periop. morbidity was 50%, hospital lethality 5.8%. Median survival time was 22 months (5-year survival rate, 14%).

Conclusion: Despite Tu-dependent vascular infiltration, the oncosurgical longterm outcome is appealing, which, therefore, justifies the approach with an acceptable risk-benefit ratio. Interdisc. combination of an abdominal surgeon with oncosurgical expertise & an experienced vascular surgeon can be considered the optimal prediction for a successful surgical intervention in selected patients with vascular infiltration by pancreas Ca. Venous Tu infiltration requiring consecutive en-bloc resection is currently considered a safe procedure with an acceptable periop. risk & outcome with curative intention. However, arterial resection in pancreatic Ca is still an exception. It can be considered a possible option if a Tu-free resection margin can be achieved or is promising in thoroughly selected patients with locally advanced Tu growth of pancreatic Ca.

Disclosure of Interest: None declared
STEP-UP MINIMALLY INVASIVE VIDEO-ENDOSCOPIC APPROACH FOR SURGICAL TREATMENT OF ACUTE NECROTIZING Pancreatitis

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Introduction: Recent experimental and clinical researches improve our understanding of natural course of acute necrotizing pancreatitis (ANP) and mechanisms of its complications development. Today there are no disagreements on the issue of timing and main indications for surgery in ANP, but different surgical approaches still exist. It is important to study the efficacy of step-up approach with application of minimally invasive video-endoscopic surgical techniques in different ANP forms treatment.

Materials & Methods: We performed prospective clinical trial of surgical treatment of 147 patients with different forms of ANP, which were treated in 2012-2016 years. Patients were divided on 2 groups depending on accessibility of pathological foci for puncture/drainage by endoscopic ultrasound (EUS) technique: EUS-group (n=55) and transcutaneous ultrasound-guided (TCU) group (n=92). Interventions were performed in such order: ultrasound-guided puncture/drainage, transmural EUS-assisted debridement (in EUS group), video-assisted retroperitoneal debridement (VARD) by nephroscope (in both groups), mini-laparotomic and open pancreatic necrosectomies.

Results: In the majority of EUS group patients repeated punctures of pathological foci with evacuation of fluid were the final and successful treatment options. Necessity of internal drainage occurred in 19 (34,5%) cases, in 5 patients we performed endoscopic debridement of ANP through the fully-covered self-expanding nitio1 stents, in 1 observation – VARD, in 2 patients – mini-laparotomic necrosectomy. Open pancreatic necrosectomy was performed in 3 (5,4%) patients. In TCU group ultrasound-guided drainage was applied in 40 (43,5%) patients, VARD – in 6 cases, mini-laparotomic necrosectomy – in 5 observations, open pancreatic necrosectomy – in 24 (26,1%) patients. In-hospital duration of treatment was 28±2 days for TCU patients and 18±2 – in EUS (p<0,05), but mortality was equal in both groups (1,08% and 1,18%, respectively). Multivariate logistic regression analyze revealed that application of EUS, lower APACHE II score, absence of persistent organ failure and infection at admission were independent factors that contributed in decreasing the necessity of open pancreatic necrosectomy.

Conclusion: Step-up minimally invasive video-endoscopic approach is useful effective method of ANP surgical treatment and decreasing frequency of open pancreatic necrosectomies in comparison with conventional transcutaneous interventions.

Disclosure of Interest: None declared
ROLE OF BIOCHEMICAL PARAMETERS IN PREDICTION OF BILIARY ETIOLOGY OF ACUTE PANCREATITIS

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Introduction: Occult biliary stones escape detection on conventional investigations and clinic-biochemical systems proposed for predicting biliary pancreatitis have low predictive values.

Materials & Methods: This was a retrospective review of all patients diagnosed with acute pancreatitis from December 2012 to December 2013, which was conducted at the Aga Khan University Hospital. Liver function tests followed by abdominal ultrasound were performed in 155 patients presenting with acute pancreatitis within 24 hrs of admission. The etiologies of all patients were determined after complete evaluations and biochemical characteristics of patients with a biliary cause (biliary group) and non-biliary causes (non-biliary group) were compared.

Results: Biliary pancreatitis was diagnosed in 81 patients and 74 patients had non-biliary causes. The biliary group had a female predominance and significantly more derangement of liver function. On multivariate analysis, serum alkaline phosphatase >100 U/L (p=0.002) was an independent predictive factor for biliary cause of acute pancreatitis.

Conclusion: Clinic biochemical prediction for biliary cause of acute pancreatitis improves in the era of endoscopic ultrasonography. In centers where endoscopic ultrasonography is inaccessible or local expertise is unavailable, biochemical parameters may provide a useful alternative in excluding non-biliary etiology of acute pancreatitis, hence excluding the need for unnecessary abdominal ultrasound.

Disclosure of Interest: None declared
Introduction: Pancreatic-enteric anastomosis constitutes the Achilles heel of the Whipple procedure as it is the anastomosis with the highest rate of leak with catastrophic consequences. After Whipple procedure there have been proposed three types of pancreatic-enteric anastomosis for restoring the gastrointestinal continuity: pancreatico-jejunal anastomosis (PJDM) with duct to mucosa, pancreatico-jejunal anastomosis with invagination (PJI) and pancreatico-gastric anastomosis (PG). The goal of this study was to determine if there were significant outcome differences between the three types of anastomosis.

Materials & Methods: The NSQIP database was queried from 2014 for patients who underwent a Whipple procedure and information collected for analysis including: age, gender, race, BMI, use of preoperative biliary stent, pancreatic duct size, remnant texture, total operative time, pancreatic fistula formation and delayed gastric emptying. The type of pancreatic-enteric anastomosis and patient outcomes was compared among the 3 groups.

Results: Out of a total of 2878 patients, who met study criteria, 2468 patients had PJDM, 339 had PJI and 71 had PG. The mean age of population was 64.1 (SD11.5) and the mean BMI was 27.4 (SD 6.0). A significant difference was found in race among groups with a predominance of Caucasian race in the group of PJDM (81%) compared with PJI (73%) and PG (54%). Pancreatic duct size and total operative time was significantly different among the three groups (Pairwise comparison shown a difference between the PJDM and PGI with greater time for PJDM). There were no statistically significant differences among the three groups of anastomosis in the following variables: age, gender, BMI, preoperative biliary stent and pancreatic remnant texture. Finally, the three methods of anastomosis revealed no statistically significant differences in the rate of pancreatic fistula and postoperative delayed gastric emptying.

Conclusion: Our study found that with respect to pancreatic fistula and delayed gastric emptying there were no significant differences among the three types of pancreatic-enteric anastomosis. The surgeon's preference can be used in the determination of the type of anastomosis to be performed.

Disclosure of Interest: None declared
Introduction: Patients are often offered Ca 199 as a screening test by primary healthcare practitioners. Some of these patients are asymptomatic and tests are performed as a screening test while others might have non-specific symptoms. Those with elevated Ca 199 are referred on to tertiary institutions for further workup, although there remain no definitive guidelines to investigate these cases.

Materials & Methods: A retrospective review is performed for all cases of raised Ca 199 being referred to our surgical department over the period of 2 years. Inclusion criteria are asymptomatic patients, or those with non-specific symptoms including weight loss, anhedonia and abdominal discomfort. Primary outcomes are malignancies detected.

Results: 165 patients were included in this study; 96 asymptomatic and 59 symptomatic. All patients had a computated tomography (CT) scan as a first line investigation, and approximately 40% of patients have additional endoscopic evaluation. 17 patients (10.3%) were detected with malignancies and this is significantly higher in the symptomatic group (2% vs 15.5%, p < 0.01). All cases of malignancies were detected on CT scan, except a case of gastric cancer that was detected on endoscopy whom had presented with abdominal discomfort. The most common malignancies detected were pancreatic and hepatocellular cancer. Higher rate of significant benign lesions was also detected in the symptomatic group.

Conclusion: CT scan is sufficient to investigate asymptomatic patients presenting with raised Ca199. There should be a higher index of suspicion for patients with non–specific symptoms and would warrant endoscopic evaluation. We recommend a repeat Ca 199 test in 3 months for patients whom initial CT scan revealed no significant findings.

Disclosure of Interest: None declared
Introduction: In clinical practice adenocarcinoma is the most common cancer of the pancreas that is characterized by poor long term survival. Pancreatic neuroendocrine tumors (pNET) are rare, usually sporadic and account for 1-2% of all pancreatic neoplasms. Comparing to adenocarcinoma pNET patients have relatively good prognosis. According to the PubMed database, coexistence of pancreatic adenocarcinoma and NET are uncommon. Moreover, this is so far the first reported case in Latvia.

Materials & Methods: Analysis of the patient’s medical history and a review of PubMed publications on the subject.

Results: A 76-year old asymptomatic female with a suspicious mass of the pancreas found on ultrasound examination was referred to the hospital on November 2015. Physical examination, laboratory findings were unremarkable. Her BMI was 32.19 kg/m². Past history included ischemic left middle cerebral artery stroke in 2014 and a history of type 2 well metabolically controlled insulin dependent diabetes mellitus for 10-years. No data on neither pancreatitis nor family pancreatic tumors was found. Computed tomography (CT) revealed a mass located in the body of the pancreas that was in close contact to the confluence of the superior mesenteric and the splenic vein. Distal pancreatectomy with splenectomy and lymph node dissection was performed. Histopathological examination of the specimen confirmed a 2.0 cm well-differentiated ductal adenocarcinoma pT₁NdN₁G₁R₀ and 3 mm neuroendocrine microadenoma, proved by immunohistochemical expression of synaptophysin, chromogranin A, pan-cytokeratin AE1/AE3. The Ki-67 proliferation index was less than 2%. Postoperative period was uneventful. She was discharged on postoperative day 9. No adjuvant treatment was administered. During one year of follow-up, the patient has remained in good health with completely controlled diabetes mellitus. CT scans 6, 12 months after operation revealed no recurrent disease.

Conclusion: The coexistence of both pancreatic adenocarcinoma and pNET is very rare and it is difficult to draw any conclusions regarding overall prognosis and long term survival. There are some publications speculating that pNET have genetic potential in transforming to neuroendocrine carcinoma and finally adenocarcinoma, however it is still a matter of debate and definite follow up guidelines are still lacking. Finally, we hope that this case report could help to describe the spectrum of pancreatic malignancies, paying attention to the importance of deeper understanding of genetic complexity of pancreatic tumors.

Disclosure of Interest: None declared
Introduction: Necrotising pancreatitis is an inflammatory disease with a non-viable area of pancreatic parenchyma, typically associated with peripancreatic necrosis. Walled of pancreatic necrosis (WOPN) consists of necrosis and subsequent liquefaction of pancreatic and/or peripancreatic tissue. It may be intrapancreatic or parapancreatic. The aim of this paper is to report our experience and multidisciplinary approach to the treatment of this condition in order to evaluate how to decreasing mortality for necrotising pancreatitis.

Materials & Methods: From April 1987 to April 2016, we treated and studied prospectively 1510 patients with certified acute pancreatitis. 235 of which presented necrotising pancreatitis. 129 men and 106 women with an average age of 48 years (19-82). Severity was determined by Apache II according to Atlanta consensus (severe AP: APACHE II: 8 or more) correlated by a local system.

Results: 235 patients had necrotizing pancreatitis (87-15), 66 had sterile necrosis, mild AP= 26, and severe AP=40. 8 severe patients died by early systemic complications (fulminant). 169 of them presented infected pancreatic necrosis, (including 22 cases of walled-of necrosis: WOPN): were severe cases. 10 received only medical treatment (4 died). 124 patients underwent conventional surgical procedure: 35 underwent minimal-invasive procedure. 13 died by local and systemic complications: 7.6% (multidisciplinary management).

Conclusion: Mortality of Necrotising pancreatitis in 2016: 25 over 235 patients = 10.6% (14.2% in our series in 2004 and 12.7% in 2011). Early diagnosis, hospitalization in ICU, with a the tactical combination of therapeutical methods: multidisciplinary management, is a rational approach to decreasing mortality for necrotising pancreatitis in our experience.

Disclosure of Interest: None declared
SURGICAL TREATMENT OF PERIAMPULLARY CANCER

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Introduction: Periampullary malignant tumors include a wide spectrum of diseases that affect the periampullary region. At first may be malignant: adenocarcinoma ampullary or head of pancreas cancer (85%), cholangiocarcinoma distal, Lymphomas, neuroendocrine, duodenal cancer and neoplastic cystic. Aim: to present our experience and our last results.

Materials & Methods: Materials and methods: Between 1985 and 2010 we evaluated 460 malignant periampullary tumors. Jaundice was the predominant symptom. Diagnostic methods included CT.Scan, Cholangio RMI, ERCP, and Multislice CT. A videolaparoscopy preoperative was done for staging.

182 patients were resected by a pancreaticoduodenectomy (39%): a) Pancreatic Ductal adenocarcinoma: n = 139; b) Malignant Cysts of Head Pancreas: n = 6; c) Malignant Ampulomas: n = 19; d) Distal Cholangiocarcinoma: n = 10; e) Adenocarcinoma and Duodenal Lymphoma: n =3; and f) Malignant Neuroendocrine pancreatic tumors: n =5

Results: Results: 105 were men and 77 women. Resection were: R0:n= 144; R1:n= 30 and R2:n= 8:

Morbidity was 38%. Mortality was 3.3%. In posoperative non radical pancreaticoduodenectomy R1 and R2 a large chimio adyuvance was used.

The 2015 follow-up was: Survival rate (free desease)
R0: n= 144 :1 yr : 85% and 5 yr : 33 % ;
R1: n=30: 1 yr 65 % and 5 yr : 14 %,
and R2 :n=8: 1 yr : 5% and 5 yr : 0 %. (p< 0.05 R0 vs R1 in 1 and 5 years survival.)

Conclusion: Prognostic factors were determining the type and origin of the tumor, as well as tumor size (< 2cm longer survival)

Disclosure of Interest: None declared
Introduction: Although pancreatic neuroendocrine tumor (pNET) is a relatively rare tumor, clinicopathological features of pNET incidentally detected in cases of pancreatectomy for other pancreatic diseases are unknown. The aim of this study was to investigate characteristics of incidental pNETs in resected specimen of pancreatectomy for other diseases.

Materials & Methods: Between 2008 and 2015, 604 consecutive cases undergoing pancreatectomy for pancreatic diseases except pNET at our institute were examined retrospectively. Pancreatectomy and total pancreatectomy were performed in 364, 171 and 69 cases, respectively. 282 cases of pancreatic cancer, 107 cases of intraductal papillary mucinous tumor of the pancreas (IPMN), 126 cases of biliary cancer and 89 cases of the other diseases received pancreatic resection. Incidence and clinicopathological features of incidental pNET were evaluated.

Results: Incidental pNET was detected in 15 cases (2.5%), who were 9 cases (3.2%) of pancreatic cancer, 5 cases (4.7%) of IPMN and 2 cases (1.6%) of biliary tract cancer, including one case of pancreatic cancer concomitant with IPMN. Cases of incidental pNET, whose median age was 72 years old (43-78), included 8 men and 7 women. Incidental pNET arose from head and distal pancreas in 6 and 9 cases, respectively. Median tumor size was 3.0 mm (0.9-8.0). No cases had past or familial history of pancreatic tumor. Although 5 cases had hormone positive cells in immunohistochemistry (3 of glucagon and 2 of somatostatin), no clinical symptoms were seen in them.

Conclusion: Incidental pNET might not be rare in pancreatectomy cases for pancreatic cancer or IPMN.

Disclosure of Interest: None declared
Introduction: After pancreaticoduodenectomy (PD) pancreatic leakage is one of the most common causes of morbidity and mortality. It is controversial whether pancreatic duct stenting should be used for pancreaticogastrostomy (PG) in PD. The purpose of this study was to compare the incidence of pancreatic leakage between externally stented, internally stented, and non-stented PG in PD.

Materials & Methods: Eighty-one consecutive patients undergoing PG were divided into three groups: an externally-stented group (n=24), an internally-stented group (n=22), and a non-stented group (n=35). All pancreatic anastomoses were performed in one layer between the pancreatic remnant and the posterior gastric wall with or without using pancreatic duct stents. The main modification in our technique was an ante-colic reconstruction and setting by the Billroth I method. We assessed the surgical risks, including pancreatic leakage, morbidity, and mortality, and clinical and radiological parameters associated with this technique.

Results: Operative time and blood loss in all patients were 405±110 min and 740±220 ml, respectively. Postoperative morbidity was 23% and mortality was zero. The frequency of all pancreatic leakage (grade A, B and C) was 17% in an externally-stented group, 14% in an internally-stented group, and 6% in a non-stented group (P<0.05). No significant postoperative differences were observed with regard to the diameter of the main pancreatic duct, depth of pancreatic parenchyma, and status of pancreatic hardness.

Conclusion: Pancreatic duct stenting in PG rather increased pancreatic leakage. Our non-stented PG is simple and appears to be an effective reconstructive procedure, especially for patients with a soft, nonfibrotic pancreas.

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Disclosure of Interest: None declared
Introduction: With the aging of society, the number of cancer patients continues to increase worldwide. Pancreatic cancer has also been increasing in incidence and is a leading cause of cancer-related death. However, the optimal therapeutic strategy for very elderly pancreatic cancer patients remains to be determined. The aim of this study was to clarify the role of pancreatic resection in patients 80 years of age or older.

Materials & Methods: A retrospective multicenter analysis of 1401 patients who had undergone pancreatic resection for pancreatic cancer between 2001 and 2012 in 7 high-volume surgical centers in Japan was performed. The patients aged ≥80 years (n = 99) were compared with a control group <80 years of age (n = 1302).

Results: There were no significant differences in the postoperative complications and mortality between the two groups. However, the prognosis of octogenarians was poorer than that of younger patients. The median survival time was 16.6 versus 23.2 months, respectively (P=0.006). The differences were noted for both resectable and borderline resectable tumors. Importantly, there were few long-term survivors in the elderly group, especially among those with borderline resectable pancreatic cancer. A multivariate analysis of the prognostic factors in the very elderly patients indicated that the completion of adjuvant chemotherapy was the only significant factor (P=0.010, HR:2.06). In addition, preoperative albumin level was the only independent risk factor for a failure to complete adjuvant chemotherapy (P=0.005, OR3.93).

Conclusion: This large-scale multicenter study demonstrated that pancreatectomy can be performed safely in very elderly pancreatic cancer patients. However, the prognosis of elderly patients was significantly poorer compared to younger patients. Long-term survival after surgery is unlikely, especially for borderline resectable pancreatic cancer. Therefore, the surgical indications for elderly patients should be carefully determined.

Disclosure of Interest: None declared
Introduction: Central pancreatectomy is traditionally performed though division of the gastrocolic ligament. A lesser omental approach can be performed in an effort to minimize surgical dissection.

Materials & Methods: The video-based format will demonstrate the technique of central pancreatectomy with roux en y reconstruction via a lesser omentum approach. The video will review the adjacent pertinent anatomy and review the technical pearls.

Results: The video of central pancreatectomy is demonstrated.

Conclusion: Central pancreatectomy with roux en y reconstruction via the lesser omentum can be performed in select patients in an effort to limit unnecessary dissection.

Disclosure of Interest: None declared
PROGNOSTIC IMPACT OF LYMPH NODE METASTASIS IN PANCREATIC CANCER
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Introduction: To clarify the prognostic value of lymph node metastatic status in patients with node positive pancreatic cancer.

Materials & Methods: A total of 279 patients underwent pancreatectomy for invasive ductal carcinoma of the pancreas between January 2008 and December 2014. Of these, 185 patients with lymph node metastases were studied retrospectively. The prognostic value, including T (LNN) and ratio of metastatic lymph node (LNR) was evaluated by univariable and multivariable analysis. The optimal cut-off values for LNN and LNR were determined according to p-values calculated by the log-rank test.

Results: The median number of lymph nodes examined was 25 (range 6-55) and of LNN was 3 (range 1-17). The optimal cut-off value of LNN for dividing patients according to the greatest difference in the survival was 4: median survival time (MST) was 18.6 months in LNN $\geq$ 4 and 23.8 months in LNN $<$ 3 ($p=0.0133$). Similarly, optimal cut-off value of LNR for dividing patients was 0.2: median survival time (MST) was 20.4 months in LNR $\geq$ 0.2 and 23.5 months in LNR $<$ 0.2 ($p=0.095$). In a multivariate analysis, LNN $\geq$ 4 (hazards ratio (HR) 1.51, $P=0.032$), the absent of adjuvant chemotherapy (HR 2.09, $P=0.0002$), and CA19-9 $\geq$ 300 U/ml (HR 1.75, $P=0.003$) were significantly associated with survival.

Conclusion: Present study revealed that the number of metastatic lymph node (LNN $\geq$ 4), not the LNR, was the significant poor prognostic factor in patients with node positive pancreatic cancer.

Disclosure of Interest: None declared
ATTENUATION OF SKELETAL MUSCLE VOLUME AFTER NEOADJUVANT CHEMOTHERAPY PREDICTS POOR PROGNOSIS OF PANCREATIC CANCER.

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Introduction: Recently, reports on effectiveness of neoadjuvant chemotherapy (NAC) in pancreatic cancer (PC) has been increasing. Although attenuation of skeletal muscle volume (SM), so-called sarcopenia, has been identified as a poor prognostic factor in several malignancies, it was unknown whether sarcopenia after NAC in PC was a poor prognostic factor. The aim of this study was to investigate whether attenuation of SM after NAC related to prognosis of PC.

Materials & Methods: Between 2007 and 2014, consecutive 81 patients (42 men and 39 women) who underwent pancreatectomy for PC and had evaluable CT images before and after NAC were retrospectively examined. Skeletal muscle volume index (SMI; cross-sectional areas of SM (cm²)/height² (m²)) of the L3 vertebral level was calculated in silico. Bottom 25% in each gender was defined as low SMI group (11 men and 10 women), and the others as high SMI group (31 men and 29 women). Prognosis was compared between the two groups. Clinicopathological prognostic factors of PC were analyzed by univariate and multivariate Cox proportional hazards models.

Results: Gemcitabine (Gem) and Gem plus S-1 were administered before resection to 19 and 62 cases, respectively. Median duration of NAC was 70 days (12-238). Between low and high SMI group, there were significant differences in age (68.4±8.3 vs. 64.7±8.1, p=0.040), BMI (19.5±2.4 vs. 23.1±4.0, p<0.001) and clinical pancreatic fistula (0% vs. 16.7%, p=0.046). The other clinicopathological factors showed no differences between the groups. Overall survival (OS) in low SMI group was significantly lower than that in high SMI group (MST; low SMI 15.9 months, high SMI 30.8 months: p=0.003). Recurrence free survival in low SMI group tended to be lower than that in high SMI group (MST; low SMI 9.1 months, high SMI 14.9 months: p=0.056). For univariate and multivariate analysis, cut-off values of SMI after NAC associated with OS were defined as 52.5 cm²/m² for men and 34.8 cm²/m² for women by receiver operating characteristic curve analysis in 1, 2, 3 and 4-year OS. Multivariate analysis revealed that low SMI after NAC [hazard ratio(HR): 3.00, 95% confidence interval(CI): 1.59-5.94, p<0.001], portal vein resection [HR: 2.10, 95%CI: 1.04-4.30, p=0.037], distant metastasis [HR: 2.58, 95%CI: 1.24-5.17, p=0.012] and non-normalization of tumor marker after resection [HR: 1.88, 95%CI: 1.07-3.30, p=0.028] were independent prognostic factors.

Conclusion: Diminishment of skeletal muscle volume after NAC might have strong impact on prognosis of PC.

Disclosure of Interest: None declared
TECHNIQUE FOR PANCREAS AND GASTROINTESTINAL TRACT RECONSTRUCTION IN PANCREATEICODUODENECTOMY: TOWARD REDUCTION OF SERIOUS COMPLICATIONS ASSOCIATED WITH PANCREATIC FISTULA

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Introduction: Although various techniques are used in pancreaticoduodenectomy (PD), a certain percentage of postoperative deaths from complications resulting from pancreatic fistula has been reported. Debate persists as to reconstruction procedures for the prevention of pancreatic fistula; however, there should be a presupposition that traumatic procedures such as the penetration of a needle into the pancreatic parenchyma results in "a certain percentage of pancreatic fistula developments." With that presupposition in mind, it is important to examine procedures aimed at preventing serious complications such as postoperative hemorrhage resulting from pseudoaneurysm formation associated with pancreatic fistula. We will present techniques we use at our department to reduce these serious complications.

Materials & Methods: Cut the pancreas with a scalpel. Insert a pancreatic tube into the pancreatic duct, and fix the pancreatic duct and the tube with a 5-0 absorbable suture thread to establish complete external drainage. Next, inject physiological saline solution under the serous membrane of the jejunal wall and detach the serous membrane only where the pancreatic stump is adherent, using a scalpel to expose the muscle layer. In addition, perform close-contact pancreaticojejunostomy (modified Kakita method). Insert a 4-0 absorbable suture thread and perform ligation, but do not make the stitches overly tight, in a protective manner. Finally, align the dorsal side of the pancreaticojejunostomy site with part of the greater omentum to separate the arterial stump and the pancreaticojejunostomy site. Be certain of widely covering the arterial stump with the greater omentum to prevent immersion in pancreatic fluid. Place a closed continuous suction drain at the cranial side of the pancreaticojejunostomy site.

Results: We studied 145 patients who had undergone PD at our department between April 2007 and March 2016. Postoperative pancreatic fistula grades according to the ISGPF criteria were grade A in 21 patients (14.9%) and grade B in 11 (8.8%), and there were no patients with grade C fistula. There were no serious complications such as obstruction of the external drainage tube or delayed decrease in pancreatic tube patency.

Conclusion: No patients who had undergone our pancreas and gastrointestinal reconstruction developed a grade C pancreatic fistula. Our procedure using complete external drainage is thus considered to be useful as it can be performed relatively easily and does not lead to serious complications.

Disclosure of Interest: None declared
A PATIENT CASE OF PANCREATIC HYDATID CYST

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Introduction: The primary location of pancreatic hydatid cyst is exceptional even in countries with high endemic. Through a primary hydatid cyst of the pancreas observation in a girl of 8 years and a literature review, we discuss the diagnostic difficulties and methods of surgical treatment of this rare localization of hydatid cyst.

Materials & Methods: An 8 years old girl, presented from 4 months an epigastric pain associated with vomiting. An abdominal CT scan, done secondarily, objectified the presence of cystic formation, at the expense of the head of the pancreas, with purely fluid content with a floating membrane, without enhancement, that evoke a hydatid cyst of the head of pancreas. Surgery was performed (image). The operating suites were simple and the patient was released after 6 days.

Results: Pancreatic location represents less than 1% of hydatid cysts and 0.2% of the abdominal locations [1,2]. Hydatid cyst of the pancreas has no specific clinical signs. The symptomatology is function of the seat and the size of the cyst [3]. Imaging makes the diagnosis of the cyst but it is difficult to relate the lesion to the hydatid disease [4]. The treatment is surgical. About cephalic cysts, the benchmark treatment is resection of the protruding dome in case of ductal fistula, associated cysto-digestive anastomosis [5].

Image:

Conclusion: A great rarity ailment, the primitive hydatid cyst of the pancreas is difficult to diagnose if you don’t evoke it in pre-op. Differential diagnoses are disparate and treatment is of course very different depending on the etiology of pancreatic cystic image.


Disclosure of Interest: None declared
Introduction: In radical operation for gastric cancer, it is important to maintain a balance between a quality of lymph node dissection and a safety of surgery, that is to say, less postoperative complications. During supra-pancreatic lymphadenectomy in laparoscopic gastrectomy (LG), the good operative field should be provided in a safe and effective way to reduce pancreas related complications. Here we present a novel approach without direct compression of the pancreas in LG, and consequent surgical outcomes of this method.

Materials & Methods: We previously compressed the pancreas itself during supra-pancreatic lymph node dissection of LG to obtain an adequate operative field, and have gradually modified the operative procedures. In our new method started in January 2016, the operative field is provided pulling and controlling i) the connective tissues along the inferior border of the pancreas and ii) nerves along the common hepatic and splenic arteries, instead of direct compression of the pancreas itself. The comparison between 43 patients in the compression-plus group (CP group) in 2015 and other 43 patients in the compression-less group (CL group) in 2016 were evaluated in terms of surgical outcomes including amylase concentration of drain fluid (D-AMY).

Results: The D-AMY levels were significantly lower in the CL group postoperative day both 1 and 3 (p = 0.001 and 0.001, respectively) compared with the CP group. The rates of pancreatic fistula and intra-abdominal complication decreased from 7.0% to 4.7% and from 16.3% and 7.0%, respectively.

Conclusion: Our approach for supra-pancreatic lymphadenectomy “compression-less pancreas traction” can be considered as a safe and useful method in LG.

Disclosure of Interest: None declared
Introduction: As the population ages, more elderly patients are being diagnosed with periampullary tumors, therefore, surgeons should consider the indications for pancreaticoduodenectomy (PD) in elderly patients. However, it remains unclear which factors clinicians should focus on to ensure that extremely elderly patients derive benefits from PD.

Materials & Methods: Between January 2000 and December 2012, 116 consecutive patients underwent elective PD for periampullary tumors at the Department of Surgery and Sciences, Toyama University Hospital. Among them, we excluded three patients who underwent PD combined with hepatectomy, and consequently 113 patients were eligible and retrospectively analyzed. The clinical data of patients aged ≥80 years were compared with those of patients aged <80 years. In addition, patients with a performance status of 3 or 4 were considered ineligible for PD.

Results: There were no cases of operative mortality. The preoperative hemoglobin level, Onodera's prognostic nutritional index, and the controlling nutritional status score were significantly worse in the 16 (14.2%) octogenarians than in the younger patients, and the serum albumin level was also consistently lower in the octogenarians. The complications rates of the two groups were comparable. Enteral nutrition was started earlier in the octogenarians than in the younger patients. Seven of the 16 octogenarians died as a result of other diseases, compared with 8 of the 97 younger patients.

Conclusion: In conclusion, as reported in previous studies, age alone should not dissuade surgeons from performing PD. The strict monitoring of nutritional factors and the use of enteral nutrition might help to ensure that octogenarians derive benefits from PD. After PD, surgeons should monitor very elderly patients not only for recurrence of the primary disease but also for other diseases, such as pneumonia. However, the present study, which involved a limited sample size, cannot provide definitive conclusions; therefore, the accumulation of data from this patient population will reveal the risk factors for PD more clearly and help to ensure that patients aged ≥80 years can derive benefit from PD.

Disclosure of Interest: None declared
GIANT PANCREATIC LYMPHANGIOMA: A CASE REPORT

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Introduction: Lymphangioma is a rare tumor of the pancreas with variable size and clinical presentation. Here we presented a case of huge pancreatic lymphangioma.

Materials & Methods: A 60year-old male presented complaining of left upper abdominal pain and early satiety for 6 months. On the last two months he noticed a mass with vomiting. There was neither change of body weight nor any respiratory problems. On abdominal examination, large firm mass occupying the the epigastric and left hypochondrial areas. Computerized tomography demonstrated 25cm multiplied by 20cm well-defined multi-loculated lesion arising from body and tail of pancreas compressing the surrounding structure. Tru cut biopsy with immunohistochemical staining revealed lymphangiomatous origin.

Results: The patient was prepared for surgical resection. Through left subcostal approach, distal pancreatectomy and splenectomy was done. The post operative course was uneventful and final histopathology confirmed lymphangioma of the pancreas.

Conclusion: Although pancreatic lymphangioma is rare, it can present in a very large size compressing the adjacent structures without invasion, so can be resected safely with little morbidity.

Disclosure of Interest: None declared
NEW PANCREATOJEJUNOSTOMY PREVENTING FROM PANCREATIC LEAKAGE BY PUNCTURED STENT SLIDE GUIDING METHOD IN PANCREATODUODENECTOMY

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Introduction: The pancreatic fistula is a major obstacle as a complication after pancreateojunostomy (PJ) in pancreatoduodenectomy (PD), which would result in intra-abdominal abscess or bleeding from arterial aneurism. In this study, we will demonstrate the new PJ technique by pancreatic stent slide guiding method (PSSGM).

Materials & Methods: Their possibility problems of PJ anastomosis are thought to be two reasons. The one is a difference of caliber between jejunal orifice and pancreatic duct. The other is an outside out of jejunal mucosa in anastomosis of duct to mucosa. For the solution of above problems, we devised the punctured stent slide guiding method. The first step of this device is a puncture of jejunum by a pancreatic stent adapted the orifice of pancreatic duct without any incineration of serosa of jejunum. This device might prevent the difference of anastomotic orifice. The second step is an anastomosis of the duct to jejunal seromuscularis layer without mucosa. This duct to seromuscularis anastomosis might prevent the necrosis of mucosa by the ligating strings. These everting suturing by all around 8-10 needles are made by 6-0PDS doubly armed suture. Both the small orifice of pancreatic duct and jejunum are easily and simply anastomosed by the each needle sliding on the pancreatic stent tube. After that the third step is an anastomosis of the pancreatic parenchymal stump by the jejunal seromuscularis layers with the Kakita method, utilizing a full-thickness penetrating suture for tight stump adhesion. The last step is a resection of the pancreatic stent with the opposite side for the lost stent. The orifice after resection of stent is closed by the suturing. The 11 consecutive cases of PJ were made by PSSGM in the PD.

Results: The amylase level in the two sump solutions were measured. The two drains of 8 cases were removed within 5 days after operation without PL. The drains of the other two cases were removed 7 days after operation. The one in two cases had a PL of grade A. Total frequency of PL were 39% in the 114 cases of PJ reconstruction of Group A from 2004 to 2015 years. Total frequency of PL of Group B and C were 31% and 9% respectively at the same period from 2014 to 2015 years. The frequency of grade C PL was 7.9% in Group A. Group B and C had no grade C PL. Moreover Group C had no grade B and C PL that underwent PSSGM.

Conclusion: our new device of PJ reconstruction by PSSGM might be a easy and useful for the preventing PL.

Disclosure of Interest: None declared
Introduction: Splenic vessels sacrificing spleen preserving distal pancreatectomy, so called Warshaw technique, have potential disadvantage of postoperative splenic infarction. The aim of this study is to confirm if intraoperative fluorescence vascular imaging system using indocyanine green (FVI-ICG) is useful to evaluate splenic perfusion after spleen preserving distal pancreatectomy (SPDP) with Warshaw technique.

Materials & Methods: We evaluated the blood perfusion of spleen with intraoperative FVI-ICG system after SPDP with Warshaw technique. Every patients undertook enhanced computed tomography (CT) a week and a month after surgery to evaluate blood perfusion of spleen. Then, the intraoperative fluorescence status of spleen and the splenic perfusion level evaluated with CT were compared.

Results: Five patients including one control case were enrolled in this study. We could see tendency of close relationship between fluorescence level of spleen evaluated by FVI-ICG system after SPDP with Warshaw technique and postoperative splenic perfusion evaluated with CT. All cases including bad splenic perfusion case at first showed improvement of splenic perfusion month after surgery. All cases which spleen showed fluorescence in almost part during surgery did not result in secondary splenectomy.

Conclusion: This study is the first to report the experience and usefulness of FVI-ICG system to evaluate splenic perfusion after SPDP with Warshaw technique. Application of FVI-ICG system could offer surgeon potential benefit for safe preservation of spleen after SPDP with Warshaw technique.

Disclosure of Interest: None declared
HOW I DO IT: PANCREATICO-JEJUNOSTOMY – “DUCT TO MUCOSA” TECHNIQUE (VIDEO)

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Introduction:
Pancreatoduodenectomy is usually the operation of choice for pancreatoduodenal cancer. Although mortality of Whipple’s pancreaticoduodenectomy (WPD) is reduced to <5%, morbidity still remains between 30 and 50%. Pancreaticojejunal anastomosis remains the main cause of morbidity. Pancreateico-jejunostomy – “duct to mucosa” technique with many modifications has been proposed to decrease the leak rate and its associated morbidity. We analyzed the results of this type of anastomosis applied in consecutive cases of WPD.

Materials & Methods:
Of 237 patients with periampullary or pancreatic cancer admitted, 137 patients underwent WPD. Except 26 patients who underwent pancreaticojejunostomy by the Blumgart anastomotic technique, rest of all (111 patients) underwent this method. We analyzed all patients for pancreatic leak and its related complications using the definitions given by the International Study Group for Pancreatic Surgery.

Results:
Of 111 patients, 71 were men. The mean operative time was 312 min (265–540 min) and blood loss was 385 ml (180–1650 ml). Overall mortality was 8.1%, but average age is high (73.2 years), with numerous comorbidities.

Average rate of serum bilirubin was 250 µmol/L on the admission. The clinically significant pancreatic anastomotic failure leak was seen in only 6 (5.4%) cases.

Conclusion:
This method of pancreaticojejunal anastomosis can be routinely used for reconstruction in WPD. It is a technically simple procedure and is associated with low rates of fistula and its related complications.

References:

Disclosure of Interest: None declared
ANALYSIS OF CLINICAL CHARACTERISTICS AND TREATMENT OF PANCREATIC CYSTIC TUMORS

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Introduction: To summarize experience in the diagnosis and treatment of pancreatic cystic neoplasms.

Materials & Methods: This is a retrospective study of 207 patients who were diagnosed with pancreatic cystic tumors at Peking Union Medical College Hospital between Jan. 2009 and Mar. 2014. Clinical data, such as clinical manifestations, radiological and pathological images, and surgical recordings, were collected.

Results: Of the 207 included patients, females accounted for 76.81%, and the mean patient age was 52.04 years. Malignancy was more common in older patients who presented with marasmus and jaundice. Other risk factors included solid components in the tumor, a large tumor size, and elevated levels of tumor markers. Surgical treatment was required when a malignant tumor was suspected. The operation approach was selected based on the location, size and characteristics of the tumor. The position of the tumor relative to the pancreatic duct also played a significant role.

Conclusion: No specific symptoms were observed for the patients with pancreatic cystic tumors. Imaging played an important role in making a differential diagnosis. Furthermore, surgical treatment should be proposed for patients with significant symptoms and potentially malignant tumors. The tumor resection rate is high, suggestive of good prognosis.

References:

Disclosure of Interest: None declared
Introduction: Acute infectious purpura fulminans (AIPF) is a rare but a life-threatening disease, characterized by a rapid progression of symmetric peripheral gangrene associated with severe infection and often requires urgent amputation or reconstructive surgery even for the survivors. To the best of our knowledge, this is the first reported case of AIPF in a Crohn’s disease patient.

Materials & Methods: A 40’s female suffering from CD for 20 years over was hospitalized due to obstruction of the ileum. Anti-TNF therapy was withdrawn 2 weeks before the surgical intervention. Ileocecotomy and descending colostomy were performed due to surgical recurrence.

Results: During peri-operative period, paralytic ileus followed by severe sepsis occurred. *Citrobacter freundii* was detected by blood culture. Intensive therapies including intra-aortic balloon pumping (IABP) and continuous hemodiafiltration (CHDF) were applied for the treatment of multiple organ failure due to disseminated intravascular coagulation (DIC). At post-operative day 16th, she developed the symptoms of AIPF on the tips of her fingers and toes after the recovery from IABP and CHDF. Orthopedic surgeon decided to treat her conservatively because of no obvious infection at her hands and feet. She discharged from our hospital at post-operative day 57th. She underwent necrotic finger tips amputation at post-operative day 110th.

Conclusion: We present this case to describe the rarely reported association of AIPF in a patient with Crohn’s disease, successfully treated with multidisciplinary team approach. Patients with inflammatory bowel disease have a higher risk of developing thromboembolic events regarding their postoperative incidence and related outcomes in everyday practice compared with the healthy population. Thus, it is always important to consider AIPF in high risk population.

Disclosure of Interest: None declared
**Introduction:** Liver resection can be performed more safely than ever due to the progress of surgical techniques, but has still been at high risk of massive intraoperative bleeding and severe postoperative complications. Nowadays patients with coronary artery disease (CAD) have been increasing, and most of them are treated with antiplatelet therapy (APT) to reduce the risk of arterial thromboembolism. When we perform hepatectomy for patients with CAD, we have to consider both bleeding complications and major adverse cardiovascular events (MACE). We retrospectively examined the feasibility of liver resection for patients with CAD.

**Materials & Methods:** 274 consecutive patients undergoing hepatectomy between 2005 and 2014 at our institution were reviewed. We separated this cohort into patients with a treatment history of CAD (n=57, regarded as CAD group) and those without (n=217, Non-CAD group). Our perioperative management protocol was arranged in terms of minimizing both bleeding complications and MACE, which consisted of preoperative maintenance of APT and early postoperative re-institution in patients with high thromboembolic risk. Perioperative outcome variables, including bleeding complications and MACE, were compared between the two groups.

**Results:** Partial hepatectomy, segmentectomy or sectionectomy, and bisegment or trisegment hepatectomy were performed in 57.1%, 16.1%, and 26.8% in the CAD group, and 60.6%, 18.3%, and 21.1% in the Non-CAD group, respectively. Patients with APT use, with multiple APT use, with preoperative maintenance of APT, with the history of heart failure, with poor performance status, and with high scores of The American Society of Anesthesiologists Physical Status (ASA-PS) were more prevalent in the CAD group. However, no significant differences were found between the CAD and the Non-CAD group in bleeding complications (5.3% vs 4.6%) and MACE (5.3% vs 1.8%). Multivariate analysis showed that bisegment or trisegment hepatectomy was an independent risk factor of bleeding complications (hazard ratio (HR) =3.5, p=0.034), and patients in poor performance status (HR=11.9, p=0.014) and patients treated with anticoagulant agent (HR=7.7, p=0.043) were independent risk factors of MACE. However, the history of CAD affected neither bleeding complications nor MACE.

**Conclusion:** Liver resection can be safely performed without severe complications in patients with CAD under the rigorous perioperative management.

**Disclosure of Interest:** None declared
THE SAFETY AND FEASIBILITY OF ELECTIVE LAPAROSCOPIC CHOLECYSTECTOMY IN PATIENTS WITH ANTIPLATELET THERAPY: LESSONS FROM MORE THAN 800 CASES IN A SINGLE TERTIARY REFERRAL HOSPITAL
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Introduction: The perioperative antithrombotic management of patients receiving antiplatelet therapy (APT) in gastroenterological surgery is still controversial. We have established perioperative protocol of patients receiving APT and previously reported its feasibility. In this study, we reviewed more than 800 patients who underwent laparoscopic cholecystectomy (LC) to assess its safety in patients with APT.

Materials & Methods: Between 2005 and 2015, a total of 808 patients undergoing elective LC at our institution were reviewed. Our protocol consisted of interruption of APT 1 week before surgery in low thromboembolic risk patients (APT-LR group) and continuation of preoperative single APT in high thromboembolic risk patients (APT-HR group). We compared surgical outcomes among groups: APT-HR group, n=49; APT-LR group, n=106; patients without APT (non APT group, n=653). Variables related to intraoperative and postoperative bleeding complications (IBCs and PBCs) were evaluated in univariate and multivariate analysis. We defined estimated blood loss of 200 ml or more as IBCs.

Results: In this cohort, there were 17 IBCs (2.1%), 2 patients requiring intraoperative transfusion (0.2%), and 12 patients requiring conversion to open surgery (1.5%). No significant difference was found among groups in these intraoperative outcomes. There were 3 PBCs (0.3%) and 2 thromboembolic events (0.2%), but none of them was seen in APT-HR group. The multivariate analysis showed that chronic cholecystitis (HR=10.144, p<0.001) and poor performance status (grade 2 or higher) (HR=7.539, p=0.002) were the independent risk factors of IBCs and that no independent risk factor of PBCs was found. Use of APT or preoperative continuation of APT was not associated with either IBCs or PBCs.

Conclusion: We performed LC safely even in patients receiving APT under rigorous perioperative management of APT.

Disclosure of Interest: None declared
Introduction: A double channel pylorus can occur after a fistula develops between the stomach and duodenum. This is an extremely rare endoscopic finding that is often discovered incidentally. We report a case of likely acquired double pylorus due to peptic ulcer disease.

Materials & Methods: A 73-year-old Chinese gentleman with no previous abdominal surgery presented with long standing upper abdominal pain. This was not associated with melena or anemia and the initial impression was gastritis. Gastroscopy was performed which showed two pyloric channels communicating to the duodenal bulb with a tissue bridge in between (Figure A). The adult sized gastroscope was able to easily pass through each pyloric lumen (Figures C, D). The lumen located posteriorly (Figure D) was deformed and smaller suggesting it could be the false lumen. In addition, there was pangastritis in the stomach and multiple forest 3 ulcers in D1 (Figure B). Gastric biopsies showed chronic gastritis without evidence of Helicobacter pylori.

Results: Double pylorus is an extremely rare finding with endoscopic incidence reported between 0.02% and 0.08%\(^1,2\). It may be congenital (due to gastrointestinal duplication) or acquired. If acquired, it is usually a complication of peptic ulcer disease and is postulated to be due to chronic ulceration at the gastric antrum or duodenal bulb, resulting in a fistulous tract that epithelizes over\(^3\). Patients do not have symptoms from the dual pyloric channels and typically present with complications of peptic ulcer disease like epigastric pain or gastrointestinal bleeding\(^4\).

Conclusion: Recognition of double pylorus is important to the endoscopist due to the possibility of recurrent ulceration that may occur if the underlying aetiology of peptic ulcer disease is not addressed. Treatment is typically medical with proton pump inhibitors and triple therapy for helicobacter pylori infection, if present\(^5\). The double pylorus does not need directed therapy and causative factors for ulceration like non-steroidal anti-inflammatory drugs or smoking should be stopped.
Disclosure of Interest: None declared
Introduction: Aim: To present results of EUS-guided pancreatic duct drainage in a consecutive patient cohort because of symptomatic postop. anastomotic stenosis.

Materials & Methods: EUS-guided puncture (19-G needle) of the pancreatic duct, pancreaticography, advancement of a guide wire (0.035 inches): via the anastomosis into the small intestine after previous dilatation of the transgastric access site (using ring knife [MTW]):

1.) if possible, balloon dilatation of the anastomosis & placement of a prosthesis as gastropancreaticojejunostomy ("ring drainage");
2. if not possible (frustrating advancement of the guide wire): dilatation of the transgastric access site (using ring knife [MTW]) & balloon dilatation with following transgastric placement of a prosthesis (pancreaticogastrostomy).

Results: Out of 113 cases in total from 2002-2015, 33 patients (27.7%) were found with medical history significant for previous surgical intervention who were approached using EUS-PD: In detail, pancreatic head resection in chronic pancreatitis (n=20) & Tu lesion (n=13), resp. Pancreaticography was achieved in all subjects (n=33/33; 100%). In 8 cases, sufficient flow of contrast media via the anastomotic segment was detected; therefore, drainage was not placed. Technical success (successful placement of a drainage) rate was 64% (n=16/25 cases). By means of 5 EUS-guided re-interventions because of primary unsuccessful placement of a drainage, technical success rate was increased up to 84% (n=21/25). Clinical success (substantial improvement of the complaints) was achieved in n=21/25; rate, 84%). There were 2 different routes of drainage insertion: - transgastric (n=12/21: 8 plastic stents, 4 SEM [1x Hot-AXIOS]); - ring drainage (n=9/21). Two frustrating interventions occurred: in one patient, re-intervention was planned (lost during follow-up); in a further patient, conventional ERP became possible. Overall, there were complications in 6/33 individuals (rate, 18.1%): bleeding; pressing ulcer by the stent; abscess within the lower sac; postinterventional pseudocyst (n=1 each); paraluminal collection of contrast medium (n=2).

Conclusion: Alternative EUS-PD can avoid surgical intervention, which can result – based on a favorable clinical success rate of appr. 84% - in a distinct improvement of the quality of life including an acceptable interventional risk. Because of the high technical demands, EUPD should only be performed in (tertiary) centers of interventional EUS with great expertise in this field.

Disclosure of Interest: None declared
**Introduction**: Laparoscopic incisional hernia repair has been demonstrated to be a promising technique. At a mean follow-up period of 35 months, a recurrence rate of 18% in the laparoscopic incisional hernia repair was reported (1), which remains high. There were more recurrences in the transfascial sutures combined with one row of tackers (11.1%) than in the double row of tackers (double crown) (3.7%), even though the difference was not significant (2). However, the safety and feasibility of mesh fixation via transfascial sutures combined with double crown (TSDC) for laparoscopic incisional hernia repair is not well evaluated. We evaluated the safety and feasibility of TSDC using Funada-style Gastropexy Device II (FGII, Create Medic Co., Ltd) for laparoscopic incisional hernia repair.

**Materials & Methods**: FGII was invented to make easy fixing stomach to abdominal wall with two needles and a thread at once. We translated it to laparoscopic mesh fixation for incisional hernia. Prospectively collected data of 15 consecutive patients with incisional hernia who underwent laparoscopic mesh fixation via TSDC using FGII from May 2012 to December 2016 were evaluated. Operative time, intraoperative blood loss, complication, length of hospital stay and recurrence rate were assessed.

**Surgical procedure**: A 12mm trocar for a flexible laparoscope was inserted using an open technique. Under laparoscopic guidance, 5-mm trocars for the operator and assistant were placed. Hernia content was reduced and hernia defect was measured. Two of 2-0 nylon tied to the mesh before inserting it to the intraperitoneal. After inserting and spreading out the mesh, we picked up 2-0 nylon using FGII and attached the mesh temporarily. The hernia defect was covered with the mesh of appropriate size overlapping by at least 3cm. Then the mesh fixation via TSDC using FGII with a 2-0 nylon to be tied in the subcutaneous layer performed, which ensure the intended puncture.

**Results**: The mean of surgical duration and blood loss were 188 min and 6 mL, respectively. No intraoperative complications occurred in any patient. Two patients developed a postoperative seroma, but recovered after conservative treatments. The mean of postoperative hospital stay was 12 days. At a median follow-up period of 24 months, there were no recurrences.

**Conclusion**: Mesh fixation via TSDC using FGII for laparoscopic hernia repair is safety and feasibility for the patients with incisional hernia.


**Disclosure of Interest**: None declared

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Introduction: Largest part of stenosis of UPGT are patients with a first diagnosed an unresectable tumor. The aim of the study was to compare self-expanding metal stents to antrumectomy and Roux-en Y gastrojejunostomy (GJ) for palliation of obstructive adenocarcinoma of the gastric antrum. Second part of patients are with malignant pylorduodenal obstruction. Third part of UPGT obstruction are patients mostly with benign obstruction as jatrogenic cases, and in rare cases is obstruction of in lower duodenal parts. Open surgical (GJ) has been the treatment of choice, but it has high morbidity and mortality rates. During the last decade, endoscopic self-expandable metal stents (SEMS) have been used. This meta-analysis aimed to compare surgical GJ and endoscopic stenting (ES) in palliation of obstruction of upper part of digestive tract (UPDT).

Materials & Methods: The search identified on personal experience stenting for the outflow obstruction and patients who were underwent surgical GJ in abdominal surgery department of Lithuanian National Cancer Institute. The article presenting data of 11 patients with different kind of UPGT obstruction after the ES. Patients were matched with respect to ASA and level of obstruction. The outcomes were compared on time to starting free oral fluids, length of stay in department and survival. Parallel we use the Eastern Cooperative Oncology Group (ECOG) scoring system to evaluate clinical success and assessment of quality of life before and after treatment comparing with group patient who underwent surgery.

Results: Usually, during the next 6 - 12 months’s (it is median survival time) after the treatment of patient with stenosis of UPDT are not significant difference in percentage of patients with recurrent obstruction. The randomized controlled trials (RCT) and non RCT not show the significant difference between median survival times. We did not find statistically significant differences with regards to long – term survival. After the stenting procedure there was no cases of postprocedural mortality. We have one case of perforation and two cases of stent migration.

Conclusion: Our findings suggest that stent placement is associated with better short-term outcomes and hence, stenting is a safe means of palliating malignant gastric outflow obstruction. This endoscopic approach is also in line with the minimally invasive goals of palliation, namely minimizing pain, hospitalization, and physiologic stress to the patient.

Disclosure of Interest: None declared
MALPRACTICE CLAIMS IN UPPER GASTROINTESTINAL ENDOSCOPY: AN ANALYSIS OF LEGAL CASES IN THE UNITED STATES

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Introduction: Upper gastrointestinal endoscopy (GE) is a widely utilized modality in the United States to diagnose and treat disorders of the esophagus, stomach, duodenum, and pancreaticobiliary system. Nevertheless, medical professionals performing upper GE procedures are subject to litigation due to alleged medical malpractice. We aimed to assess which upper GE procedural complications are most frequently claimed for alleged malpractice during the past three decades.

Materials & Methods: Using Thompson Reuters Westlaw, an online legal research database, a review was conducted of legal records in the United States during 1985-2016. Jury verdicts and settlements were identified using search terms: “medical malpractice” and an inclusive list of all GE procedures (25 terms). Lawsuits in which upper GE procedures were neither performed nor the reason for malpractice allegation were excluded. Variables related to patients, defendants and verdict/settlement outcomes were presented using descriptive statistics.

Results: A total of 178 upper GE lawsuits were included [97 ERCP, 75 EGD, 6 Percutaneous Endoscopic Gastrostomies (PEG)]. The mean (± SD) patient age was 51.0 ± 17.0 years; 102 patients were females (57%). Alleged associated mortality due to the upper GE occurred in 77 cases (43.3%). The named primary defendants included: gastroenterologists (n=140, 79%), general surgeons (n=22, 12%) and anesthesiologists (n=16, 9%). Lawsuits reaching a jury verdict in favor of the defendant were 107 (60%) cases and in favor of the plaintiff 46 (26%) cases, whereas 25 (14%) cases settled prior to reaching a verdict. The median [IQR] award in cases with a verdict or settlement was $1,340,000 [$570,285 - $2,900,000]. Post-procedural pancreatitis and endoscopy-induced organ injury were the most common allegations in lawsuits targeting upper GE procedures (Table 1).

Conclusion: Iatrogenic complications comprise the majority of alleged negligence cases in lawsuits targeting endoscopists and anesthesiologists involved in upper GE procedures. Despite the observed liability of physicians in this study, defendant verdicts were reached in the majority of cases. A thorough understanding of the malpractice allegations, many of which were identified in this study, may help to identify potential pitfalls of upper GE procedures that are associated with increased risk of litigation.

<table>
<thead>
<tr>
<th>Allegation</th>
<th>ERCP</th>
<th>EGD</th>
<th>PEG</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-procedural pancreatitis</td>
<td>38</td>
<td>1</td>
<td>0</td>
<td>39 (21.9%)</td>
</tr>
<tr>
<td>Esophageal injury</td>
<td>1</td>
<td>25</td>
<td>0</td>
<td>26 (14.6%)</td>
</tr>
<tr>
<td>Duodenal injury</td>
<td>15</td>
<td>3</td>
<td>0</td>
<td>18 (10.1%)</td>
</tr>
<tr>
<td>Breathing difficulty (asphyxia, aspiration, hypoxia, dyspnea, apnea)</td>
<td>8</td>
<td>9</td>
<td>0</td>
<td>17 (9.6%)</td>
</tr>
<tr>
<td>Rile duct injury</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1 (0.6%)</td>
</tr>
<tr>
<td>Performed procedure not indicated; overall risk outweighs overall benefit</td>
<td>7</td>
<td>4</td>
<td>0</td>
<td>11 (6.2%)</td>
</tr>
<tr>
<td>Failure to complete pre-procedural assessment (medical history, physical examination, etc.)</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>11 (6.2%)</td>
</tr>
<tr>
<td>Failure to timely diagnose stomach cancer</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>9 (5.1%)</td>
</tr>
<tr>
<td>Failure to timely treat postprocedural complication</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>6 (3.4%)</td>
</tr>
<tr>
<td>Stomach injury</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4 (2.2%)</td>
</tr>
<tr>
<td>Informed consent not obtained, deficient of pertinent info</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3 (1.7%)</td>
</tr>
<tr>
<td>Contracted infection due to unsterile technique, contaminated equipment</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3 (1.7%)</td>
</tr>
<tr>
<td>Cardiac sequelae (cardiac arrest, myocardial infarction)</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3 (1.7%)</td>
</tr>
<tr>
<td>Failure to timely diagnose peptic ulcer disease</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3 (1.7%)</td>
</tr>
<tr>
<td>Colon injury</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Failure to timely diagnose colorectal cancer</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Failed to timely diagnose small bowel cancer</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Failure to timely diagnose esophageal cancer</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Failure to treat cholecodolithias</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Failure to timely diagnose pancreatic cancer</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2 (1.1%)</td>
</tr>
</tbody>
</table>

Table 1. Allegations of Medical Malpractice Following Upper GE Procedures: Endoscopic Retrograde Cholangiopancreatography (ERCP), Esophagogastroduodenoscopy (EGD) & Percutaneous Endoscopic Gastrostomy (PEG)
Disclosure of Interest: None declared
Introducion: Acute appendicitis (AA) is one of the most common causes for emergency surgery within the abdominal cavity. The traditional operation for AA was open appendectomy (OA), but laparoscopic appendectomy (LA) is increasingly being performed. We compared outcomes of surgical treatment of AA using both classical methods (OA) and laparoscopic methods (LA).

Materials & Methods: Retrospectively 166 patients operated on in 2010-2016 due to AA were studied. Patient demographics, operation time, rates of perforated appendicitis, hospital stay after surgery, complication rates were compared between LA and OA.

Results: LA was performed in 140 patients (78 men and 62 women), whereas OA was done in 26 patients (13 men and 13 women). Only one patient conversion from LA to OA was done. Mean operating time was 47.8 ±23.0 min (range: 20–139 min) for LA, and 54.0±19.9 min (range: 31–110 min) for OA; p = 0.25. In LA procedures, 14(10%) were performed for perforated appendicitis, and 9(34.6%) were performed in OA group. Mean hospital stay after LA was 5.3 ±2.8 days (range: 1-13 days), while it was 7.8 ±5.0 days (range: 3-18 days) after OA; p < 0.01. Complication rates were not significantly different between the 2 groups. LA was 81.5% of all appendectomies performed in 2010, thereafter that procedure increased to 94.2% in 2016.

Conclusion: Laparoscopic appendectomy method did not require longer surgery times and enabled shorter hospital stays as compared with OA. Open procedure would be suitable for complicated case like perforated appendicitis. In our institute, LA should be the preferred approach in surgical treatment of AA.

Disclosure of Interest: None declared
Introduction: During esophagojejunostomy using a circular stapler after LATG, placement of the anvil head via the transabdominal approach proved difficult. The authors report on a method modified for laparoscopy-assisted, esophagojejunostomy performed by placing the pretilted anvil head (OrVil) via the transoral approach.

Materials & Methods: Between January 2013 and December 2016, esophagojejunostomy was performed using OrVil in 84 patients after LATG. The anesthesiologist introduced the anvil while observing its passage through the pharynx. During the anastomosis, we kept the jejunum fixed in position with a silicone band Lig-A-Loops, thereby preventing the intestine from slipping off the shaft of the stapler.

Results: Esophagojejunostomy using the OrVil was achieved successfully in all patients. No other complications, such as hypopharyngeal perforation and/or esophageal mucosal injury, occurred during passage. The postoperative complications of anastomosis were leakage in two patients and stenosis in 3 patients, in whom mild relief was achieved using a bougie.

Conclusion: Esophagojejunostomy using the OrVil is a simple and safe technique.

Disclosure of Interest: None declared
MULTIDISCIPLINARY MANAGEMENT OF GUNSHOT INJURY IN A DEVELOPING COUNTRY: WHERE DO WE STAND?
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Introduction: Gunshot injury is an uncommon surgical emergency in developing world. There can be rise in cases of gunshot injury during civil disorder, conflict or political unrest in the country. The management of gunshot injury whether non operative or operative, requires a timely approach. The objective of this study was to evaluate the early outcome of gunshot injury cases managed with multidisciplinary approach at National Academy of Medical Sciences.

Materials & Methods: Bir hospital is a 485 bed postgraduate and superspeciality training academic centre under National Academy of Medical Sciences (NAMS) in Kathmandu, Nepal. A prospective cohort study of gunshot injury admitted in Bir Hospital during September 2015 and early outcome analysis was done. Data collection was done by interview from the patients and hospital records.

Results: There were thirteen cases of gunshot wound. The mean age of casualty was 31 years and all were male. There were three large intestine injury requiring emergency laparotomy and repair with ileostomy. One had perineal injury requiring exploration and ileostomy. Neck exploration was done in gunshot injury of neck resulting in marginal mandibular nerve palsy. One elbow wound required debridement and split thickness skin graft. A caroticojugular arteriovenous fistula was referred for endovascular coiling. Two subtrochanteric and one tibia fractures were managed by traction followed by open reduction internal fixation. Brachial plexus injury and lumbar vertebral injury were managed conservatively.

Conclusion: The hospital provided standard multidisciplinary care by Emergency, General surgery, Gastrointestinal surgery, Cardiothoracic and vascular surgery, Neurosurgery, Plastic surgery, Orthopedics, ENT surgery and Anesthesia/Intensivist team to all the casualties with a favorable outcome. This study highlights multidisciplinary team approach to achieve best favorable outcome during mass casualty gunshot injury. The favorable outcome in our study was possible only due to timely and multidisciplinary approach.

Disclosure of Interest: None declared
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Introduction: The Lancet Commission on Global Surgery recommends an annual rate of 5000 operations/100,000 people as a benchmark at which low- and middle-income countries (LMICs) could achieve most of the population-wide benefits of surgery, but did not define benchmarks for different age groups. We evaluated the operation rate for elderly patients (≥65 years) in Ghana and characterized it by types of procedures and hospital level

Materials & Methods: Data on operations performed for elderly patients over a 1-year period in 2014-5 were obtained from representative samples of 48/124 small first-level hospitals and 12/16 larger referral hospitals; and scaled up for nationwide estimates. Operations were grouped by priority according to the World Bank’s Disease Control Priorities Project [1].

Results: 16,007 operations were performed on patients≥65 years. The annual rate of operations was 1744/100,000 (95%CI:1440-2048), higher than that for patients aged <65 years (768/100,000; 95%CI:571-965). 74% of operations on the elderly were in the highest priority category (i.e., most cost-effective, highest population impact). 58% of the operations were performed at small hospitals; 54% of these did not have fully-trained surgeons. High priority general surgery procedures were the most commonly performed operations (6,113;38%)

<table>
<thead>
<tr>
<th></th>
<th>Small hospitals</th>
<th>Large hospitals</th>
<th>All hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Highest priority procedures</td>
<td>7,714</td>
<td>83</td>
<td>4,174</td>
</tr>
<tr>
<td>General surgery (basic, intermediate; e.g. hernia repair)</td>
<td>4,193</td>
<td>45</td>
<td>1,921</td>
</tr>
<tr>
<td>Cataract</td>
<td>1,374</td>
<td>15</td>
<td>735</td>
</tr>
<tr>
<td>Dental procedures</td>
<td>1,550</td>
<td>17</td>
<td>317</td>
</tr>
<tr>
<td>Trauma (basic, intermediate; e.g. fracture care)</td>
<td>597</td>
<td>6.4</td>
<td>1,194</td>
</tr>
<tr>
<td>Obstetric fistula repair</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Other surgical procedures</td>
<td>1,630</td>
<td>17</td>
<td>2,489</td>
</tr>
<tr>
<td>General Surgery (including cancer)</td>
<td>491</td>
<td>5.3</td>
<td>614</td>
</tr>
<tr>
<td>Head/Neck</td>
<td>256</td>
<td>2.7</td>
<td>752</td>
</tr>
<tr>
<td>Miscellaneous minor procedures</td>
<td>455</td>
<td>4.9</td>
<td>108</td>
</tr>
<tr>
<td>Advanced trauma and orthopedics</td>
<td>147</td>
<td>1.6</td>
<td>362</td>
</tr>
<tr>
<td>Ob-gyn</td>
<td>142</td>
<td>1.5</td>
<td>263</td>
</tr>
<tr>
<td>Urology</td>
<td>72</td>
<td>0.8</td>
<td>259</td>
</tr>
<tr>
<td>Other ophthalmology</td>
<td>67</td>
<td>0.7</td>
<td>132</td>
</tr>
<tr>
<td>Total</td>
<td>9,344</td>
<td>100</td>
<td>6,663</td>
</tr>
</tbody>
</table>

Conclusion: The operation rate fell well short of the cited benchmark, likely indicating large unmet need. Most surgeries for the elderly were in the highest priority category, mostly delivered at small hospitals. Future global surgery benchmarking should consider specific benchmarks for elderly patients


Disclosure of Interest: None declared
A PROSPECTIVE CLINICAL STUDY TO EVALUATE THE ROLE OF PROPHYLACTIC ANTIBIOTICS IN LAPAROSCOPIC CHOLECYSTECTOMY PATIENTS- AN EXPERIENCE IN RURAL SETTING

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Introduction: Diseases involving the gall bladder and biliary tract are among the commonest surgical diseases affecting the digestive tract worldwide and within this group, biliary tract calculus disease constitutes the overwhelming majority. As per tradition, we are consistently giving antibiotic prophylaxis in each case of LC, without ever arguing the need of the antibiotics in this safe procedure. Now this protocol of giving routine antibiotic prophylaxis in low risk elective LC is being challenged by Surgeons around the world.

Materials & Methods: We conducted a Randomized case control study to assess the role of prophylactic antibiotics on post-operative complications and the cost effectiveness of their use in low risk Laparoscopic Cholecystectomy patients with a statistically adequate sample size.

Group A - NO Antibiotics
Group B - Single Dose of Antibiotics at the time of Induction of Anaesthesia only
Group C - Single Dose of Antibiotics at the time of Induction of Anaesthesia and for next 3 days in Post-operative period.

Statistical Analysis: was be done by using SPSS (Statistical Package for Social Sciences) Version 15.0 statistical Analysis Software. The values were represented in Number (%).

Results: Out of 452 patients included in the study, 150 (33.19%) who did not receive any antibiotics either before surgery or after surgery were labelled as Group A, 151 (33.41%) received antibiotics only before surgery were labelled as Group B and rest 151 (33.41%) received antibiotics before surgery and after surgery were labelled as Group C.

At stitch removal most common complaint in overall patients was pain abdomen (n=63; 13.94%), followed by port-site infection (n=40; 8.85% each), fever (n=40, 8.85%) and vomiting (n=17; 3.76%). Prevalence of all the above complaints was higher in Group A compared to Group B and Group C, differences were found to be statistically significant only for vomiting, fever and port-site infection for Group A from group B and C while differences were not found to be significant between Group B and C.

Conclusion: The study showed difference in the occurrence of Post-operative symptoms like Pain Abdomen, Fever, Vomiting, Abdominal Distension and Port site infections between the Non Antibiotic (NA) i.e. Group A, Pre-operative Antibiotics i.e Group B and both Pre-operative and Post-operative Antibiotics i.e. Group C study groups.

Disclosure of Interest: None declared
Introduction: The effectiveness of short term medical service trips (MSTs) in low- and middle-income countries are discussed controversially. Cost-effectiveness data play a crucial role in the evaluation and the transparency of these humanitarian surgical missions. Sustainability in humanitarian surgery could only be realized if those missions adopted to the local economical standards. The aim of this trial is to perform a cost-effectiveness analyses during a 2-week mission carried out by the Swiss Surgical Teams in the year 2016.

Materials & Methods: Data of all consecutive patients operated for an inguinal hernia were prospectively collected. Open mesh repairs were performed using a Mosquitonet mesh composed of polyethylene and polypropylene under local or spinal anesthesia. Standard patient demographics were collected. Costs for the operation (including material, hospital stay, consultation fee, etc.) were gathered prospectively. Analysis for disability adjusted life years (DALYs) averted based on the global burden of disease report (WHO) were done. Cost effectiveness in hernia repair was considered if the costs per DALY were below the gross domestic product per capita (GDP). According to the world bank development indicators for Nigeria, the GDP was 1095.63 swiss franc (CHF).

Results: 116 hernia repairs in 101 patients were performed during an eleven day mission in Nigeria. An Average of 6.98 DALYs per patient were averted accounting for 705.65 DALYs totally. The average costs per procedure were 87.29 CHF per procedure from a provider perspective and 39.90 CHF per procedure from a patients point of view. From a provider perspective, 14.36 CHF were needed to avert one DALY. This was well below the GDP with 1095.63 CHF/capita and therefore considered as highly cost effective.

Conclusion: This study shows that hernia repair is highly cost effective during MSTs in a low (or high) income country. This study justifies future projects and could form the basis for future research within this area.

Disclosure of Interest: None declared
Introduction: The main task of military surgery is the timely implementation of adequate surgery and quick recovery of the wounded. Currently, this approach has much in common with Fast Track Surgery program (H. Kehlet, 1997). We have studied the possibility of implementing such a program for the wounded in the providing surgical care in the advanced hospital (level 3).

Materials & Methods: Hospital in the North Caucasus was located at a distance of 70-80 km from the combat zone, and the wounded were delivered by helicopter within 2-6 hours after getting injured. The hospital carried out emergency specialized surgical care. Specialized thoracic surgical team worked in the hospital for 3 months during the fighting in 1996.

Results: There were 82 soldiers with gunshot penetrating chest injuries within 3 months. They are divided into 3 groups (Table).

<table>
<thead>
<tr>
<th>Group</th>
<th>Extent of surgery</th>
<th>Number of the wounded</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tube thoracostomy</td>
<td>60 (73,2%)</td>
</tr>
<tr>
<td>2</td>
<td>Operational Videothoracoscopy</td>
<td>16 (19,5%)</td>
</tr>
<tr>
<td>3</td>
<td>Thoracotomy</td>
<td>6 (7,3%)</td>
</tr>
</tbody>
</table>

Major operations are performed in 2 and 3 groups. Perioperative phase included: the use of combined anesthesia with rapid recovery from the anesthesia; adequate replacement blood loss (in all cases blood loss was more than 2 liters); preventing intraoperative hypothermia (warming mattress, warm solutions); antibiotic administration in 60 minutes before surgery; hemodynamic monitoring, pulse oximetry, blood loss calculation. In the early postoperative period visual analogue pain scale (Huskisson E. S., 1974) and the wounded activity Barthel index, use of analgesia, meal timing, removal of catheters and drains, the rate of complications and mortality was assessed.

The most favorable clinical course of the injured was in the second group. All the wounded got up from the bed for the next day, pain was minimal (VAPS = 1.5, and after thoracotomy = 7.5), did not have complications and length of stay in the rear hospital was 3 times shorter than conventional. Mortality in the first group was 3.3%, in the second - 0, and in the third - 16.7%.

Conclusion: The use of minimally invasive surgery in the injured in the advanced hospital (level 3) made the possibilities to minimize the traumatic effects of surgery and get results similar achieved in peacetime surgery in the implementation of FTS program. We believe that the FTS program meets the objectives of military surgery.

Disclosure of Interest: None declared
INTRODUCTION: The health care accessibility to the military personnel at the designed hospital allowed the development of the regional comprehensive cancer care. The goal of this study is to evaluate the outcomes of the multimodal treatment with the neoadjuvant therapy combined with the total gastrectomy with D2 lymph node dissection in this patient population with stage II gastric cancer.

MATERIALS & METHODS: 105 patients with stage Ila, T3N1M0 stomach adenocarcinoma was identified between 2012-2016. All patients received 3-4 cycles of the neoadjuvant chemotherapy with docetaxel, cisplatin and 5-fluorouracil for 21 days (DCF). Six to eight weeks later, 85 patients underwent total gastrectomy with D2 lymph node dissection followed by another 2-3 cycles of the adjuvant chemotherapy with DCF.

RESULTS: The average age of the patients was 60, the majority was the male (74%). An eighty-one percent of the patients was able to complete the neoadjuvant therapy. Of those completed therapy, the adverse effects of the 3-4th degree were observed in 22 patients (25.8%). The most common complications observed was anorexia, and nausea (12 patients, 14.1%). 10 patients (8.5%) had neutropenia and thrombocytopenia. No immediate perioperative mortality was observed, 11.8% of the patients had post-operative complications. A 3-year overall survival was 59%, and a 3-year disease-free survival was 84.8%. However, 3-year overall survival among those who underwent both neoadjuvant chemotherapy and gastrectomy with D2 lymph node dissection was 72.9%.

CONCLUSION: An implementation of the government sponsored insurance system for the military personnel provided comprehensive cancer treatment. Use of the pre-operative DCF therapy improves the feasibility of the gastrectomy with D2 lymph node dissection and overall survival outcomes.

DISCLOSURE OF INTEREST: None declared