Poster Abstracts
7. THE EFFECT OF ALCOHOL INTOXICATION ON PHYSICAL EXAM AFTER BLUNT HOLLOW VISCUS INJURY
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BACKGROUND: The analgesic effects of alcohol have been well-studied. The aim of this study is to determine if acute alcohol intoxication affects the reliability of the abdominal physical exam in patients suffering hollow viscus injury after blunt trauma.

METHODS: We conducted a retrospective review of registry data at a Level I center of blunt trauma patients that were found to have a hollow viscus injury on exploration. We excluded patients with a GCS<13 on admission, pediatric patients (age < 18) and patients whose mental status deteriorated or became hemodynamically unstable in initial evaluation. Acute alcohol intoxication was determined by a serum ETOH level drawn on admission. Intoxicated patients were compared to non-intoxicated patients with regard to the presence or absence of abdominal pain on physical exam.

RESULTS: There were 223 blunt trauma patients that underwent exploratory laparotomy during the six year study period. Eighty-one patients met our inclusion criteria. Comparing intoxicated patients to non-intoxicated patients, there were no differences in gender (Male: 91.3% vs. 72.4%, OR: 4.95 CI: 0.76-27.8, p = 0.08) or age (Age <45: 65.2% vs 65.5%, OR: 0.99, 95%CI: 0.32-3.07, p = 1.0). In patients with hollow viscus injury, neither alcohol intoxication (60.9% vs. 77.6%, OR: 0.45, 95%CI: 0.19-1.44, p = 0.17) nor the presence of a distracting injury (69.0% vs. 82.6%, OR: 0.47, 95%CI: 0.12-1.76, p = 0.27) appeared to be associated with a decreased incidence of abdominal pain. However, when adjusting for age, gender, and the presence of a distracting injury, the relationship between alcohol intoxication and absence of pain on physical exam trended towards significance (p = 0.06).

CONCLUSION: While the presence of a distracting injury appears to have no association with abdominal pain after blunt hollow viscus injury, alcohol intoxication can potentially alter the physical examination in these patients. Further studies with a larger database may yield statistically significant results; nonetheless, these results are likely clinically significant. A more liberal policy of imaging or observation may be indicated in acutely intoxicated patients who do not meet other indications for further objective evaluation.
BACKGROUND: Although conduction abnormalities are rare after penetrating cardiac injuries (PCIs), rapid identification and treatment of these arrhythmias is critical to patient survival. The objective of this study is to describe our experience with this uncommon sequela of PCIs.

METHODS: Patients with conduction system abnormalities after PCIs were identified from the registry of a large urban, level I trauma center over a five year study period.

RESULTS: Over the 5 year study period, 71 patients survived to reach the hospital after PCI. Of these, 3 (4%) survivors (male = 3, mean age 41.3, median ISS = 25) were identified with conduction system abnormalities after cardiorrhaphy for PCIs. Two patients had gunshot wound (GSW) mechanism to the chest, one with exsanguination into the left chest and the other presented with cardiac tamponade. One patient was impaled by a nail. All patients had multi-chamber injury and injury to the atrioventricular node. After initial cardiorrhaphy and control of hemorrhage, all patients had sustained hypotension with bradycardia from a complete heart block. Pacing wires were used immediately in these cases for rate control with improved blood pressure. The two GSW patients developed right heart failure from a ventricular septal defect (VSD) requiring repair. The other patient had spontaneous resolution of the arrhythmia without need for further intervention. All three patients survived this injury.

CONCLUSION: Injury to the cardiac conduction system after PCI is rare, but rapid recognition of this injury pattern as a source of sustained hypotension after cardiorrhaphy is essential to early restoration of cardiac function. These injuries also appear to be associated with VSDs which may also need to be repaired.
9. REPAIR OF RECURRENT PECTUS EXCAVATUM FOLLOWING MINIMALLY INVASIVE REPAIR: TECHNIQUES AND OUTCOMES
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BACKGROUND: Successful repair of recurrent pectus excavatum (PE) after failed minimally invasive repair has been reported using minimally invasive or open approaches. Presented is a review of our experience for revision of recurrent PE after minimally invasive repair, and a review of the techniques used for repair in these patients.

METHODS: A retrospective review of adult patients undergoing repair for recurrent PE after minimally invasive repair from January 2010 through June 2014 was performed.

RESULTS: 72 adult patients underwent repair for recurrent PE with 24 (33%) having been performed for recurrence after prior minimally invasive repair. Mean patient age was 30 years (range 18-51 years), with mean Haller index 4.7 (range 2.4-9). Of the 24 patients, 23 were repaired using a minimally invasive approach, although 5 required a midline incision for either rib resection or xiphoid resection in order to complete the repair. One patient underwent Ravitch repair. Average operative time for the group was 180 minutes (range 89–332), and the average blood loss was 227 ml (range 10-600). The majority of patients (n=15/24, 62%) had 2 support bars placed and 9 had 3 bars placed (38%). During the post-operative course, 3 patients (12%) required placement of a chest tube for large pneumothorax, one patient had unilateral vocal cord paresis, and one patient returned to the OR for resection of cartilage for cosmetic reasons several months later. Average length of follow up was 8 months (range 0-40). No patients had recurrence of their deformity during the follow up period.

CONCLUSION: Recurrence after minimally invasive repair of pectus excavatum can be repaired in a variety of ways. In our experience the majority of these cases can be managed with a minimal invasive approach, although a significant portion of patients will require an additional incision for resection of ribs or the xiphoid in order to complete the repair. This approach leads to a durable repair with a low rate of recurrence.
BACKGROUND: The administration of alcohol to prevent withdrawal in the surgical intensive care unit remains an emotionally charged controversy. Opponents of the use of alcohol warn of the social implications of physicians condoning alcohol use and point to alternative medications. Supporters argue oral alcohol intake in limited doses is the best way to prevent dangerous withdrawal syndromes without the side effects of benzodiazepines. We surveyed critical care providers about their sentiments on the ethics and effectiveness of using alcohol as part of an alcohol withdrawal protocol.

METHODS: A fourteen-item voluntary and anonymous questionnaire was distributed at a local critical care nursing conference to nurses, nurse educators, respiratory therapists, and other critical care providers to assess their experience with alcohol withdrawal policies, perspectives about the ethics of alcohol administration, and demographics. We used a 5-point Likert-type scale. We evaluated data using Stata.

RESULTS: Of 95 attendees at the conference, 72 completed surveys (76%). The majority were female (71%) and the mean age was 37.5. Most respondents (82%) were nurses. Only 22% reported using alcohol as part of their normal critical care practice (53% reported not using alcohol as a normal part of their practice while 25% were neutral or did not know). Ten percent of respondents would refuse to administer alcohol, while 72% said that they would not refuse to use alcohol as part of their provision of care. Twenty-two percent thought providing alcohol encourages patients to keep drinking, in other words “enabling” them, while 57% did not think giving alcohol enabled patients. The majority of respondents thought providing alcohol prevents withdrawal (81%) and that it helped to avoid the overuse of benzodiazepines (79%). The majority (58-85%) considered methadone programs and the use of nicotine patches to be important components of treatment for narcotic and nicotine addictions. When we stratified by respondents with over 10 years of experience, providers with more experience were more likely to think that providing alcohol to patients prevents alcohol withdrawal (83% vs 78%, p=0.018. However, they also tended to believe alcohol provision increased length of stay (24% vs. 11%, p=0.001).

CONCLUSION: In a single-site survey, many non-physician critical care practitioners appear to support the idea of using oral alcohol as part of their clinical practice. In particular, the most experienced nurses believe that alcohol helps their patients to avoid alcohol withdrawal. However, a more extensive sampling of experienced providers’ practice is warranted to help define perspectives on alcohol withdrawal. However, because of this anecdotal support of oral alcohol administration, before studies of alcohol as an adjunct for averting alcohol withdrawal syndromes are dismissed, more extensive research on the science of its efficacy should be pursued.
BACKGROUND: In the current climate of health care with the main goal of providing high quality care while addressing the cost of care, one of the main initiatives to reducing cost is via medical product cost comparisons. Health care systems are undertaking in-house studies to ascertain if changing products based on lower cost will translate into overall cost savings while not sacrificing quality. Pacemakers and orthopedic joint components are examples of products in which cost and outcomes have been examined. In the area of the general surgical practice, the type of biologic mesh for ventral hernia repair (VHR) is an example of cost variation that could result in potential savings. The goal of this study was to examine whether a change in mesh product in VHR, based on reduced cost, provided similar efficacy in patient outcomes.

METHODS: At our academic, tertiary center, a hospital directed product change based on cost; Strattice™ to Permacol™ was examined. A prospective survey by the surgeon was done to determine appropriate utilization of biologic mesh. This was followed by a retrospective chart review of those treated; one-year prior (Sept. 2012 to Aug. 2013) with strict Strattice™ use and one-year after (Sept. 2013 to Aug. 2014) product conversion with strict Permacol™ use. Outcomes measured included postoperative wound complications, readmission, and product cost.

RESULTS: There were 28 patients that received treatment with Strattice™ and 41 with Permacol™. Four patients received both treatments. There was no difference based on gender, age, BMI, or comorbidities (smoking, DM, COPD, CAD, or ASA score) in mesh use groups. There was also no difference based on; hernia type, wound classification, or Ventral Hernia Working Group classification. There was no difference in the surgical site infection (SSI) rates for; superficial, deep, or organ space or rates of skin necrosis, fistula formation, hematoma or seroma formation between mesh groups at 30-day follow up. There was no difference in hospital stay post repair or 30-day readmission rates. In several subgroup analyses for superficial SSI there was a trend toward improved outcomes with Permacol™. The charges were significantly higher for Strattice™ mesh as compared to Permacol™ with the median (25th – 75th quartile), respectively $8,940 (7,847 – 11,175) to $1,600 (1,200-2,400), p<0.001. Overall cost of Permacol™ for the 41 patients was $90,352. If Strattice™ would have been utilized the overall cost in mesh for the same 41 patients would have been $271,672.

CONCLUSION: In this single center analysis we found that there was no difference in the short-term wound outcomes for patients when a product of lesser cost was introduced. Surgeons should be active participants in determining the utilization of operative products and materials as they are changed and incorporate decision-making tools in order to track and ensure compliance based on tested and verified guidelines.
12. INSURANCE TYPE, PATIENT RACE, AND DIAGNOSTIC IMAGING AS A MEASURE OF QUALITY OF CARE
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**BACKGROUND:** Insurance status and race are known determinants of poorer trauma outcomes, but their significance on outcomes other than mortality remains unclear. This study examines the effect of patient race, multiple insurance types, and number of diagnostic studies per patient as a measure of quality of trauma care.

**METHODS:** Multiple logistic regression models were built using data obtained from an ACS Verified Level I Trauma Center between January 1, 2011 and December 31, 2012 that attends to 25% to 50% of patients who are minorities. A total of 3,621 records from surviving patients age ≥18 years were assessed.

**RESULTS:** The adjusted regression model showed fewer diagnostic images among African Americans (AA) compared to Caucasians (odds ratio [OR] 0.92, 95% CI: 0.86 – 1.00), and patients without insurance (OR 0.90, 0.83 – 0.99), with government insurance (OR 0.80, 0.69 – 0.93), or Medicare (OR 0.85, 0.75 – 0.96) compared to commercial insurance plans. Patient race, but not insurance type, remained a significant determinant of imaging studies after further adjustment for injury mechanism. Subgroup analysis revealed that the magnitude of racial variations in imaging studies among AA patients was attributed to non-motor vehicle related injuries.

**CONCLUSION:** In an analysis of diagnostic images received while in care, patient race and insurance type were significant indicators of care quality only when mechanism of injury was omitted. Subgroup analyses confirmed known race-related disparities in outcomes, but also illustrate that variations may be attributable to specific injury mechanisms. The etiology of these discrepancies underlines the importance of monitoring and reducing race-related disparities in trauma care and offers initial evidence as to where additional research and surveillance might be targeted.
BACKGROUND: The ABS QE (American Board of Surgery Qualifying Examination) seeks to evaluate a surgeon’s fund of clinical knowledge. Prior to the examination, surgery training program must attest to the competence of the examinee and, hence, his/her eligibility to sit for the examination. Surgical training programs struggle with ensuring that all residents are well prepared to successfully complete the examination. To assure adequate preparation, most programs have initiated mandatory remediation courses for those residents identified at high risk for failing the ABS QE, but the effect of these remedial programs on (ABS QE) performance has not been reported. Resident performance on the American Board of Surgery In-Service Training Examination (ABSITE) has consistently been found to correlate with ABS QE performance. We sought to review the remediation program at a general surgery resident program and its effect on ABS QE pass rates on the first attempt.

METHODS: The records of all general surgery residents who graduated from 2002 to 2010 were reviewed and the residents who participated in the remediation program were identified. The remediation program was individualized to each resident, but always included meeting with a learning specialist at regular intervals, a structured reading/study program with specific readings for each week, meetings with the residency program director every two weeks, and education regarding test taking strategies. Additionally, graduate performance on the ABS QE on the first attempt was reviewed.

RESULTS: A total of 34 residents graduated a general surgery resident program from 2002 to 2010. Five of those graduates completed the remediation program. They were identified as having poor clinical performance with regards to knowledge and ABSITE scores below the tenth percentile. 85% of graduates (29/34) passed the ABS QE on their first attempt. Of the five individuals in the remediation program, 80% (4/5) successfully passed the ABS QE on their first attempt. The sample size, however, is not powered to confirm statistical equivalence (more than 2600 residents being needed to demonstrate equivalence within 5% or less).

CONCLUSION: The remediation program at a general surgery resident program leads to ABS QE pass rates similar for individuals who required remediation compared to all general surgery graduates. Based upon this success, the core focus of the remediation program (an intensive structured reading program and a lecture from a learning specialist) was expanded in 2011 to include all residents in the residency program.
14. VIDEO ASSISTANCE IS NOT NECESSARY FOR SUPERIOR COSMETIC RESULTS WITH MINIMALLY INVASIVE THYROIDECTOMY
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BACKGROUND: Video-assisted thyroidectomy has been promoted as a safe alternative to robotic-assisted thyroidectomy with excellent cosmetic results. We report on the same minimally invasive thyroidectomy (MIT) through a 2 cm incision without the added need for video-assistance and postulate similar superior cosmetic and clinical results.

METHODS: Between May 2012 and October 2014, 102 non-endoscopic MIT procedures in 99 patients were evaluated for demographics, clinical outcomes and patient satisfaction with the appearance of the incision on a 1 to 10 scale.

RESULTS: The 99 study patients were 94% female, 6% male with mean age of 43.1 years (17-78), and mean BMI of 25.4 (18-37). The 102 thyroidectomy procedures included 6 partial lobectomies, 39 lobectomies, 3 completion total thyroidectomies, 54 total thyroidectomies (7 with bilateral central lymph node dissections), with mean lobectomy weight of 9.4 grams (2 to 37). Transient recurrent laryngeal nerve (RLN) injury occurred in 2.0% of nerves-at-risk (3 of 150) with no permanent injuries, transient symptomatic hypocalcemia in 14.0% of total thyroidectomies (all with autoimmune thyroiditis) with no permanent hypoparathyroidism, and 0% postoperative hematoma. Outpatient thyroidectomy was possible in 97% of procedures with only 1 postoperative admission for symptomatic hypocalcemia. On follow-up the measured MIT scar was 2.1cm, which resulted in a mean cosmetic satisfaction rating of 9.65 out of 10 with 85% of the ratings 10 out of 10.

CONCLUSION: In selected patients, MIT through a 2 cm incision can be done safely without video-assistance for the gamut of thyroid disease and thyroidectomy procedures and results in superior patient satisfaction with the cosmetic appearance of the incision.
BACKGROUND: Minimally invasive surgery (MIS) has become widely adopted after studies demonstrated reduction in patient perceived pain and shorter lengths of hospital stay compared to traditional open surgery. However, while patients benefit from the MIS approach, surgeons performing these techniques may have worse pain and fatigue. The goal of this systematic review was to quantify the differences in surgeon-reported pain and symptoms associated with MIS compared to open surgery.

METHODS: Five medical indices were systematically searched, using standard search criteria, to identify peer-reviewed literature discussing ergonomics in the operating room. Survey data regarding surgeon pain and symptoms were extracted and stratified by reported operating technique (MIS or open). A fixed-effects model was created to pool estimates of reported symptoms. A logistic regression model was used to evaluate differences in symptoms related to surgical approach.

RESULTS: Thirty-five studies were identified (23 MIS versus 12 open). Of the 4213 surgeons answering questions about MIS, 3286 (78%) reported pain. The most common sites of pain were the back (55%), shoulder (52%), neck (52%), and hand (32%). Fatigue associated with MIS was noted by 3665 surgeons (87%) and 1053 surgeons (32% of those reporting pain) sought treatment. Of the 2206 surgeons answering questions regarding open surgery, 1390 (63%) of them reported overall pain. The most frequently noted sites of pain from open procedures were in the neck (37%), back (29%) and shoulder (21%). On regression analysis, MIS surgeons were significantly more likely to report pain in the arm/shoulder (OR: 3.88, P<0.01), neck (OR: 2.49, P=0.03), hands (OR: 3.16, P<0.01) and back (OR: 2.48, P=0.03). Those performing MIS were substantially more likely to note fatigue associated with the procedure (OR: 10.71, P>0.01). Despite the higher prevalence of pain in specific body parts with MIS, overall pain symptoms were similar between open and MIS surgeons.

CONCLUSION: Compared to open technique, surgeons performing MIS report higher levels of pain in the neck, back, shoulder and hands. MIS is associated with significantly higher rates of perceived fatigue compared to open surgery. Interventions designed to reduce strain on the back, neck, and upper extremity may improve symptoms of surgeons performing surgery by the MIS and open approaches.
16. DANGEROUS CHOICES: STIMULANT USE IN TRAUMA PATIENTS
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BACKGROUND: INTRODUCTION: Use of stimulant drugs (STIM) including methamphetamine (METH), cocaine (COC) and phenycyclidine (PCP) occurs frequently in trauma patients. Published reports have clearly linked COC with interpersonal violence, but the demographics and injuries of patients using other STIM drugs is less clear. Our objective was to describe the STIM positive population at a regional Level I Trauma Center.

METHODS: METHODS: The trauma registry was reviewed from 1/1/2008 to 12/31/2012. Data collected included demographics, insurance type, injury related information, initial vital signs, blood alcohol level (BAL), drug of abuse (DOA) results, base deficit (BD), blood products in 24 hours (BL24), ventilator days, ICU length of stay (LOS), hospital LOS and outcomes. Urine DOA screening was by ELISA and patients were counted as STIM positive if they tested positive for COC, PCP, or amphetamine, which was considered a surrogate for METH. Gunshot wounds, stab wounds, and assaults were considered violent injuries and all others were considered non-violent. Statistical analyses were performed using Mann Whitney U and Chi-square tests with significance attributed to p value <0.05.

RESULTS: RESULTS: Over the 5-year study period, 12,394 patients were included, with 6,513 (52.5%) having DOA testing. STIM drugs were present alone or in combination with other drugs in 1071 patients (16.4%) and 300 patients had only STIM present. STIM-only patients were compared to patients negative for all drugs (NEG). Groups did not differ by GCS, ISS, initial vital signs, BL24, vent days, ICU or hospital LOS, or outcomes but STIM patients were younger (38 vs 43 years, p = 0.007) and had a greater proportion of males (77% vs 69%, p = 0.03). STIM patients were more likely to have penetrating injury (23% vs 13%, p < 0.001), violent injury (34% vs 19%, p < 0.001), and be legally intoxicated (38% vs 26%, p < 0.001). Additionally, NEG patients were more often insured (87% vs 81%, p < 0.001) and more likely to have private insurance (26% vs 9%, p <0.001).

CONCLUSION: CONCLUSIONS: STIM positive patients are more likely to have violent mechanisms of injury, be legally intoxicated, and uninsured, and less likely to have private insurance, thus demonstrating multidimensional hazardous behaviors.
BACKGROUND: The disproportionate distribution of trauma care resources in a mostly rural state can affect transportation time following injuries that occur on a farm. Agricultural workers are susceptible to traumatic injuries related to occupational hazards such as large machinery and livestock. The purpose of this study was to evaluate injury severity and patterns among agriculture workers who sustained animal- or machine- related injuries.

METHODS: A retrospective review was conducted of adult patients (> 18 years of age) presenting with farm-related injuries at an ACS verified level-1 trauma center between 1/1/2004 and 12/31/2013. Outcomes of interest included mortality, ICU length of stay (I-LOS), hospital length of stay (H-LOS), number of ventilatory days (v-days), and discharge destination. Data collected included: demographics, mechanism of injury, transportation time and mode, injury details, severity, and patterns, H-LOS, I-LOS, v-days, and discharge disposition. Chi-square tests were conducted to identify the association of risk factors between the two types of injuries.

RESULTS: Among the 150 patients included in this study, 73.3% (n=110) were male with a mean age of 49.9± 18.5 years, and most (98%, n=147) sustained a blunt injury. Injury mechanisms included animal (n=61, 40.7%) and machine-related (n=89, 59.3%). The overall mortality rate was 4% (n=6 of 150), and all deaths were due to machine-related injuries. Patients with machine-related injuries had significantly longer H-LOS (5.3 vs 3.7 days), I-LOS (2.2 days vs. 0.9 days), and v-days (0.8 days vs 0.0 days) than those with animal-related injuries. Both groups were primarily transported by ground ambulance (n=96, 64.0%), followed by private vehicle (n=38, 25.3%), and helicopter or fixed wing flight (n=16, 10.7%). More than one-third of the patients in each group demonstrated transportation times in excess of 4 hours (36.0% and 42.6% for machine- and animal-related injuries, respectively), and more than half of patients had transportation time in excess of 2 hours (66.3% and 55.7% for machine- and animal-related injuries, respectively). Patients with machine-related injuries had significantly higher ISS (10.9 vs. 8.3, p=0.04) than patients with animal-related injuries. The majority of patients were discharged to home (n=118, 78.7%); 19 were discharged to a rehabilitation center and 7 to a skilled nursing unit. Of the patients with non-animal injuries, 17 (19.1%) required placement in a skilled nursing unit or rehabilitation, compared to 9 (14.8%) patients with animal-related injuries.

CONCLUSION: Patients with machine-related injuries had poorer outcomes. Regardless of the mechanism of injury, the mode and time of transportation were not associated with patient outcome or disposition, even though more than half the population experienced prolonged transportation times (greater than 2 to 4 hours).
19. SKIP THE RADIATION: ROUTINE USE OF MRI DOES NOT ALTER TREATMENT PLANS IN NEUROLOGICALLY INTACT BLUNT TRAUMA PATIENTS.
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BACKGROUND: The utility of magnetic resonance imaging (MRI) in combination with and subsequent to computed tomography (CT) has been increasingly debated for cervical spine clearance in blunt trauma patients. With the increasing availability of MRI and concerns for missed injuries medico legally, MRI being used as an adjunct is common. The purpose of our study was to investigate the utility of the use of MRI as to the influence of these imaging results on the treatment plan in all levels of suspected vertebral injuries; the belief being that the use of MRI did not change the propensity for patients to have operative treatment, despite the potential of finding additional injuries not seen on the CT scan.

METHODS: A retrospective five year study was conducted at a level 1 trauma center of blunt trauma patients who received both CT and MRI imagining of suspected injuries at the cervical, thoracic, or lumbar vertebral levels without neurologic deficit. Inclusion criteria included adults who received both CT and MRI imaging to elucidate injuries for possible operative treatment. Participants included 240 adults who were unable to be clinically or radiographically cleared of spinal injury and therefore subsequently received MRI.

RESULTS: For 79% of patients, MRI did not influence the decision for operative treatment. A chi-square test for association was statistically significant ($\chi^2(1) = 11.430, p = .001$) between operative treatment plan (surgical or not) and MRI utility pertaining to influencing the original treatment plan from non-surgical prior to the MRI to operative. In only 24 cases (10%), the MRI results influenced the treatment to surgical status. A statistically significant association ($\chi^2(1) = 59.198, p < .0005$) was also found between chronicity and MRI utility, whereby the MRI results provided useful insight for 17 cases (7%). Of note, the Injury Severity Score was similar between those in which MRI influenced a treatment plan change and in those it did not, 9.02 and 9.97 respectively.

CONCLUSION: Though MRI subsequent to CT has historically demonstrated the ability to identify previously unknown injuries, the question of sufficient clinical relevance to justify its current usage level still exists. In our study, MRI in the evaluation of vertebral or spinal injury did not provide sufficient additional clinically relevant information to change the operative treatment plan for an adequate portion of our study population. As such, justification for the nearly automatic MRI order after a CT for these injury modalities is suspect. Additional imaging not only increases patient burden and harm potential, but also adds substantial financial cost absent a favorable cost to benefit ratio. The results of this study imply significant patient benefits, e.g. reduced radiation exposure and testing and financial cost savings.
20. CLINICAL OUTCOMES AFTER SLEEVE GASTRECTOMY (SLEEVE) VARY ACCORDING TO HEALTH INSURANCE CARRIER: SELF-PAY VS PRIVATE INSURANCE VS MEDICAID VS MEDICARE IN 8,393 BOLD DATABASE PATIENTS
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BACKGROUND: Post-operative weight loss and resolution of obesity comorbidities following sleeve gastrectomy are well-understood. Previous reports have identified differences in baseline weight, BMI and weight-related medical problems according to type of health insurance. Nevertheless, it is unknown whether or not outcomes following bariatric surgery vary by health insurance carrier. The objective of this study was to identify health insurance-related variations in weight loss and resolution of obesity comorbidities following sleeve gastrectomy.

METHODS: Data from 8,393 SLEEVE patients in the Surgical Review Corporation’s BOLD database was analyzed retrospectively in four groups: Medicaid (n=372), Medicare (n=304), Private Insurance (n=5,911), and Self-Pay (n=1,806). Weight, weight loss, BMI and prevalence of obesity comorbidities in each group were tabulated at 2, 6, 12, 18, 24 and 36 months post-operatively. Statistical analysis was performed with General Linear Models that included baseline and post-operative data and were modified for binomial distribution of dichotomous variables. Pair-wise comparisons of results for Medicaid, Medicare, Private Insurance and Self-Pay versus each other were made at each interval.

RESULTS:

Weight loss, BMI and select comorbidities at 18 or 24 months following SLEEVE.

<table>
<thead>
<tr>
<th>Months</th>
<th>Self-Pay</th>
<th>Private</th>
<th>Medicare</th>
<th>Medicaid</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Weight loss (kg) 24</td>
<td>45.4+-25.5</td>
<td>45.7+-19.8</td>
<td>39.3+-15.9</td>
<td>44.4+-21</td>
<td>0.01&lt;p&lt;0.05</td>
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<tr>
<td>BMI 24</td>
<td>30.5+-8</td>
<td>34.8+-8.9</td>
<td>38.6+-7.4</td>
<td>41.6+-10.5</td>
<td>0.01&lt;p&lt;0.05</td>
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<tr>
<td>Abdominal hernia (%) 24</td>
<td>0</td>
<td>10.09</td>
<td>0.09</td>
<td>18.18</td>
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<tr>
<td>GERD (%) 24</td>
<td>46.88</td>
<td>33.94</td>
<td>20.83</td>
<td>64.29</td>
<td>p&lt;0.05</td>
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<td>HTN (%) 18</td>
<td>25</td>
<td>36.37</td>
<td>49.15</td>
<td>30.88</td>
<td>p&lt;0.05</td>
</tr>
<tr>
<td>Panniculitis (%) 18</td>
<td>11.73</td>
<td>9.12</td>
<td>16.95</td>
<td>14.71</td>
<td>p&lt;0.001</td>
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<tr>
<td>Cholelithiasis (%) 18</td>
<td>14.8</td>
<td>22.48</td>
<td>25.42</td>
<td>29.41</td>
<td>p&lt;0.05</td>
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<tr>
<td>Musculoskeletal pain(%) 18</td>
<td>21.94</td>
<td>28.77</td>
<td>54.24</td>
<td>25</td>
<td>0.01&lt;p&lt;0.05</td>
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<tr>
<td>Impaired functional status(%) 18</td>
<td>0.51</td>
<td>1.85</td>
<td>16.95</td>
<td>1.47</td>
<td>p&lt;0.01</td>
</tr>
<tr>
<td>Diabetes mellitus (%) 24</td>
<td>0</td>
<td>13.76</td>
<td>9.09</td>
<td>9.09</td>
<td>p&lt;0.0001</td>
</tr>
</tbody>
</table>

CONCLUSION: Outcomes after sleeve gastrectomy vary significantly by health insurance status. Self-Pay patients’ results were superior in weight loss, BMI, cholelithiasis and resolution of hypertension, diabetes, musculoskeletal pain, and impaired functional status. This may be related to personal motivation in this population. Private Insurance patients had the greatest resolution of panniculitis and performed generally second to Self-Pay patients. BMI, abdominal hernia, GERD and cholelithiasis were highest among Medicaid patients, while weight loss equaled Self-Pay and Private. Medicare patients experienced the least weight loss and persistently lower resolution of nearly all comorbidities except GERD and diabetes. This suggests that obesity-years may be a factor. Knowledge of these health insurance variations, may facilitate surgical decision making with regard to patient selection for sleeve gastrectomy.
21. EARLY IDENTIFICATION OF DISSEMINATED PERITONEAL ADENOMUCINOSIS IN "AT RISK" MUCINOUS NEOPLASM PATIENTS, A NEW APPROACH TO MUCINOUS NEOPLASM SURVEILLANCE
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BACKGROUND: Disseminated peritoneal adenomucinosis (DPAM-PMP) is often diagnosed late when patients present with symptomatic bulky disease. Most patients have a history of appendectomy with an incidental mucinous neoplasm (MAN). Major obstacles to early detection of DPAM include lack of a standardized early detection tool and unknown rate of PMP in MAN. At our institution MAN patients are referred early for surveillance and monitoring to the Peritoneal Surface Malignancy Program.

METHODS: We retrospectively reviewed charts of patients referred with MAN. At initial evaluation, imaging was reviewed, and baseline cancer markers (CEA, CA-19-9, CA-125) were performed. Follow-up cross sectional imaging and markers were obtained every 4-6 months. In the event of radiographic disease or at 12 months post diagnosis, diagnostic laparoscopy was performed.

RESULTS: Four patients (20%) were found to have occult disease at 12-month laparoscopy. One patient (5%) developed radiographic progression at 6-months confirmed with laparoscopy. Four patients were treated with CRS/HIPEC, while one patient was solely treated with CRS since only acellular mucin was identified. The 15 patients with negative laparoscopy remain disease free with a median follow-up of 33 months.

CONCLUSION: Here we report 25% of patients with MAN developed PMP, while 75% did not develop peritoneal dissemination. Five patients with DPAM CRS/HIPEC for PMP had very low PCI scores (<9). This approach results in early detection with low volume disease, and may be instrumental in establishing a rate of DPAM in MAN patients. Longer follow-up and further patient accrual will reveal the long-term utility of this approach.
BACKGROUND: There are limited data examining the outcomes of patients who have distant metastasis at the time of colorectal resection for colorectal cancer. We sought to identify 30 day outcomes of such patients and compare them with patients who did not have distant metastasis.

METHODS: The National Surgical Quality Improvement Project (NSQIP) database was used to evaluate all patients who had metastasis at the time of colorectal resection for colorectal cancer in 2012. Multivariate analysis using logistic regression was performed to quantify complications associated with presence of metastasis. Adjustments were made for 20 factors.

RESULTS: A total of 2,278 colon cancer patients who underwent colon resection were identified. 28.9% (658) had metastasis at the time of operation. 76.4% of patients with metastasis had an emergent indication for surgery. The in-hospital mortality rate was significantly higher for patients with metastasis (5.3% vs. 1.9%, AOR: 1.99, P=0.04). Among postoperative complications, deep vein thrombosis (DVT) (AOR: 2.42, P=0.02) and hospitalization more than 40 days (AOR: 4.17, P=0.01) were significantly higher in patients with metastases. Anastomotic leakage (AOR: 1.09, P=0.78) and prolong ileus (AOR: 1.21, P=0.22) were not associated with the presence of metastatic disease.

CONCLUSION: Nearly one third of patients undergoing colectomy for cancer have metastatic disease. Postoperative morbidity and mortality of these patients are significantly higher than in patients with localized disease.
BACKGROUND: Background: Ground level falls (GLF) in the elderly have extremely high morbidity and mortality. This is a significant mechanism of injury in this population and there is an obvious need for their traumatic injuries to be evaluated. However, many of these patients are frail with multiple medical comorbidities that also require rapid assessment to optimize outcomes. It remains unclear if poor outcomes are a result of injury or of the patients’ underlying physiologic reserve and comorbidities. The purpose of this study was to assess the characteristics of elderly GLF patients admitted to trauma (TRM) or medicine (MED) and to evaluate their outcomes.

METHODS: Methods: A retrospective study was performed on all patients ≥65 years admitted to an ACS verified Level 1 trauma center after GLF between 1/06-8/14. Patients who sustained an isolated hip fracture or were admitted by services other than TRM or MED were excluded. Data collected included patient demographics, injury related information, need for ICU admission or mechanical ventilation, comorbidities, and discharge disposition. A subgroup analysis was performed comparing the patients admitted to MED with a trauma consult to the TRM group. Statistical analysis was performed using Mann-Whitney U and Chi-square tests with significance assigned to a p value <0.05.

RESULTS: Results: During the study period, 2083 patients were admitted after GLF. 179 of these patients were transferred, left against medical advice, or had an unknown discharge disposition and were excluded from analysis. Of the remaining patients, 1083 were admitted to MED and 821 were admitted to TRM. Age was similar for both groups (TRM=80.0, MED=80.6, p=0.13). Patients admitted to TRM had higher injury severity scores (TRM=13.2, MED=9.4, p<0.001), lower probability of survival (TRM=0.89, MED=0.95, p<0.001), and lower GCS (TRM=13.7, MED=14.3, p=0.03). TRM patients had more injuries to the head/neck and chest (p<0.001) and had more comorbidities (TRM=2.2, MED=2.5, p=0.001). TRM patients were more likely to be discharged to home/rehab (TRM=59%, MED=51%) versus expire/extended care facility (p=0.001). Of the MED admits 272 patients had a trauma consult (MED+T). As in the larger group, MED+T patients were not as injured as the TRM group based on ISS and Ps (p<0.001), but were discharged less frequently to home/rehab (TRM 59%, MED+T 50%) versus expire/extended care facility (p=0.006).

CONCLUSION: Conclusion: Patients admitted to TRM were more injured, but still were more likely to be discharged to home or rehab than patients admitted to MED. This difference may be partly explained by the increased number of comorbidities in patients admitted to MED. Trauma service consultation with MED admission does not appear to change these outcomes. Based on this analysis, TRM admission benefits elderly GLF patients.
BACKGROUND: Organized and recreational sport activities involving motorbikes are increasingly popular in Kansas, yet few state regulations exist related to their use. Concurrently, little is known regarding type and severity of motorbike injuries in a rural state such as Kansas. This study compared outcomes between those injured at a motorbike track who were required to follow safety equipment guidelines and those involved in recreational activities where usage is voluntary.

METHODS: A retrospective review was conducted of all patients (ages 0 to 89) presenting with motorbike-related injuries at an ACS-verified level 1 trauma center between 1/1/2009 and 12/31/2013. Collected data included: demographics, mechanism of injury, ICD-9-CM injury E code, injury severity and patterns, initial vitals, time from injury to admission, use of safety equipment, hospitalization details, and discharge disposition. Comparisons were made regarding protective equipment usage.

RESULTS: Of the 115 motorbike trauma patients in Kansas, 97.4% were Caucasian, 93.9% were male, and 64.4% were 18 to 54 years old. More than half (54.8%, n=63) were injured on a motorbike track, and 45.2% (n=52) were injured in a recreational setting. One death was reported – an adult recreational rider without protective equipment. The most common safety equipment in both groups was helmet, followed by protective clothing, eyewear, boots, and neck protection. There was a statistically significant difference on the percentage of patients wearing protective equipment (60 of 63, 95.2% vs 24 of 52, 46.2%, for track and recreational riders, respectively, p<0.0001). Among track riders, comparisons between those who wore protective equipment and those who did not were impossible due to unbalanced sample size. Among recreational riders, although not statistically significant, those who wore protective equipment had shorter H-LOS (2.33 vs 3.04) and vent days (0 vs 0.11), but longer ICU stay (0.58 vs 0.36) than those without protective equipment. Among those who wore protective equipment, the track riders had longer H-LOS (3.18 vs 2.33), longer ICU (1.12 vs 0.58), and vent-days (0.6 vs 0) than the recreational activity users, although these outcomes were not statistically different.

CONCLUSION: Injured recreational riders were less likely to wear protective equipment than motorbike track riders. Despite lack of statistically significant differences, recreational riders with protective equipment experienced shorter H-LOS and vent days, but slightly longer ICU stay than those without the protective equipment, and among those who wore protective equipment, track riders experienced consistently longer H-LOS, ICU, and vent days than recreational riders. These may be clinically significant differences that warrant further study. This limited data warrants protective equipment policy reinforcement.
BACKGROUND: Renal trauma in the pediatric population is predominately due to blunt mechanism of injury. Our purpose was to determine the associated injuries, features, incidence, management and outcomes of kidney injuries resulting from blunt trauma in the pediatric population in a single Level I Trauma Center.

METHODS: This was a retrospective chart and trauma registry review of all pediatric blunt renal injuries at a regional Level I trauma center that provides care to injured adults and children. The inclusion dates were January 2001 to June 2014.

RESULTS: Of 5,790 pediatric blunt trauma admissions over 13.5 years, 68 children sustained renal injury (incidence: 1.2%). Mean age was 12.4 years (range: 9 months to 17 years). 66% were male. Most common injury mechanism was MVC (46%).

AAST Injury Grades: I: 21 (31%), II: 14 (20%), III: 17 (25%), IV: 12 (18%) V: 4 (6%).

Gross hematuria was 21% (42%-Grade IV & 50%-Grade V).

Mean ISS was 21±14. Mean hospital LOS was 9±9.5 days. 37% were admitted to the ICU. 57% of patients had associated intra-abdominal injury with the liver as the predominant organ followed by the spleen. Mortality rate was 5.8%. No deaths were caused by renal injury.

Nephrectomy rate was 2.9% (Nephrectomy: 1-Grade IV & 1-Grade V). No patient had angioembolization.

CONCLUSION: Blunt renal trauma is rare in children and most injuries are low AAST injury grade. Pediatric renal trauma is commonly associated with intra-abdominal injury, especially liver and spleen. Gross hematuria is more frequent with higher injury grade. Nephrectomy rate is lower in injured children compared to the adult population. Most pediatric blunt renal injury, especially AAST injury grades I-IV, can be safely managed without nephrectomy or angioembolization.
BACKGROUND: Percutaneous endoscopic gastrostomy (PEG) is often employed in the SICU to provide enteral access to patients. Extreme bumper height (<2cm or >5cm) has been questioned as a cause of complications; excessive pressure on the gastric mucosa or abdominal wall could lead to tissue erosion, leakage, or tube dislodgement. To minimize complications, we adopted a protocol of bumper “relaxation” on day 3-5 following PEG placement. The purpose of this study is to review the incidence of complications before and after implementation of this protocol. We hypothesized complications following protocol implementation would be reduced.

METHODS: All trauma patients undergoing bedside PEG placement from 7/4/12 to 6/23/14 were reviewed. The two groups were defined as those without manipulation (NoM) of the PEG bumper versus those who had bumper “relaxation” (Relax).

RESULTS: In the 24 month period, 80 patients had PEGs placed. Records of the PEG’s bumper height placement were incomplete in 22 patients. Of the 58 patients with complete data, 48 patients were pre-protocol while 10 had documented relaxation of the PEG bumper. In the NoM group, 3 patients suffered PEG tube dislodgment, 2 of which required laparotomy. No patient in the Relax group had dislodgement or leaking from his/her PEG.

CONCLUSION: Although limited by small sample size, relaxation of the PEG bumper 3-5 days after initial placement may reduce PEG dislodgment rates and prevent this disastrous complication. Further evaluation of these preliminary report findings will identify the optimal protocol for PEG management.
BACKGROUND: Mastectomy is often indicated for larger sized breast cancers, breast cancers with extensive calcifications or patients with higher tumor: breast ratios. Recently there has been a marked increase in the rate of mastectomies versus only a slight increase in breast conserving therapy (BCT). In 2004, the rate of mastectomies was 35% and by 2006, had jumped to 60%. This has prompted newer studies to evaluate the long term outcomes of both mastectomies and BCT which have noted a higher overall survival and a breast cancer specific survival in patients undergoing BCT. There is a need to find reliable, accurate breast cancer localizing techniques to allow larger masses to be excised using BCT without affecting re-excision rates or local re-occurrence. One method is to perform wire bracketing of larger, more complex breast cancers to better outline a border for surgical resection, allowing for BCT with clear margins. A recent study states the re-excision rate for positive margins for BCT was 21.6%. For our study, we compared breast cancer tumor size and the rate of re-excision for positive margin in BCT using three or more wires to bracket breast lesions versus two wires.

METHODS: A single institution retrospective review of 71 female subjects with non-invasive or invasive breast cancer who underwent a partial mastectomy with two or more localization wires from 2007 to 2013 was performed. Inclusion criteria include patients over the age of 18 who have a diagnosis of breast cancer, either non-invasive or invasive who underwent a partial mastectomy with multiple wire localization. All patients had biopsy proven carcinoma in situ or invasive carcinoma. Comparisons were made between partial mastectomies performed with two or less wires and three or more wires and the rate of return to the operating room for re-excision of positive or close margins noted on finalized tissue pathology results. In our study, 16 patients had three or more wires and 55 patients had two or less wires.

RESULTS: For the lesions localized with three or more wires, the average size of the lesion was 3.8cm (range 1.13cm-6.47cm) and for the lesions localized with two or less wires 1.7cm (range 0.38cm-3.0cm). Two out of the 16 patients (12.5%) in the three or more wire group required additional surgery for re-excision due to positive or close margins on final pathology results versus five (11.4%) of the 55 patients (9.1%) in the two or less wire group, however, was not found to be statistically significant. Overall, our re-excision rate was found to be 9.86%.

CONCLUSION: Our study demonstrates there is no statistically significant increased risk for re-excisions based on the number of wires used. However, it was observed that larger breast lesions were localized with three or more wires for excision. We can conclude that localizing larger areas is feasible and can lead to further breast conservation. Further study of long term outcomes is warranted.
28. CONGENITAL DIAPHRAGMATIC HERNIA AND ECTOPIC LIVER: A 10 YEAR EXPERIENCE
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BACKGROUND: The objective of this study is to evaluate the incidence and outcomes of patients diagnosed with ectopic liver in the presence of congenital diaphragmatic hernia (CDH). Intrathoracic ectopic liver mass is a rarely discussed entity in the literature. However, it has been previously hypothesized that these defects may coexist due to a failure of growth of the posthepatic mesenchymal plate during the embryologic period.

METHODS: The medical records of all patients with a diagnosis of congenital diaphragmatic hernia in a tertiary center from July 2004-July 2014 were evaluated. Ectopic liver was defined as an incidental finding of heterotopic liver tissue and distinguished from intrathoracic liver herniation. Presence of ectopic liver was confirmed based on operative and final pathologic findings. Patient characteristics, prenatal imaging and outcomes were evaluated.

RESULTS: There were 189 cases of CDH identified, of which 8 cases had ectopic liver confirmed by pathology. Sixty-three percent of these patients were female, and none had any associated anomalies. Seven out of the 8 cases were left intrapleural CDH, and there was one right CDH. None of the ectopic liver masses was prenatally diagnosed. Only one of the cases was correctly diagnosed intraoperatively, while 50% of them were assigned a perioperative diagnosis of extralobar bronchopulmonary sequestration. Operative findings included herniation of liver into the chest in 75% and presence of a hernia sac in all cases. In 63% of the cases the left lateral lobe of the liver was found to be adherent to the diaphragmatic hernia sac, and the sac was the most common location where heterotopic liver tissue was found by histology. Only 2 cases were associated with pericardial defects. Overall survival was 88% with the sole death a case of right CDH with severe pulmonary hypertension.

CONCLUSION: We describe the clinical features of a rare clinical finding, ectopic liver associated with congenital diaphragmatic hernia. Ectopic livers are typically associated with a hernia sac and are often mistaken grossly for extralobar bronchopulmonary sequestration. Patients with this condition have a favorable outcome.
BACKGROUND: Background: Agriculture is a hazardous industry, and is one of the few industries where family members often live and work on the same premises. In 2012, an estimated 955,000 youth under the age of 20 years of age lived on a farm. Another estimated 259,000 nonfarm resident youth were hired to work on US farms. This population is at a high risk of fatal and nonfatal injuries. In 2012, around 14,000 youth were injured on farms. It is estimated that, on average, 113 youth die annually from farm injuries. Most of these deaths occur between the ages of 16-19 years of age and the leading cause of these deaths is due to machine-related injury. The purpose of this study was to evaluate injury patterns and outcomes in children from farm-related injury.

METHODS: Methods: A retrospective review was conducted of pediatric patients (<18 years of age) who presented with farm-accident related injuries at an ACS verified level 1 trauma center between 1/1/2004-12/31/2013. Data collected included: demographics, past medical history, mechanism of injury, accident details, injury severity and patterns, treatments required, hospitalization details, and discharge disposition.

RESULTS: Results: Of the 65 patients included in this study, 58.5% were male with a mean age of 9.7 ± 4.8 years. The median ISS and GCS were 5 and 15, respectively. Accident mechanisms included animal-related (43.1%), fall (21.5%), motor vehicle accident (21.5%), struck (6.2%), gunshot wound (4.6%), machinery (1.5%), and cut (1.5%). Soft tissue injuries, concussions and upper extremity fractures were the most common injuries observed (58.5, 29.2, and 26.2%, respectively). Traumatic brain injuries (TBI) were suffered by 4.6% of patients (n=3). Four patients (6.2%) had spine fractures with 2 of these suffering a cord injury. Four patients (6.2%) suffered unilateral rib fractures. Thoracic injuries included 7 pneumothoraces, 4 pulmonary contusions, and 3 hemothoraces. Splenic injuries were seen in 4 patients (6.2%) and liver injuries in 2 (3.1%). Fractures included 17 upper extremity (26.2%), 7 lower extremity (10.8%), and 4 pelvic (6.2%). No deaths were identified; however, 23 patients (35.4%) were admitted to the intensive care unit. Mechanical ventilation was required for 9 patients (13.8%) and 26 (40%) required surgical intervention. Mean hospital length of stay was 3.4 ± 4.7 days. The majority of the patients were discharged to home (n=62, 95.4%), 1 to home with home health, and 2 to a rehabilitation center. Two patients suffered permanent disability.

CONCLUSION: Conclusion: Concussion, soft tissue injuries and fractures were the most common injuries related to pediatric farm accidents. Blunt trauma is a significant contributor to injuries, which mostly occurs with animals, falls, and motor vehicles. Overall, outcomes for this population were favorable, but additional measures to increase safety such as driver training, animal safety, and fall prevention should be advocated.
30. PEDIATRIC TRAMPOLINE INJURIES
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BACKGROUND: Trampoline injuries are increasingly reported among children. Reports vary as to injury frequencies, with many citing upper extremity injuries in the youngest, with variable incidences of traumatic brain injury (TBI). The aim of this study was to review injury frequencies to see if there was an age correlation with TBI, and examine injury patterns.

METHODS: Retrospective review of trauma database at a level one trauma center 2000-2014. Means were compared with Mann-Whitney U test, Pearson correlations for bivariate correlations.

RESULTS: 48 patients, age 1-14 (mean age 6). There were 26 males, 22 females. Mean ISS was 6.27 (1-17), Mean hospital length of stay was 1.5 days (1-6). 4 patients went to ICU. Most common injury was fall off trampoline. Most common injury was upper extremity fracture (fx) in 32 (68 %) and TBI in 9. Two patients had spleen injuries. Age was not correlated with either injury; however no patient had a TBI over age 10. TBI was significantly negative correlated with presence of upper extremity fx (p=.000, Correlation coefficient was negative .508); only one patient had both TBI and upper extremity fx. All patients survived and were discharged home.
Humerus fracture was the most common upper extremity fx in 27, followed by radius/ulna: 14, and 6 lateral condyle fx, 1 clavicle; 6 patients had multiple fx.
The most common head/ skull injury was concussion in 6, with basilar skull fracture in 4, and one intracerebral bleed. Mean LOS was not different between the head injured and non-head injured.
There were only 5 patients with lower extremity fractures, 3 patients with 4 tibia/fibula fx, 1 tibia fx, 1 femur fx. None of the lower extremity fracture groups had upper extremity fractures or TBI.

Discussion: Pediatric trampoline injuries result from falls from trampolines. The most common injuries were upper extremity fractures and closed head injuries. We did not find a significant correlation between age and TBI; however none of the TBI patients was over 10 years. Injury patterns appear exclusionary; there was little overlap between upper extremity fractures and TBI, nor with lower extremity fractures. In fact, presence of TBI was significantly negatively correlated with upper extremity fractures. In this study, pediatric falls from trampolines yielded distinct injuries usually isolated to one region.

CONCLUSION: Pediatric trampoline injuries result from falls from trampolines. The most common injuries were upper extremity fractures and closed head injuries. We did not find a significant correlation between age and TBI; however none of the TBI patients was over 10 years. Injury patterns appear exclusionary; there was little overlap between upper extremity fractures and TBI, nor with lower extremity fractures. In fact, presence of TBI was significantly negatively correlated with upper extremity fractures. In this study, pediatric falls from trampolines yielded distinct injuries usually isolated to one region. Conclusion: Injuries requiring hospitalization occur in children after trampoline falls. Injuries fell into 3 categories: Head, lower extremity and upper extremity, the most common.
BACKGROUND: Background: Open traumatic injury to the vertebral column is a relatively uncommon occurrence. The associated injury patterns, their management, and expected hospital course have not been well described. We sought to examine our experience with patients who have open vertebral column injuries as a result of trauma.

METHODS: Methods: We conducted a retrospective review of the open vertebral column fractures at our urban trauma center from July 1, 2004 to June 30, 2014. We then examined the mechanism of injury, incidence of meningitis, incidence of disability, and disposition at discharge. We also recorded the associated injuries and treatment modalities required to safely disposition each patient.

RESULTS: Results: From July 1, 2004 to June 30, 2014, there were seventy six patients admitted with open vertebral column injuries. Seventy-one (94.7%) were gunshot victims, two (2.6%) were stabbings, two (2.6%) were motor vehicle collisions and one (1.3%) was a motorcycle collision. There were eighteen (23.7%) injuries to the cervical spine, thirty-three (43.4%) injuries to the thoracic spine, and twenty-five (32.9%) injuries to the lumbar spine. Eight patients (10.5%) required operative intervention by neurosurgery (three halo placement and five fusions), whereas forty-seven (61.8%) patients required operations by the trauma surgeon (five tracheostomies, four neck explorations without tracheostomy, three thoracotomies, and thirty-five exploratory laparotomies). Five patients (6.6%) required surgery by other surgical specialties. Of all patients with injury to the vertebral column, only fifteen (19.7%) suffered an injury to their spinal cord. All (100%) were the result of a gunshot wound. The injuries to the cord resulted in 4 (26.7%) patients with paraplegia, and 5 (33.3%) with quadriplegia. One patient (1.3%) developed meningitis. Of the patients with spinal cord injury, five (33.3%) were discharged home, six (40%) required rehabilitation, and four (26.7%) expired during the index hospitalization. In the group without cord injury, ten patients (16.3%) expired during the index hospitalization; the remaining fifty-one (83.7%) were discharged to a post acute care setting.

CONCLUSION: Conclusion: Open vertebral column injuries are complex traumatic injuries that are often the result of gun violence in an urban community. They are commonly associated with life-threatening, concomitant injuries that must be managed by the trauma surgeon. While traditionally viewed as primarily a neurosurgical problem, the trauma surgeon is paramount in the successful treatment of patients with open vertebral column injuries.


32. THE UTILITY OF VATS FOR THE EVALUATION OF OCCULT PENETRATING CARDIAC INJURIES
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BACKGROUND: The association of a pericardial effusion detected on Focused Assessment with Sonography for Trauma (FAST) and penetrating cardiac injuries may vary. Subsets of patients may be more prone to harbor serious injuries to the heart in spite of a negative or non-diagnostic FAST. Video assisted thoracoscopic surgery (VATS) can be helpful in some cases.

METHODS: Patients undergoing operative repair of a penetrating cardiac injury evaluated with at least one pre-operative pericardial FAST over an eight year study period were retrospectively examined. Patients with an effusion on FAST [group 1] were compared to those with a negative or non-diagnostic (ND) exam [group 2]. Detection of pericardial fluid on repeat exam after an initial (-) or ND study was considered a (+) result. Studies followed by computed tomography and/or formal ECHO were considered equivocal exams.

RESULTS: During the review period, 366 patients sustained penetrating cardiac injuries. Sixty-seven underwent at least one FAST with subsequent formal exploration and were included. There were 12 (17.9%) patients in group 2 [7 (-) and 5 (ND) exams] where the presence of retained mediastinal fragments from a GSW (50.0% vs. 13.6%, p = 0.012) and a BMI ≥ 30 (41.2% vs. 10.0%, p = 0.008) were significantly increased. The incidence of hemothorax did not differ. However, five of the 55 FAST (+) exams (9.1%) were (-) or (ND) before thoracostomy tube drainage of pleural blood. Mortality was similar (18.2% vs. 17.8%, p=0.968). Expedited VATS performed for retained hemothorax in high risk patients was diagnostic in five of the 12 (41.7%) group 2 patients. A patient with a negative FAST underwent laparotomy for hemoperitoneum revealing pericardial blood decompressing into the abdominal cavity.

CONCLUSION: The utility of FAST in screening for penetrating cardiac injuries via detection of a pericardial effusion varies. This can be due to limitation of the exam as well as absence of pericardial blood due to cavitary decompression. Repeat FAST after evacuation of any hemothorax is required. An expedited VATS should be considered in high risk patients initially presenting with a hemothorax and a negative or equivocal FAST.
BACKGROUND: Use of robotic surgery has increased markedly in the past decade. Of great interest in prior studies is the learning curve to achieve acceptable outcomes. Recommendations for case selection during the learning curve for laparoscopic surgery have previously been established, recommending up to 150 laparoscopic colorectal cases prior to attempting cases of the highest complexity. This system assigns complexity dependent upon colon versus rectal cases, anatomy of pelvis, as well as BMI. We applied these complexity guidelines to our experience retrospectively, to determine if expert laparoscopic colorectal surgeons could perform complex cases early in the robotic learning curve with good outcomes.

METHODS: 56 patients having undergone robotic colorectal surgery by two colorectal surgeons were retrospectively chart reviewed spanning over three years. Each case was assigned a category of complexity ranging from 1 to 4, from an established grading system designed for laparoscopic cases. We analyzed outcomes with less than 15 prior robotic cases, as compared to those with greater than 15 prior cases performed. Subcategories of rectopexy and rectal cancer dissections were analyzed as well.

RESULTS: Our robotic experience demonstrated that far more cases of greatest complexity were performed after only 15 robotic cases (35%) than were performed in the first 15 cases (10%) (P=0.05). Far fewer operations assigned to the technically easiest category were performed in the group having performed more than 15 prior robotic cases (15%) than were performed in the initial 15 cases (40%) (P=0.04). Despite this significant increase in case complexity, we found that operative time significantly decreased in the group with greater than 15 cases as compared to the group with fewer than 15 cases. For rectal cancer procedures, operative time improved from 522 minutes to 395 minutes (P=0.008). This was true for rectopexy as well, with operative time decreasing from 371 down to 258 minutes (P=0.03). Overall complications were reduced after 15 cases (8%) as compared to less than 15 prior cases (33%) (P=0.03).

CONCLUSION: This data shows that robot surgery can be performed by expert laparoscopic surgeons for complex cases early in the experience, with rapid improvement in operative time. In addition, outcomes improve relatively rapidly by 15 cumulative robotic cases, as composite complications are reduced. This study is important as it shows the improvement in robotic operating time and outcome can occur with difficult cases, as opposed to reflecting improved case selection.
34. FOR CANCER SURVIVORS WITH SEVERE RADIATION-INDUCED ILIO-FEMORAL ARTERIAL DISEASE:
REvascularization CAN ACHIEVE EXCELLENT LIMB-SALVAGE BUT RE-INTERVENTIONS ARE COMMON
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BACKGROUND: Advances in radiation techniques have improved patient survival and reduced side-effects in the oncologic treatment of various cancers. We sought to evaluate the current therapeutic options for radiation-induced iliac and femoral arterial occlusive disease in cancer survivors.

METHODS: We retrospectively reviewed consecutive patients who presented with leg ischemia due to iliac and/or femoral arterial occlusive disease and had history of radiation treatment to the pelvis or lower extremity, in a tertiary referral cancer center between July 2010 and December 2013. Patient demographics, mode of therapy, and 30-day and intermediate-term outcome were reviewed.

RESULTS: Twelve patients developed ilio-femoral arterial occlusive disease after radiation treatment (8 women), with average age 55.2 year-old (range 39-72). Four patients were active smokers, 4 former and 4 never smoked. Three patients had non-insulin diabetes. Median interval time between completion of radiation treatment and onset of limb ischemia was 8 years. Nine patients had rest pain or non-healing wound, 2 disabling claudication, and 1 acute limb-threatening ischemia. Cancer of the cervix/vulva was the most common type of cancer (n=7). Five patients had endovascular interventions, 3 had surgical bypasses, 3 had hybrid procedures (which included femoral patch angioplasty, and iliac or superficial femoral stenting), and 1 had medical therapy. Median follow-up was 15 months (range: 11-36). Initial revascularization intervention was successful in 11/11 patients, and all survived at 30-days. One patient died from chronic relapsing urinary tract infection complications at 20 months after revascularization. One-year re-intervention rate was 63.6% (7/11); 80% (4/5) for patients who had endovascular interventions and 50% (3/6) for surgical or hybrid interventions. Only one patient had above-knee amputation 13 months after initial endovascular intervention.

CONCLUSION: The findings of our study show that contemporary vascular interventions can achieve excellent intermediate limb-salvage rate in cancer survivors with severe radiation-induced ilio-femoral arterial disease. However, re-intervention rate remains high and future studies are warranted to reduce recurrent vascular events.
BACKGROUND: As the patient population treated with CRS-HIPEC increases, more elderly patients (>70) with large volume disease are presenting for consideration of this modality. There currently is limited data on morbidity, mortality, and long-term outcomes in this age group who undergo multivisceral resections (>4 organs) with PCI>24. Here we present the outcomes in an elderly patient population.

METHODS: A retrospective analysis performed on a database of 250 PSM patients identified 20 procedures that were performed on patients over the age of 70. We reviewed the charts for sites of tumor site, histology, LOS, PCI, number of organs resected, perioperative complications, mortality, PFS, and OS.

RESULTS: The median age was 75, and 70% of patients were female. Tumor histology included 35% PMP, 10% HG-appy, 30% Ovarian, 5% CRC, 10% Mesothelioma, and 10% other. There were no post-operative deaths, and major complications occurred in 5%. Median PCI was 24, and R1/R2a resections were performed in 75% of the cases with a median number of organs resected of 5. The median LOS was 13 days. Ninety percent of patients were discharged to home with only two transferred to rehab facilities. With a median post-HIPEC follow-up of 30 months, 42% of patients are alive with 21% having no evidence of disease and the other 21% having recurred.

CONCLUSION: CRS/HIPEC was safely performed in elderly patients including 2 octogenarians. The LOS and complications are not increased in the elderly. Age alone should not be a deterrent in the selection of patients for CRS/HIPEC.
36. USE OF EPIDURALS IN ESOPHAGECTOMY PATIENTS: DO EPIDURALS CONTRIBUTE TO ANATOMOTIC LEAKS?
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BACKGROUND: Anastomotic leak after a transhiatal esophagectomy (THE) is a significant cause of morbidity, resulting in increased length of hospital stay and cost. Patients are also dissatisfied due to delays in being able to eat. Cervical anastomoses have higher leak rates compared to those in the chest possibly due to the need of a longer conduit to reach the neck, causing increased tension at the anastomosis. Multiple comorbid, intraoperative and perioperative risk factors have been shown to predispose patients to an anastomotic leak. Epidurals are frequently used for post-op pain control, but often cause perioperative hypotension, which may compromise blood flow to an already tenuous anastomosis, possibly further elevating leak rates.

METHODS: We performed a retrospective review of esophagectomies performed at the University of Kansas Medical Center between 10/1/2008 and 1/31/2014. A total of 110 patients were identified. Although various esophagectomy techniques were utilized, 37 patients were identified who underwent a THE by two surgical oncologists, working together using a consistent standard technique. A vast majority of these patients received neoadjuvant chemoradiation. Patients were entered into a REDCap database. Patients who received an epidural for post-op pain control (n=24) were compared to those patients who did not receive an epidural (n=13). The pre-op mean arterial pressure (MAP) was compared to the MAP 1-hour post-op and at 0400 on post-op day 1. T-Test analysis was used to compare the data sets. The rate of anastomotic leak was also obtained for both patient populations and compared using a Chi2 test.

RESULTS: At 1-hour post-op, patients receiving an epidural experienced an average decrease in MAP of 3.93. Patients who did not receive an epidural experienced an average decrease in MAP of 5.00. At 0400 post-op day 1, patients receiving an epidural experienced an average decrease in MAP of 13.90. Patients who did not receive an epidural experienced an average decrease in MAP of 10.36. The rate of anastomotic leak for the patient population who received an epidural and those who did not was 12% and 23% respectively (p = 0.40).

CONCLUSION: A known side effect of epidural administration is hypotension. We hypothesized that hypotension during the post-op period following THE may cause decreased perfusion of the anastomotic site, resulting in higher rates of anastomotic leak. This relationship was not observed in our study. Isolated episodes of hypotension are often experienced with the use of an epidural. Despite this, we observed no reduction in anastomotic leak rates in the study group that did not receive an epidural. To prevent post-op hypotension, alternative analgesia methods should be considered, but not with the intention of preventing anastomotic leaks. Although our data does not demonstrate a decrease in the rate of leaks when an epidural is deferred, the power of our study is low. The results of this study warrant continued investigation.
37. INVASIVE FUNGAL SOFT TISSUE INFECTIONS: SMALL ORGANISM, GIANT PROBLEM
A McGinity MD, L Liao MD MPH, B Eastridge MD, J Myers MD, D Dent MD, R Stewart MD
San Antonio, TX

BACKGROUND: Invasive fungal soft tissue infection carries high morbidity and mortality. These infections are rare in occurrence but highly fatal. The majority of the literature and practice experience are derived from war wounds. Patients in civilian hospitals sustain different mechanisms of injury. The characteristics of the wounds, their management, and outcome need to be evaluated as the literature in this area is sparse.

METHODS: Nine patients with biopsy proven invasive fungal infections were retrospectively evaluated. These patients presented over two different time periods, Group A [1998 - 1999] and Group B [2011 - 2014]. The identification of the first 4 patients led to the development of a protocol for treatment of patients suspected to have invasive fungal soft tissue infection at our institution. Over the last 4 years, another cluster of patients were identified and treated based on the protocol. The outcomes of the patients treated with our protocol were analyzed.

RESULTS: There were a total of nine patients, four in Group A and five in Group B. Three of the four patients in Group A were involved in motor vehicle collisions with high injury severity scores. One patient in Group A sustained penetrating trauma to the chest during a natural disaster. All died as a result of invasive fungal soft tissue infection. Group B consisted of five patients ages two to eighty-two. There were two deaths in Group B. One was a forty-eight year old poly-trauma patient who was struck by a motor vehicle and the other was the eighty-two year old who sustained dog bites to all four extremities. There were three survivors in Group B, age ranged from two to thirty-three. These survivors were identified with invasive fungal soft tissue infection involving the extremities with zygomycetes as the primary organism cultured. All three patients were treated with aggressive surgical debridement and intravenous amphotericin B.

CONCLUSION: Invasive fungal infection carries high morbidity and mortality. Early diagnosis is key to improved survival. Children and younger adults with extremity infections have 100% survival using our institutional protocol. A multidisciplinary clinical protocol with a heightened clinical suspicion help aid in early recognition and treatment of this highly fatal disease. In our experience, a protocol involving initial diagnosis by excisional biopsy, aggressive surgical debridement along with intravenous amphotericin B can be highly successful in limb salvage and can decrease mortality. A multidisciplinary approach of care involving surgeons, infectious disease clinicians, and surgical pathology can improve the outcome of a highly fatal disease process in critically ill patients.
38. IMPACT OF OBESITY ON CESAREAN SECTION OUTCOMES
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La Crosse, WI

BACKGROUND: The rate of cesarean deliveries has increased by 53% from 1996 to 2007. Previous data has reported an increased rate of cesarean deliveries in rural vs. urban areas (267 vs. 248 per 1,000 births). In these areas where delivery services may be limited, general surgeons may be called upon to perform cesarean sections. In most cases, critical access hospitals require general surgeons to maintain cesarean section privileges.

METHODS: After receiving institutional review board approval, we retrospectively reviewed all patients who underwent cesarean section within our health system between January 2010 and May 2014. Variables included postoperative maternal and fetal outcomes, demographics, past medical history, preoperative complications, and perioperative data (suture for fascial closure and type of skin closure). Patients were grouped by prenatal BMI. Patients with a BMI ≥30 kg/m2 were considered obese, and those <30 kg/m2 were considered non-obese. Patients were excluded if no prenatal BMI was available.

RESULTS: Overall, 1026 cesarean deliveries were reviewed; 55 were excluded. There were 432 patients (44%) with a BMI ≥30 kg/m2. Obese patients were more likely to have had a previous cesarean section (48.8% vs. 41.2%; P=0.017), have polycystic ovarian syndrome (7.6% vs. 0.6%; P=0.017) or diabetes mellitus (6.7% vs. 0.2%; P<0.001). No difference in tobacco usage was observed (P=0.250). During pregnancy, obese patients were more likely to have gestational diabetes (15.3% vs. 5.8%; P<0.001) and require induction of labor. Incidence of pre-eclampsia was similar (7.9% vs. 5.0%; P=0.068). For patients requiring cesarean section, obese patients were more likely to have their fascia closed with polydioxanone (PDS) than polyglactin suture (P=0.006) and more likely to have their skin stapled closed versus sutured (P<0.001). Postoperatively, an increased incidence of surgical site infections (8.1% vs. 2.4%; P<0.001), yeast infections (2.8% vs. 0.2%; P<0.001), and seromas (2.8% vs. 0.4%; P=0.002) were observed in the obese vs. non-obese groups, respectively. The surgical site infection rate was highest in those with a BMI ≥40 kg/m2. Using a multivariate logistic regression model, obesity was found to be an independent predictor of a surgical site infection (adjusted OR 3.42, 95%CI 1.78-6.57; P<0.001) regardless of wound closure. Obese patients were more likely to give birth to a macrosomic infant (25% vs. 15.2%; P<0.001).

CONCLUSION: Obesity was associated with higher rates of gestational diabetes, diabetes mellitus, polycystic ovarian syndrome, previous cesarean section, macrosomia, yeast infection, and seroma formation following cesarean section. Surgical site infections were more prevalent in obese patients regardless of the type of fascial closure. As the obesity rate continues to rise and medical care becomes more accessible, general surgeons, particularly in rural areas, should be aware of the impact of obesity on cesarean section outcomes.
39. HIGH VOLUME CHOLECYSTECTOMY PROMOTES EXTREMELY LOW CONVERSION RATE
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San Antonio, TX

BACKGROUND: Conversion from laparoscopic cholecystectomy to open operation occurs in 5 – 10% of cases and may be secondary to multiple different factors. We studied a large cohort of patients undergoing cholecystectomy at our tertiary care center over the past decade (2004-2013) and compared it to an earlier series at the same facility (1991-2001) to identify any changes in indications or frequencies.

METHODS: Data from all patients undergoing a cholecystectomy from 1/1/2004 to 12/31/2014 were prospectively collected and retrospectively reviewed and then compared to our previously reported initial series. Results were analyzed by chi-squared test, (P < 0.05).

RESULTS: When compared to the previous report, the number of patients undergoing a cholecystectomy during the recent decade had increased (P<.001) by 12% (6896 vs 7726). Similarly, the percentage of patients having either an initial OC (15 vs 1.8%) or an LC converted to OC (5.8 vs 2.2%) as well as the percentage of all patients having an open cholecystectomy (OC or LC → OC) (19 vs 4%) had significantly (P<.001) decreased when the last decade was compared with the first decade. In addition, there was a significant (P<.001) decrease in the percentage of patients undergoing conversion for bleeding (14 vs 5.3%) and CBD injury (7.8 vs 4.7%), and an increase (P=NS) in the percentage of patients converted for severe inflammation (40.6 vs 69.4%) and dense adhesions (6.1 vs 18.2%). Two surgeons with 23 years experience including more than 2000 laparoscopic cholecystectomies each during this recent decade had a conversion rate of 1.7% compared to 2.9% for another five faculty surgeons with 1 ½ years’ experience and an average of 125 procedures for the same time period.

CONCLUSION: 1. The rate of open cholecystectomy (OC and LC →OC) in the most recent decade was reduced by five-fold when compared to our previously reported experience. This rate is lower than a national sample from the ACS NSQIP database (4% vs 10.9%) for 65,511 patients over four years.
2. The recent conversion rate (LC to OC) was reduced by 62% over the previous decade even though more patients presented with acute inflammation and/or had adhesions from a prior laparotomy. This rate is lower than the range reported most in other studies (2.2% vs 5-10%).
3. The most experienced surgeons in our study had a significantly lower conversion rate than their junior colleagues (1.7% vs 2.9%). This suggests that case volume and total experience can have a meaningful impact.
4. Further improvements in these outcomes will likely depend on earlier clinical presentation and a more aggressive strategy in patients with advanced biliary disease.
40. IS VERTEBRAL AUGMENTATION IN THE ELDERLY TRAUMA PATIENT COST EFFECTIVE?
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Dallas, TX

BACKGROUND: Background. Vertebral compression fractures represent an increasingly significant public health problem. Occurring in as many as 1.5 million Americans each year, they are most commonly seen in osteoporotic females, malignancy, and trauma. Frequently located in the thoracolumbar junction, they can be a source of great disability.

A consensus treatment approach for these fractures without neurologic compromise has not been established. Both nonoperative and operative options exist. Among these are kyphoplasty and vertebroplasty, which are referred to as vertebral augmentation (VA). A large body of literature supported these interventions as effective treatment modalities prior to 2009. In August 2009, two randomized trials in the New England Journal of Medicine demonstrated no benefit to VA versus a sham procedure.

There is minimal data on vertebral compression fracture treatment in the elderly trauma population. Although some studies have focused on pain relief, we wanted to look at economic data such as length of stay (LOS). As the population continues aging, cost of elderly trauma care will come under closer focus.

METHODS: Methods.
All trauma admissions from May 2009 through April of 2014 were reviewed. Patients aged 60 and up were identified who suffered vertebral compression fractures without a burst component. The demographics of these patients were collected including age, mechanism, intervention, and LOS. Institution specific charges were analyzed for VA procedures.

RESULTS: Results.
There were 964 blunt trauma admissions affecting the spinal column during that period, of which 127 met inclusion criteria. Fractures were managed nonoperatively (NO) in 97 patients, while 30 were managed with vertebral augmentation (VA). The age range and average ages were 60-96, and 76.4 in the NO patients vs 62-94, and 77.1 in the VA group. Injuries were most commonly due to falls (71.1% NO vs 83.3% VA), followed by motor vehicle collision (16.5% NO vs 13.3% VA), followed by auto-pedestrian/other mechanisms (6.1% NO vs 3.3% VA). Patients in the VA group stayed in the hospital longer (5.53 days VA vs 4.80 days NO). Average hospital charges for VA procedures were $25,000.

CONCLUSION: Conclusion.
Vertebral augmentation increased the cost of vertebral column fracture related admissions by $25,000, and added to the hospital length of stay. The additional cost related to these procedures may preclude their utility in the acute setting.
41. ROBOTIC SINGLE-SITE ADRENALECTOMY: A CASE SERIES

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BACKGROUND: Technological advances have brought about robotic single-site (RSS) cholecystectomy and hysterectomy. The application of RSS to additional procedures requires careful assessment of the learning curve, the technological limitations, patient selection criteria and outcomes. This series of RSS for adrenalectomy (RSS-A) will help define its role and set the stage for other innovative applications.

METHODS: Data from a single surgeon RSS-A experience was prospectively collected and retrospectively reviewed. Demographics, indications, tumor size, operative times, EBL, length of stay (LOS) and complications were assessed.

RESULTS: 33 patients underwent RSS-A by a single surgeon with 49% being male (mean age 55, BMI 33; range 22-54). There were 18 left, 10 right, and 5 bilateral for a total of 38 adrenal glands removed. There were 11 (33%) aldosteronomas, 11 (33%) cortisol-secreting, 6 non-functioning neoplasms and 5 (15%) pheochromocytomas (mean size 3.2; range 7mm-10 cm). There were 5 conversions (15%) to a conventional laparoscopic approach for bleeding (1), adhesions (1), limited visualization (2) and poor port placement (1). Two (6%) procedures were converted to open for bleeding, one required a nephrectomy. The need for conversion was increased with higher BMI (32 vs 37, p=0.04). It was not associated with age, size, side or pathology (p>0.05). Average EBL in all patients was 393mL (range 5-6140), two had a transfusion. Higher EBL was associated with conversion (p=0.006) with a mean EBL 135ml RSS-A, 380ml laparoscopic and 3770ml in open. Operative times and LOS were longer with a conversion (mean 127 vs 272 min, p=0.001, LOS 2.4 vs 4 days, p=0.009). The operative time was not related to patient age, BMI or tumor size (p>0.05). The patients who underwent successful unilateral RSS-A had a mean age 56, BMI 32 (range 22-42), tumor size 3 cm and an OP time of 129 min. Pain scores were< 4 (10pt scale) in 73%. There was an avg of 37 morphine equivalents given in the first 24 hrs. The average LOS was 2.4 days (range 2-7) with the operative day counting as day 1. 73% of patients were discharged on POD 1 and 96% discharged by POD 2. Differences in operative times, postop pain and LOS were not associated with the pathology or BMI. The 30-day morbidity was 9% with complications of ileus (1 pt) and two readmissions for adrenal insufficiency. An assessment of the quartile learning curve in patients undergoing unilateral RSS-A showed OP times decreased from a mean of 130 min to 103 min after 21 cases. The risks of bleeding and conversion did not change over time.

CONCLUSION: RSS-A is comparable to our reported conventional laparoscopic technique in operative time, outcomes and LOS. Patients may benefit from a reduction in narcotics compared to our historic controls. Patients with functioning and non-functioning tumors, along with those with obesity can safely be treated with RSS-A. The learning curve was associated with shortened operative times and not increased complication rates.
42. EXTRACORPOREAL MEMBRANOUS OXYGENATION FOLLOWING THORACIC SURGERY: A SINGLE CENTER EXPERIENCE
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Omaha, NE

BACKGROUND: Refractory respiratory failure following thoracic surgery often results in poor outcomes. Extracorporeal membrane oxygenation (ECMO) has emerged as a possible treatment option. ECMO is a rescue option that allows for protective mechanical ventilation. Veno-venous (VV) ECMO provides gas exchange when the native lung function cannot and a bridge until the patient recovers from their underlying respiratory failure. The exact role of ECMO is still evolving however, there are a few published reports describing of the use of ECMO as rescue therapy for respiratory failure after thoracic surgery.

METHODS: Four thoracic patients with refractory respiratory failure were placed on ECMO. We present these patients to discuss our experience with ECMO and thoracic surgery at our institution.

RESULTS: A 61 year-old male with non-small cell carcinoma of his left upper lobe received chemoradiation an underwent lobectomy. On post-operative day (POD) 2 he had increased secretions and was intubated. His respiratory status worsened and he remained hypercarbic failing maximal mechanical ventilation. He was placed on VV ECMO on POD 7 for 13 days. His oxygenation improved and he was successfully decannulated and weaned from the ventilator. Three years later he continues to do well at home.

A 74 year-old female with metastatic leiomyosarcoma to her left hilum underwent a left pneumonectomy. On POD 2 she experienced respiratory distress requiring intubation. She had worsening hypercarbic respiratory failure despite conventional treatment. She was placed on VV ECMO on POD 5. She remained on ECMO for 5 days during which her lung function improved. She was discharged to a nursing facility and was successfully rehabilitated.

A 39 year-old male with non-small cell carcinoma underwent chemoradiation followed by a right upper lobectomy. He developed respiratory distress on POD 3 requiring intubation. His support was maximized and was placed on VV ECMO for 10 days. He continued to wean from the ventilator. Days later his respiratory and hemodynamic status decompensated and family requested to discontinue resuscitation and he expired.

A 60 year-old male with squamous cell carcinoma of the esophagus underwent chemoradiation and a minimally invasive esophagectomy. On POD 5, he had increased respiratory distress requiring intubation. With maximum support, he continued to have persistent hypoxia. He was placed on VV ECMO on POD 9. He remained on ECMO for 15 days during which he had pulmonary recovery. He was transferred to a rehabilitation facility. He continues recover and no longer requires respiratory support.

CONCLUSION: Our experience with ECMO and thoracic surgery provided examples of patients who otherwise may have succumbed to their severe respiratory compromise. ECMO provided supportive therapy when other conventional methods were exhausted. In appropriate patients, ECMO may be a conceivable option to aid patients and provide meaningful recovery.
43. HYPERTERMIC INTRAPERITONEAL CHEMOTHERAPY OUTCOMES IN ADVANCED OVARIAN CANCER AT INDEX SURGERY, SALVAGE, AND PALLIATIVE CYTOREDUCTIVE SURGERY PLUS HYPERTERMIC INTRAPERITONEAL CHEMOTHERAPY  
RL Sleightholm, DC Watley, JM Foster MD  
Omaha, NE

BACKGROUND: The role of HIPEC in the management of advanced ovarian cancer (OEC) continues to be debated. In the absence of prospective RCT, retrospective experience provides important insight into the benefit of HIPEC. One major question is the timing of HIPEC. Specifically, can CRS/HIPEC be offered at index CRS, salvage therapy, and in the setting of palliation? At our PSM-HIPEC program, OEC represents 10% of PM treated with HIPEC. We retrospectively explored outcomes in these three treatment settings.

METHODS: Retrospective analysis was performed on forty patients with ovarian cancer treated between 2008-2012. Twenty-four patients who received neoadjuvant carboplatin were treated with CRS/HIPEC: 8 Stage IV patients at index surgery, 8 salvage cases due to chemotherapy intolerance and/or progression, and 8 palliative cases with symptomatic disease. We calculated median LOS, PFS, and overall survival for each treatment setting, as well as PCI and level of cytoreduction achieved as R-score.

RESULTS:

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<tr>
<th>PCI</th>
<th>R-score</th>
<th>LOS</th>
<th>PFS</th>
<th>OS Survival Post-HIPEC</th>
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<tbody>
<tr>
<td>Index</td>
<td>17 R0/R1=7</td>
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<td></td>
<td>R2a=1</td>
<td>9.5</td>
<td>33.0</td>
<td>36*</td>
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<td>Salvage</td>
<td>12 R0/R1=4</td>
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<td></td>
<td>R2a=2</td>
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<td></td>
<td>R2b/R2c=2</td>
<td>10</td>
<td>9.5</td>
<td>26</td>
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<td>Palliation</td>
<td>18 R0/R1=2</td>
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<td></td>
<td>R2a=3</td>
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<td>R2b/R2c=3</td>
<td>11</td>
<td>5.8</td>
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*Median survival not reached, 6/8 patient still alive, and OS from diagnosis= 42 months

CONCLUSION: HIPEC was safe in all three treatment settings. HIPEC resulted in significant PFS & OS benefit when performed at index CRS. In the salvage setting, observed OS exceeded 2 years. The palliative group had the least survival benefit, but 100% achieved symptom resolution. HIPEC provided benefit in OEC and clinical trials will further define best timing.
BACKGROUND: While motor vehicle accidents involving farm equipment make up less than 1% of accidents on public roads in most states, they are five times more likely to have associated mortality, and greater than half of these accidents result in serious injury. When analyzed on a "per vehicle miles/day traveled" basis, the risk of a farm vehicle being involved in a motor vehicle accident was more than twice that of the general public. Sharing the road with farm equipment is a public health issue not only to those who work and live on farms, but also to those living in or traveling through rural communities. This study focuses on prevention of farm equipment related accidents on our roadways, and specifically to implementation of laws in our state intended to decrease injury and mortality associated with these accidents. Laws were put in place in our state intended to decrease injury associated with farm vehicle related crashes, and as trauma surgeons we sought to evaluate the effect of these changes.

METHODS: Data was extracted from previously collected data by the State Department of Health Crash Outcome Data Evaluation System (CODES) database from January 1 2007- December 31 2011. Crash data was collected including type of vehicles involved, time of day, road conditions, weather conditions, and associated injury severity.

RESULTS: No significant differences were seen when comparing the incidence of and variables associated with farm related accidents before and after January 1st 2009 when the new laws went into effect.

CONCLUSION: Lighting and signage requirements implemented by our state have not had a statistically significant impact on the number of farm equipment related accidents on our public roadways. This may show that current standards in lighting and signage for slow moving vehicles are not sufficient to prevent these accidents. Recommendations are made by the authors to improve safety related to farm vehicles traveling on public roads including regulations compliant with the American Society of Agricultural and Biological Engineers guidelines. Changes are needed to increase comprehensibility and consistency of signage, education of the public, and increasing compliance with existing regulations.
BACKGROUND: There is a perceived lack of preparedness among recent surgery residency graduates to enter practice immediately after residency. To address this issue, the American College of Surgeons (ACS) created a 1 year Transition To Practice (TTP) program designed for residency graduates contemplating general surgery practice. The goal of this non-ACGME program was to provide an individualized, autonomous experience and mentorship in general surgery to facilitate the transition from trainee to independent practitioner. We describe the experience of the first TTP associate in one of the first TTP programs in the US, focusing on the individual’s perspectives and the challenges faced by the program in achieving these goals.

METHODS: The TTP associate graduated from an ACGME accredited surgery residency, achieved ABS certification with first-time passing of the written and oral examinations and practiced for 3 years in Kenya. She was attracted to the TTP program because of a perceived lack of confidence to operate independently and need for additional subspecialty skills. An intake assessment of prior operative experience was completed by the TTP program director and the associate and matched to the desired goal of working in an underserved community. The overall structure was 6 months at the main teaching campus and 6 months at 2 rural locations. Rotations during the 1st half of the year included general surgery, acute care/trauma, OB/GYN, endoscopy, and hand/plastic surgery. The associate kept a weekly schedule of 2 outpatient clinic days, 1 OR day, 1 general surgery call night, and 1 endoscopic procedure day. Attending supervision was always available. The final 6 months were spent working with teams of 3 rural general surgeons at two locations within our integrated health system.

RESULTS: TTP program challenges included difficulty in achieving buy-in from the myriad surgical specialty departments involved in this complex curriculum and schedule and providing a diverse experience without adversely affecting the case volume of surgery residents in an institution committed to general surgery preparation. TTP associate challenges included a steep learning curve in a new health system with unfamiliar electronic health records and care pathways. Case variety was excellent, and included ventral/inguinal herniorrhaphy, laparoscopic appendectomy and cholecystectomy, open and laparoscopic colectomy, emergency general surgery operations, cesarean section, and endoscopy.

CONCLUSION: Curriculum planning is critical to protect the experience of other learners and optimally involve subspecialty faculty. The time needed to learn a new system of care is significant for the TTP associate. A single faculty mentor in the first month could improve this transition. The operative experience is rich with ample autonomy. While the ACS-TTP program is nascent, it has provided a young surgeon with the time and place to gain independence and confidence.
BACKGROUND: Anomalous descent of the distal ureter into the inguinal canal or scrotum is rare and undoubtedly underreported. Most reported cases were noted at the time of surgical exploration for inguinal hernia repair or as a result of an operative injury.

METHODS: We carried out a comprehensive literature review to identify previous reports. We reviewed the records of five patients with inguinal hernias containing a segment of the ureter. These five cases were encountered over five years at three hospitals in our city. We evaluated the entire ureteral course via abdominal-pelvic CT in all five cases.

RESULTS: In our first case, there was inadvertent injury to the displaced ureter at the time of hernia repair, resulting in loss of renal function. In the second case, there was severe hydronephrosis associated with the deviated curlicue ureter. Resection of the redundant ureter at the time of herniorrhaphy allowed return of normal renal function. In our third case, there was chronic hydronephrosis associated with the displaced ureter and the kidney was non-functional. The ureter was intentionally ligated at the time of inguinal hernia repair. In the fourth case, the aberrant ureter was temporarily stented prior to inguinal hernia repair to decrease the risk of ureteral injury. In the fifth case, the ureter was entrapped and obstructed within the inguinal hernia sac. A percutaneous nephrostomy was performed prior to hernia repair.

CONCLUSION: Our five cases had markedly different outcomes. All these cases occurred in very obese adult males. Efforts to better estimate prevalence are indicated. A sign on abdominal CT that accompanied this pelvic ureteral anomaly was identified, with the affected ureter displaced anteriorly from the psoas muscle by greater than 1 cm at the level of L4 in all five cases.
48. DOES THE HISPANIC PARADOX STILL EXIST? DEMONSTRATING HIGHER INCIDENCE OF ADVANCED BREAST MALIGNANCIES IN OUR YOUNG HISPANIC POPULATION

AL Klein MD, M Vilillereal, B Goodgame MD, A Sadia MPH, A Clark BA, J Uecker MD
Austin, TX

BACKGROUND: Historically, the Hispanic population in the United States has had a lower incidence of cancer than the matched non-Hispanic population, despite disparities in access to health care, screening, and prevention. This has been termed the “Hispanic Paradox.” However, our experience has been different. Over the past decade, we have seen a disproportionate amount of young Hispanic patients with advanced malignancies. Most notable was the number of advanced breast cancers in young Hispanic ladies. The aim of this study was to compare the incidence of advanced (Stage 3 and 4) breast malignancies among the Hispanic population with non-Hispanic patients, and specifically look at the population less than fifty years of age.

METHODS: We performed a retrospective study of all breast cancer patients at our institution over a ten year period (2003-2013) of all newly diagnosed breast cancer patients over the age of sixteen. Data was collected from the cancer registry and electronic medical records. Patients were divided into two groups: Hispanic descent versus Non-Hispanic descent. There were two subgroups as well: Hispanic patients less than fifty years of age and non-Hispanic patients less than fifty years of age. Primary outcome was the incidence of advanced cancers (Stage 3 or 4) as defined by the National Cancer Institute’s guidelines. Secondary outcomes included mortality and the insurance status of the patient.

RESULTS: There were a total of 3968 breast cancer patients seen in our Shivers Cancer center from 2003 to 2013, with an overall incidence of advanced (stage 3/4) breast cancer of 11.5%. There were 1217 patients under 50 years of age and 174 of these had stage 3 or 4 breast cancer (14.2%). Of the 1217 patients under fifty, 220 were classified as Hispanic and 47 of them had advanced malignancies (21.3%). The remaining 937 patients were non-Hispanic and 127 of them had advanced malignancies (13.5%), p=0.002. There are 68 non-Hispanic patients under 50 who are deceased (6.8%) and 18 Hispanic patients (8.1%), p=0.48. Forty two of non-Hispanic patients under 50 were uninsured (4.2%) while 46 Hispanic patients were uninsured (20.9%), p<0.0001. However, being uninsured was not shown to be an independent risk factor for developing advanced breast malignancies when less than 50 years of age (OR 1.3, CI 0.73-2.4, p=0.37), while being Hispanic was (OR 1.7, CI 1.1-2.5, p=0.01).

CONCLUSION: Here in Austin, Texas we have found a higher overall incidence of advanced breast cancer in younger Hispanic women less than fifty years of age. This experience is distinctly different than the “Hispanic Paradox” previously reported. This is important to recognize as more efforts may be required to increase screening and health care access to this population. Additionally, this data may initiate epidemiologic investigation to identify any potential genetic or environmental causes for the increase in advanced malignancies in the young Hispanic population.
BACKGROUND: The American Recovery and Reinvestment Act mandates “meaningful use” of an electronic medical record (EMR) to receive current financial incentives and to avoid future financial penalties.

METHODS: For 6 months preceding EMR implementation, instruction on its use was provided utilizing on-line self-study video modules, classes taught by industry personnel, classes taught by clinicians already experienced in the EMR, and through self-paced practice sessions with fictitious patients. Three months after EMR implementation, a Likert scale survey (strongly disagree-1 to strongly agree-5) was sent to residents and senior staff of the Department of Surgery to evaluate the perceived training effectiveness. Comparisons were made between end of training and 3 months into EMR use; and between different methods of training. Patient volumes were monitored until return to pre-EMR values.

RESULTS:

Fifty-nine surveys were received from 24 senior staff and 35 surgical residents.
Confident in EMR use at the end of training: 2.6
Confident in EMR after 3 months: 4.2 *
Video modules were useful: 2.1
Classes taught by industry personnel were helpful: 2.3
Classes taught by experienced clinicians were helpful: 3.7 *
Practice sessions with fictitious patients were helpful: 3.0
Use of previously developed templates was helpful: 4.1
My training was efficient and maximized the use of my time: 1.7
* p<0.05

Daily patient visits numbered 393 in the month prior to implementation, decreased to 331 in the first month of EMR use, and returned to 397 the month after implementation.

CONCLUSION: Three months after implementation, surgeons were confident in their use of an EMR, and returned to pre-implementation volumes of patient care. The most effective training was from other surgeons already experienced in use of the EMR. The use of previously developed templates assisted in the adoption of the EMR in clinical use. Focused training by clinicians offers the maximum benefit for adoption of an EMR.
50. DERMATOFIBROSARCOMA PROTUBERANS: INSTITUTIONAL EXPERIENCE WITH A RARE SOFT TISSUE MALIGNANCY
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BACKGROUND: Dermatofibrosarcoma protuberans (DFSP) is a rare soft tissue malignancy accounting for less than 5% of soft tissue tumors. Metastasis is rare, but local recurrence may be both common and functionally devastating without proper initial surgical intervention. We present our institutional experience with this soft tissue malignancy.

METHODS: After IRB approval, a retrospective review was performed for patients treated for DFSP from 2004-2013. All patients underwent treatment by multiple surgeons in a community setting. Demographic and clinicopathologic variables were recorded and long-term outcomes described.

RESULTS: Nineteen patients were treated for DFSP between 2004 and 2013. The mean age at diagnosis was 44.4 years. Men were more frequently affected than women: 58% vs 42% respectively. Fifty-eight % of these were African American, followed by Caucasian (37%) and Latino (5%). Tumors were most frequently found on the trunk (42%), the groin and upper limb (16% each), the head/neck and lower limb (11% each) and the gluteal region (5%). Of those samples that were tested for CD-34, all were positive (N=11); 9% of these were also positive for smooth muscle actin and BCL-2. The remainder (N=8) were diagnosed on H&E stain. All patients underwent wide local excision with negative margins at the time of definitive resection. The median margin of excision was 0.94 cm (range, 0.1-3.5 cm) as determined by the final pathology report. The majority of our patients had defects amenable to primary closure (63%); the remainder were managed with skin grafting or advancement flap closure. With a median follow up of 42 months (range, 1-268 months). There were no local recurrences and no distant metastases.

CONCLUSION: DFSP is a rare soft tissue malignancy in which excellent local control can be achieved with surgical resection alone. Given adherence to published guidelines, long-term outcomes may be achieved in a underserved, community setting mirroring those reported at more specialized centers.
BACKGROUND: Protocols for triaging trauma patients have been the subject of ongoing debate across trauma centers for many years. In May of 2009, our institution decided to include age over 70 a part of the upgrade criteria to a category 1 designation for a patient who would have otherwise been a category 2 based on their clinical presentation. We wanted to see whether or not there was data to support this increased utilization of hospital personnel and resources.

METHODS: We accessed the Brackenridge Hospital Trauma Registry, looking at all trauma admissions from May of 2009 until June 2014. We specifically looked at both Category 1 and Category 2 blunt force trauma patients. After excluding patients between 70-89 years of age who presented to the ED with a GSC < 9, a SBP < 90, or a respiratory rate < 10 or > 29, we compared that same age range of patients who were now deemed Category 1 to a control group of Category 2 patients between 18-69 years of age. In total, there were 5596 patients, 144 in the Category 1 70-89 age group, and 5452 in the age 18-69 group. We then looked at a number of important clinical parameters and compared the percentage of occurrence in each of these two groups.

RESULTS: Patients in the over 70 age group were much more likely to require intubation (23% to 5%, p <.0001) and be admitted to the ICU (31% vs. 9%, p<.0001) from the emergency department. We found that they typically had longer ICU stays (3+/-.6 vs 1+/-.2, p<.0001), and needed more time to be weaned off of the ventilator (1.7 +/-5.3 vs 0.24 +/-1.5, p<.0001). Moreover, over the course of their hospitalization, these patients also had higher rates of pulmonary complications (10% vs 2%, p<.0001), cardiac complications (9% vs 1%), and overall infections (13% to 3%). Finally, the mortality rate was much higher in the age>70 group as opposed to the 18-69 age group (8% vs 0.62%, p<.0001).

CONCLUSION: Age > 70 is an independent risk factor for poor outcomes following blunt force trauma. Our research shows that regardless of initial presentation, elderly patients are more prone to develop complications over the course of their hospital admission and have an overall mortality rate that is much higher than a triage related control. Thus, the decision to include this as part of the criteria for earlier evaluation by a trauma surgeon is warranted and is supported by our clinical data.
BACKGROUND: Peritoneal carcinomatosis (PC) is a fatal disease with a median survival of 6 months. Cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) is being increasingly employed with both palliative and curative intent for PC. We report on our intermediate term outcomes with the technique.

METHODS: A retrospective review was conducted of 48 patients undergoing CRS and HIPEC at our institutions in Arizona and Florida from December 2010 to October 2014. Recurrence free survival (RFS) defined as alive with no evidence of disease was the primary endpoint.

RESULTS: The median age was 58 years, equally split between males and females, and the majority were White (n=43, 89.6%). The most common primary tumor was mucinous adenocarcinoma of the appendix (n=27, 56.3%) followed by colorectal adenocarcinoma (n=15, 31.3%). The majority of tumors were low grade (n=29, 60.4%) with equal numbers of high and intermediate grade (n=6, 12.5%). Systemic therapy was given to 22/48 (45.8%) of patients prior to CRS and HIPEC. The majority of operations were performed with curative intent (n=39, 81.3%). The mean and median peritoneal carcinomatosis index score (PCI) was 15.4 and 13 (range 1-35). A completeness of cytoreduction score of CC0/CC1 was obtained in 25/39 (64.1%) of patients operated on with curative intent. There was no 30 day postoperative mortality and 29/48 (60.4%) of patients developed a post-operative complication, of which 8 (34.4%) were grade IV. With a median follow up of 12 months, 23 (47.9%) patients have no evidence of disease, 14 (29.2%) are alive with disease, 9 (18.8%) have died of disease and 1 patient (2.1%) has died of other causes. For all patients, median RFS was 19.3 months and 19% at 2 years. For the 39/48 patients undergoing surgery with curative intent, median RFS was 23 months and 25% at 2 years.

CONCLUSION: In selected patients, CRS and HIPEC is a treatment option for PC from appendiceal and colorectal cancer. Intermediate term survival outcomes are similar to those seen for metastatectomy for hepatic metastases from colon cancer, albeit with significant peri-operative morbidity. With increasing experience and refinement of selection criteria, we hope to improve on these initial outcomes.
BACKGROUND: Graft versus host disease (GvHD) is a rare (0.1-2%) but highly lethal event (75-91.6%) that can be observed after liver transplantation. Clinical findings often include skin rash, fever, diarrhea, and pancytopenia. Patients usually succumb to complications of multi-organ failure, sepsis, and/or bleeding. Optimal treatment has not been determined but can include steroids, increase/decrease/changes in immunosuppression, antibodies against lymphocytes, intravenous immunoglobulins (IVIG), and antibiotics/antifungals. Risk factors have been shown to include close HLA matching, recipient age greater than 65, age difference between donor-recipient greater than 40, and immunosuppressive treatment prior to transplantation, among others. We hereby present a series of six GvHD cases seen at our institution and report on patient/donor characteristics, treatment, and outcomes.

METHODS: Retrospective chart review was conducted to identify patients that develop GvHD after liver transplantation. Diagnosis was made based on the typical clinical presentation, skin biopsy, and presence of donor/recipient chimerism. From these identified cases, age of donor/recipient, etiology of liver disease, MELD scores, clinical presentation, treatment, and outcome data was extracted.

RESULTS: Since 2003, there have been 6 recognized cases of GvHD after liver transplantation with an incidence of 1.1% (6/570). The first five cases occurred within a four year period from 2006 to 2009. The most recent case was in 2014. Most patients presented in the classic manner with skin rash, fever, diarrhea, and pancytopenia (Table 1). Consistent with the high mortality rate quoted in the literature, five of the patients expired from complications related to GvHD for a mortality of 83%. All patients were treated with steroids and a combination of tacrolimus, thymoglobulin, or OKT3. The one survivor was treated with OKT3 in addition to steroids. This patient was noted to go from 99% donor T cells to undetectable levels four days after initiation of OKT3.

CONCLUSION: GvHD after liver transplantation is a rare event that carries a high mortality risk. Optimal treatment has yet to be determined. The relatively higher incidence observed from 2006-2009 led to changes in the immunosuppression regimen used at our institution in an attempt to decrease the incidence of GvHD. The use of mycophenolate mofetil (MMF) in immunosuppression was suspected to be related. Hence, the use of MMF was decreased or avoided altogether if possible while maintaining adequate levels of immunosuppression. Since this change was instituted the incidence dropped significantly. We believe this lower incidence may be related to the change in immunosuppression regimen. Patients with GvHD are so few in numbers that adequate research to determine prevention/treatment strategies is difficult. These patients will therefore continue to be a challenge to manage in the future and additional research is needed in this area.
BACKGROUND: Hazards associated with the operation of grain elevators include suffocation following entrapment, burns, crush injuries, and falls. While infrequent, these injury mechanisms often result in significant injury and death, however outcomes are underreported in literature. The purpose of this study was to compare hospital outcomes between patients who sustained traumatic injuries associated with industrial grain elevators (GE) versus those on a farm (FE).

METHODS: A retrospective review was conducted of all patients ages 0 to 89 presenting with grain elevator-related injuries at an ACS-verified Level 1 trauma center between 1/1/2003 and 12/31/2013. Data collected included: demographics, mechanism of injury, injury severity and patterns, treatments required, hospitalization details, and discharge disposition. Data were summarized and comparisons made between the GE and FE groups.

RESULTS: All patients (N=18) included in the study were male, with a mean age of 37.3 (SD 17.3, range=17 to 69) years. The incident rate of grain elevator is 6.6 per 100,000. The majority of injuries occurred in the GE group (n=15, 83.3%). There were no injury-related deaths in either group. The most common mechanism of injury was falls (n=6, 33.3%), followed by machinery (n=5, 27.7%), entrapment (n=4, 22.2%), explosion (n=2, 11.1%), and crush (n=1, 5.5%). Most patients were transported by land ambulance (n=12), followed by private vehicle (n=3), helicopter (n=2), and fixed-wing airplane (n=1). Among those patients where time from injury was available, mean time to admission was 161.9 ± 92.2 minutes for the GE group and 212 ± 122.1 minutes in the FE group. Mean ISSs were 6.9 ± 4.2 and 7 ± 5.6 between the GE and FE groups respectively. Extremity injuries and rib fractures were the most common injuries observed (50.0% and 33.3%, respectively). Traumatic brain injuries (TBI) were suffered by 22.2% of patients (n=4), 1 of whom (5.5%) had a skull fracture and 3 (16.7%) who had a concussion. Two-thirds (n=12, 66.7%) of patients required at least one surgical or procedural intervention. Average H-LOS in the FE group (7.67 ± 9.07 days) was more than double that of the GE group (3.3 ± 3.0 days). A single patient in the GE group required one day of mechanical ventilation. The majority of patients (n=15, 83.3%) were discharged to home, and 2 (11.1%) were discharged to a rehabilitation facility. The oldest patient (69y) suffered a farm injury, experienced the second longest transit time (353min), longest hospital stay (18d), I-LOS was 4 days, required blood, and was the only patient to be discharged to a skilled nursing unit.

CONCLUSION: Literature reports entrapment as the most common mechanism of injury among grain elevator accidents. Surprising, we found the most common grain elevator-associated injuries were falls, which all occurred in the GE group. This suggests a greater emphasis should be placed on fall prevention in the industrial environment while maintaining machinery safety measures.
BACKGROUND: One out of three older adults (>65 yrs) falls yearly with significant social and economic cost. With the desire to maintain mobility and continued independence in this age group, there has been an exponential growth in the electric wheelchairs (EW) industry, often referred to as a RascalTM. Millions of Americans utilize EW on a daily basis to ambulate. However, the use of an electric wheelchair at home or in the community can place the user at increased risk of injury. This is true when the electric wheelchair is used on public roadways, as the wheelchair is difficult to see by other motorists and wheelchair users often do not heed traffic rules and warnings. Although examined at a basic level by surveys and injury surveillance databases, no specific analysis of injuries due to electric wheelchairs presenting and admitted to a level 1 trauma center has been reported.

METHODS: We conducted a retrospective review of the trauma registry at our ACS-verified level 1 trauma center of all admitted injuries associated with use of an electric wheelchair. All injuries were between the years 2006 and 2013. Age, sex, ISS, injury mechanism, injury type and disposition were collected for all patients identified.

RESULTS: Over the 7-year period, 12 patients were identified as being admitted due to injury associated with electric wheelchair use. 75% were male, average age was 61.5 years, and average ISS was 11.5 (5-22). 50% of the injuries were due to collisions with moving automobiles, 33.3% were caused by striking immobile objects, and 16.7% were due to the electric wheelchair tipping over. Orthopedic injuries accounted for 75% of the morbidity; tibia and fibula fractures accounting for 40% of the overall orthopedic injuries. Traumatic brain injury was seen in 17% of the patients and in instances lead to prolonged intensive care management. Average hospital length of stay was 7 days (1-17 days). 17% of patients were under the influence of alcohol, illicit drugs or both at the time of admission. And while the majority of patient initially evaluated resided at home, 50% required placement in a skilled nursing facility for rehabilitation and recovery from the injury.

CONCLUSION: With the increasing use of electric wheelchairs throughout society and on roadways in our local communities, we must be vigilant of the potential dangers they pose to the users and their surroundings. Others have postulated as to the etiology of these accidents to include willful testing of traffic (defiance), hubris, and depression leading to a death wish. This data points to the need for further education of the elderly regarding safety and possibly the need for proficiency tests on an ongoing basis. In addition, healthcare providers must be more acutely aware of the magnitude of injury that can be sustained by seemingly innocuous mechanism in this rising patient population. Greater injury prevention and education efforts aimed towards addressing this problem in our communities are mandatory.
BACKGROUND: Heparin Induced thrombocytopenia (HIT) with or without thrombosis can be a life threatening condition for patients receiving heparin. Traditionally, Heparin is used as the anticoagulant of choice for patients in cardiac surgery to suppress contact activation of blood clotting via contact with the bypass circuit. If patients with HIT receive Heparin it can lead to catastrophic consequences including widespread thrombosis and loss of life. It is prudent for every team undertaking care of these patients to be familiar with alternative strategies to anti-coagulate these patients in a setting of HIT.

METHODS: We reviewed the available literature on heparin alternatives to suggest the most favorable approach and one with the greatest experience with direct thrombin inhibitors. We studied the typical dosing of these agents for Cardiopulmonary bypass and tabulated that for easy access for future users.

RESULTS: Direct Thrombin inhibitors are a useful option to anti-coagulate these patients. These fall into two categories: 1) Hirudin-like substances/analogues—such as Bivalirudin and Lepirudin; and 2) Argatroban—a synthetic derivative of Arginine that inhibits thrombin by binding its catalytic site. The specific choice is contingent upon the presence of active HIT. In type 2 HIT, treatment with Thrombin inhibitors is recommended and heparin is contraindicated. The typical Activated Clotting Time (ACT) used to monitor effect is 2.5 times the baseline ACT. The largest data exist for Bivalirudin in literature for bypass and was reviewed.

Bivalirudin is a bivalent thrombin inhibitor, has a plasma half-life of approximately 25 minutes and its elimination is independent of specific organ metabolism. The recommended dose of Bivalirudin in one trial of 150 patients was 1mg/kg IV bolus followed by an infusion at 2.5mg/kg IV or higher. Bivalirudin was discontinued at the termination of bypass or 30 minutes prior. Argatroban has been used for this application; however, a greater variability with ACT levels was reported including many bleeding complications.

CONCLUSION: Management of anti-coagulation for Cardio Pulmonary bypass in patients with a diagnosis of HIT requires familiarity with alternative drug regimens and dosing. We recommend utilizing Bivalirudin as the drug of choice given the greatest amount of trial data in this utilization amongst Thrombin inhibitors. Whereas other agents have also been used, their bleeding and clotting profiles post bypass are not as predictable as with Bivalirudin. If surgery is elective it should be delayed and hematological consultation obtained. If urgent then the above approach provides a viable strategy with the best safety record amongst the heparin alternatives.
BACKGROUND: To describe outcomes of patients with End-Stage Liver Disease (ESLD) who underwent liver transplant at a major academic center and compare them to the Scientific Registry of Transplant Recipients (SRTR).

METHODS: We retrospectively analyzed 62 consecutive adult liver transplants performed between October 2012 and July 2014. Baseline recipient features were summarized using basic frequencies to obtain descriptive information such as age, sex, race, comorbidities, and pretransplant MELD scores. Continuous variables were expressed as mean ± standard deviation. Categorical features were expressed in percentages. Short-term outcomes such as length of stay (LOS), 30-day perioperative medical and surgical complications and mortality rate were analyzed. Finally, patient survival was estimated using Kaplan-Meier curves.

RESULTS: Most patients were male and Caucasian. The median (IQR) age at time of transplant was 57.4 (53.3-59.5) years. The mean MELD score at transplant was 24 ± 6. Risk factors such as smoking (65%) and alcohol consumption (57%) were common. Preoperative comorbidities were frequent in this patient population. The comorbidities that were more clinically relevant were: Hypertension (40%), Diabetes Mellitus (21%), and Chronic Kidney Disease (6%). Of note 64% of the patients had a BMI ≥ 25 kg/m² (obesity was present in 40%). The most common primary cause of ESLD was Hepatitis C virus infection (39%), non-alcoholic steatohepatitis (18%), and ethanol abuse (15%). Final pathology of the explant demonstrated Hepatocellular carcinoma (HCC) in 14 patients (23%). Twelve of these 14 patients were known to have HCC prior to transplant, whereas the remaining 2 cases were incidental HCC. Side-to-side cava to cava anastomosis (Piggyback technique) was performed in 92% of patients. End-to-end biliary anastomosis was done in 97% of patients. Portosystemic bypass was utilized in 18% of patients. A second surgery was required in 11 patients. Seven of these reoperations were performed to treat post-operative complications. The mean LOS was 9.7 days. The morbidity rate was 77%. Acute kidney injury (AKI) was the most frequent medical complication (61%). Most patients developed grade I AKI (40%) and no significant intervention was required. Two patients required renal replacement therapy; one of them recovered and no further intervention were required, the second one died as a result of multiorgan failure. At 1 year 48% of patients have been readmitted at least once. This is very similar to the national average (52%). The most common reasons of readmission were: Infectious (28%), Metabolic (19%), and Biliary (15%). The 1-year patient survival was 90%. This is equivalent to the SRTR national average.

CONCLUSION: When compared to SRTR, our patients are more likely to be overweight/obese while having similar readmission rates. Our 1-year patient survival is also on par with other centers in the United States.
BACKGROUND: Development of enterovaginal or vesicovaginal fistula are dreadful consequences seen with diseases (i.e. Crohn's, cancer), obstetric trauma, pelvic surgery, and treatments such as focused radiation and chemotherapy. Symptoms include vaginal discharge of succus, stool or urine that can lead to ascending infections, perineal excoriation, and sepsis. The psychological distress experienced by patients is often profound. Surgery is the gold standard and complexity is dependent on fistula location. Options for symptom control prior to surgery are limited. In some, surgery may not be an option making symptom control the priority. Vaginal discharge is most commonly managed with tampons and pads, but often this is far from optimal. The goal was to improve management for these patients.

METHODS: A silicone vaginal cup is a reusable device designed to control menstrual drainage. The cup is inserted into the vagina and emptied as needed. The cup was prescribed for two patients in order to control fistula discharge and reduce perineal excoriation.

Case 1: A 60-year-old female with stage IV sigmoid adenocarcinoma underwent sigmoidectomy. After surgery for a pelvic recurrence, the patient developed a rectovaginal fistula, requiring a third surgery with end colostomy. Chemotherapy and radiation were given and one year later the patient returned with an enterovaginal fistula. She was prescribed use of a silicone cup to assist with drainage control, which per the patient provided good control prior to undergoing successful fistula resection.

Case 2: A 54-year-old female with stage IV mucinous adenocarcinoma of the appendix underwent hyperthermic intraoperative peritoneal chemotherapy treatment and later developed both an enterovaginal and enterocutaneous fistula. Given a diagnosis of pulmonary metastases and recent surgery within 2 months, surgical fistulae repair was not undertaken. Despite being NPO, frequent tampon changes, various topical medication use, the peritoneal excoriation and related pain were uncontrollable for the patient. At the surgical consult, use of the silicone cup was prescribed. Based on the need for frequent cup changes the surgical team fashioned a down drain system that per the patient completely alleviated her pain and skin breakdown. This system was used for a year until she eventually succumbed to disease.

RESULTS: Both patients tolerated the product very well and preferred this management to traditional supplies. The second patient had a high output enterovaginal fistula and needed long-term management, for which a custom design was created specifically for this patient allowing for continuous down drain.

CONCLUSION: Enterovaginal fistulae and their associated symptoms related to the type and amount of drainage can be extremely difficult to manage for patients. We found that using this reusable device, was adaptable and very successful in diverting fistula drainage and preventing associated complications with significant patient satisfaction.
CASE REPORT: Septic thrombophlebitis is associated with a very high mortality rate if left untreated. The endovascular nature of this infection results in secondary metastatic disease, including pneumonia, endocarditis, and/or arthritis due to septic embolization and/or hematogenous bacterial spread. An immunocompetent 24 year old female status post Motor Vehicle Collision with minor injuries was re-admitted to our institution one week after her initial injury with septic shock and severe respiratory distress. The patient was found to have a severe necrotizing pneumonia secondary to a left upper extremity septic thrombophlebitis from a previous peripheral IV catheter. The patient underwent surgical excision of the thrombosed vein. Tissue, blood cultures, and bronchoalveolar lavage were all positive for methicillin susceptible staphylococcus aureus (MSSA). The patient progressed rapidly to severe ARDS (acute respiratory distress syndrome). Refractory hypoxemia despite optimal conventional management led to the utilization of ECMO (extracorporeal membrane oxygenation) support for sixteen days. This is the first case report of MSSA peripheral septic thrombophlebitis leading to necrotizing pneumonia and ARDS requiring ECMO. Septic thrombophlebitis can be fatal and a high index of suspicion with rapid treatment is required to control this potentially devastating infection.
BACKGROUND: Caroli’s disease is characterized by congenital segmental dilation of the intrahepatic biliary tree, causing bile stasis and intrahepatic lithiasis. Patients present with recurring cholangitis early in life and average life expectancy after the first episode is 5-10 years. Not only is morbidity and mortality due to recurrent sepsis high, but patients are also at increased risk for cholangiocarcinoma. Definitive treatment for this disease is resection of the affected hepatic lobe in isolated disease or orthotopic liver transplant in bilobar disease. Internal drainage procedures (PTC) are palliative and facilitate access to the bile ducts for imaging, drainage, or biopsy. Controversy exists regarding the long term benefit of internal drainage procedures, citing stricture as the most common complication. We describe a unique palliative technique that may be used to prevent recurrent cholangitis.

METHODS: A case report on the management of a patient with Caroli’s disease.

RESULTS: Fifteen years ago, a 62 year-old Moroccan woman presented with classic signs of cholecystitis; she was incidentally discovered to have Caroli’s disease. At that time she underwent cholecystectomy, segmental common bile duct resection, and an end to side Roux en Y hepaticojejunostomy. She presented to our facility in 2014 with severe sepsis presumptively due to cholangitis. After ERCP failed to access the biliary tree, percutaneous access to the intrahepatic bile ducts was accomplished. Imaging revealed a stricture at the hepaticojejunostomy and multiple intrahepatic stones not amenable to percutaneous treatment. After resuscitation from sepsis, the patient was taken to the operating room with the plan to clear her intrahepatic stones, perform a stricturoplasty on the hepaticojejunostomy, and provide access to the biliary tree so that stones and debris could be cleared via endoscope in the future. A vertical hepaticodochotomy extending into a left hepatotomy was performed, through which stones and debris were cleared from the intrahepatic bile ducts. Intraoperatively her 8 Fr PTC was upsized to a 16 Fr PTC which was extended 15 cm into the Roux limb. The vertical incision was closed horizontally and a side to side anastomosis was created between the Roux limb and the antrum of the stomach for future endoscopy. The 16-French tube that was within the hepatic duct was exchanged at 6 weeks and removed at 12 weeks postoperatively; at that time the patient had no evidence of stricture on imaging and no intrahepatic debris.

CONCLUSION: Caroli’s disease is a rare cause of recurrent cholangitis that is characterized by early mortality due to recurrent sepsis or cholangiocarcinoma. Patients who are not immediately eligible for resection or orthotopic liver transplant may benefit from surgical measures that allow for clearance of intrahepatic biliary debris. We describe a unique procedure that allows endoscopic access to the hepatic ducts as well as wide internal drainage.
BACKGROUND: Initially described in 1930, Doege-Potter syndrome is a paraneoplastic syndrome associated with solitary fibrous tumors that secrete a prohormone form of insulin-like growth factor II (IGF-II) resulting in hypoglycemia. Although the tumors are malignant in only 12-13% of cases, the degree of hypoglycemia can be severe and resection is warranted with expectant resolution of the hypoglycemia. Surveillance and management of recurrent disease remains problematic.

METHODS: This report highlights the case of an 87yo female with recurrent benign extra-pleural solitary fibrous tumor associated with severe hypoglycemia. The initial tumor, located in the left suprarenal space was resected and euglycemia was restored. On surveillance the tumor recurred, but she was euglycemic so continued surveillance was maintained. Over time her hypoglycemia again became severe with glucose measurements less than 30mg/dL. A subsequent resection resulted in complete amelioration of symptoms and normalization of her blood glucose. She is being screened annually with ultrasound. A detailed review of current literature from the PubMed database accompanies this report. The discussion focuses on epidemiology and pathophysiology to include management of non-islet-cell tumor hypoglycemia.

RESULTS: Approximately 300 cases of Doege-Potter syndrome have been reported in the past 25 years. Most of the reports detail pleural based tumors but extra-pleural tumors do occur. Surveillance intervals to detect recurrence are not clearly defined, but for pleural based tumors it is recommended to obtain plain films of the chest annually. Management of recurrent disease includes treatment of associated hypoglycemia, possible chemotherapy/embolization and/or radiation, but complete surgical resection remains the most effective method of treatment for both primary and recurrent disease.

CONCLUSION: Doege-Potter syndrome is a rare paraneoplastic syndrome characterized by hypoglycemia from IGF-II prohormone secretion from solitary fibrous tumors. Even though recurrence is not frequent these patients should continue routine radiographic surveillance annually. Management of recurrent disease is multifaceted including glycemic control, oncology consultation, and surgical re-excision.
**BACKGROUND:** Breast fungal infections are rarely reported in the medical literature. The skin is a common site of dissemination for coccidioidomycosis. However, incidence of primary cutaneous coccidioidomycosis, while rare, is increasing in developed countries with immunocompromised patients. Soft tissue coccidioidomycosis is most commonly found in the hilar and mediastinal lymph nodes as a primary site with the supraclavicular and cervical nodes being the sites for extrapulmonary nodal involvement.

**METHODS:** A retrospective case series was conducted for breast coccidioidomycosis infections.

**RESULTS:**

Case 1: An asymptomatic 42 year-old male with type 2 diabetes and end-stage renal disease who presented during kidney transplant workup with positive titers for coccidioidomycosis indicative of disseminated disease. No other past medical history of immunodeficiency or compromise was noted. He was empirically started on fluconazole. Further transplantation work up included CT scan of the chest, which showed incidental findings of right breast, axillary, and pulmonary nodules. The pulmonary nodules were not felt to be consistent with active infection. Diagnostic mammogram showed a subareolar mass and right axillary lymph node. Ultrasound-guided biopsy of the sites showed necrobiotic granulomatous inflammation. GMS stain showed fungal organisms positive for spherules of Coccidioides immitis in the lymph node, and similar histopathologic findings in the breast, though no organisms were found in the breast. He continues under active treatment at this time.

Case 2: A 73 year-old woman with chronic lymphocytic leukemia presented to an outside institution with noncardiac chest pain and a new left breast lump. She reported a cough for one year and had been treated for pneumonia 8 months prior; however, the cough returned soon after treatment and she declined bronchoscopy at that time. On biopsy, she was found to have necrotic fatty tissue, granulomatous inflammation and fungal spherules and endospores on GMS stain consistent with coccidioidomycosis. Upon examination at our institution she had multiple lesions on the breast, flank, and extremities. She was started on fluconazole treatment and eventually lost to follow up.

Other cases will also be presented.

**CONCLUSION:** Coccidioidomycosis of the breast is a rare finding. While rare, coccidioidomycosis should be on the provider’s differential for breast infections in endemic regions and suspicious lesions should be biopsied and cultured.
BACKGROUND: Advances in endoscopic biliary stone retrieval have relegated operative bile duct exploration to an infrequent occurrence on the most challenging cases. We report a case that necessitated operative biliary exploration to highlight the common anatomic characteristics and operative approach in patients who typically fail endoscopic retrograde cholangiopancreatography (ERCP).

METHODS: We report a case of a 36 year old man who had a symptomatic common hepatic duct stone that was not amenable to endoscopic removal.

A literature review was also conducted in which PubMed was searched using the following terms: “laparoscopic common bile duct exploration” and "laparoscopic common hepatic duct exploration.” Non-randomized small case series were excluded.

RESULTS: Our patient did well after his operation, was discharged on post-operative day four and had no post-operative complications. The specific anatomic details that resulted in failure of ERCP and necessitated a laparoscopic trans-ductal(TD) approach were the following: >1 cm diameter stone in the common hepatic duct, narrowed common bile duct (CBD) and acute angulation of the cystic duct. In addition, his ERCP was complicated by severe pancreatitis, making repeat ERCP with lithotripsy prohibitory.

Our literature review identified 34 studies matching our search criteria. Out of which 8 prospective randomized trials were analyzed. From these trials a total of 789 laparoscopic common bile duct explorations were performed. In the studies that differentiated between operative approaches, the most common laparoscopic technique was trans-cystic (TC) in 572 (73%) of cases and trans-ductal (TD) in 217 (27%) of cases. The average diameter stone for the TC approach was 5mm (2-14mm) and for TD 11.5mm (5-60mm). Clearance rates were 76-90% for TC and 58-93% for TD. TD had a higher clearance rate in most studies. Only one paper specifically addressed the question of approach after failed ERCP in which 83% required a TD approach for clearance. T-tubes use ranged from 3-37%.

CONCLUSION: Complex biliary duct stones can be managed laparoscopically. The majority of failed ERCP interventions will need to be approached via a choledochotomy. Our recommended algorithm for the approach to laparoscopic biliary duct exploration is to attempt extraction using a TC approach prior to TD. Factors that would support a TD approach include stone size (> 8-10 mm), hepatic duct stone and failed ERCP.
BACKGROUND: We present the case of a 38 year old male with history of traumatic left hip fracture treated operatively with plates and screws in 1994. He had previously been evaluated multiple times for left lower extremity edema as well as left ankle skin ulcerations likely as a result of chronic venous stasis. He had a left greater saphenous vein ablation in 2013 in an attempt to correct the venous insufficiency in the extremity. His symptoms improved transiently and this year his left lower extremity edema and ankle ulcerations had recurred.

METHODS: Due to an abdominal bruit detected on physical exam he had a CT scan of the abdomen and pelvis with IV contrast yielding equivocal results but suspicious for an arteriovenous fistula in the left internal iliac artery-vein.

The patient was then admitted to our vascular surgery service for a diagnostic angiogram revealing the presence of an external iliac artery to vein fistula, that same day the angiographic findings were confirmed via CT angiogram. The patient was scheduled for a femoral cut down and repeat angiography the next day, an external iliac arteriovenous fistula was again demonstrated. A 12 Fr dry seal was inserted at the level of the left common femoral artery and a 16 X 12 X 7 cm covered stent was deployed successfully ablating the fistulous opening in the arterial site. Post deployment aortogram was performed revealing a complete seal between the iliac vessels. The patient was transferred then to the surgical floor, serial vascular exams were performed and the patient was discharged home on POD 2 recovering well from the intervention.

RESULTS: On follow up visit to the vascular clinic the patient presented marked improvement in the ankle ulcers as well as the lower extremity edema.

CONCLUSION: Traumatic arteriovenous fistulas are often unrecognized until the patient presents with complications consequence of the vascular injury. In our patient, the persistent lower extremity venous disease was initially thought to arise from intrinsic venous insufficiency leading to treatment that proved to be futile. Aggressive assessment measures, including a detail history, an accurate physical exam and the utilization of diagnostic tools such as vascular Doppler/duplex, CT angiography and ultimately, angiography are proven to be accurate in terms of diagnosis and also provide a tool to treat the AVF, such as angiography with stenting, ultimately an open operative approach may also be indicated. It is of paramount importance to detect these conditions in order to prevent its complications short term such as vessel thrombosis and ischemia, hemorrhage and arterial dissection and long term such as venous congestion and thrombosis, venous embolism and high output cardiac failure.
BACKGROUND: Common iliac injury from blunt trauma caused by restraining seat belt is rare. Only 5 cases have been reported in the past. Previously this type of injuries were only repaired through open surgery. We present the first case of endovascular repair of a left common iliac injury from blunt trauma associated with seat belt.

METHODS: The patient is a 21 year-old man, restrained driver involved in a motor vehicle crash identified to have ischemic left leg. CT angiogram showed evidence of occlusion of the left common iliac artery without contrast extravasation or retroperitoneal hematoma. In addition, the patient was identified to have significant intra-abdominal injury that would require exploration following restoration of flow to his leg. Because of concerns about potential of the intraperitoneal soilage, he underwent a transfemoral endovascular repair with stent to treat this problem in order to avoid placement of potential prosthetic graft in a contaminated field.

RESULTS: The patient successfully underwent a left femoral cut down, mechanical thrombectomy with Fogarty Catheter and trans-catheter deployment of 10 mm X 4 cm self-expanding stent across the area of intimal disruption. Subsequently, the patient underwent exploratory laparotomy, resection of injured colon and colostomy creation. His iliac stent remained patent on subsequent follow up.

CONCLUSION: Endovascular repair of the iliac artery can be an effective approach in treating injuries resulted from blunt trauma by the seat belt. We recommend endovascular approach to be the preferred method in treating this type of injuries, especially in the setting of poly-trauma involving contaminated operative field from bowel perforation.
**BACKGROUND:** Injury to the sublavian artery is uncommon in patients with blunt trauma and often fatal. Delayed presentation is rare and not well described in the literature.

**METHODS:** This case presents a 34yo male who presented after a motorcycle accident. Imaging demonstrated a distal third clavicle fracture with moderate displacement and multiple rib fractures and was non-operative management was planned. Patient did well clinically and was to be discharged on post trauma day four. Before the discharge was achieved, the patient experience a syncopal episode after coughing. He was tachycardic, hypotensive and chest radiography demonstrating left white out of the lungs. Hgb was 4.6. Commuted tomography demonstrated massive hemothorax with mass effect and emergent operative evacuation and exploration took place.

**RESULTS:** The patient underwent an emergent left thoracotomy, ligation of left subclavian artery, evacuation of hemothorax and ultimately underwent a carotid subclavian bypass and clavicle plating. He clinically progressed and was discharged on post trauma day twenty eight neurovascually intact.

**CONCLUSION:** This case presents a delayed hemorrhage secondary to unstable clavicle and highlights the potential advantage of orthopedic plate stabilization.
BACKGROUND: Gastrointestinal stromal tumor (GIST) is the most common mesenchymal tumor of the gastrointestinal tract. GIST treatment was revolutionized by the development of molecular-targeted therapy using tyrosine kinase inhibitors, such as imatinib, which significantly improved the 5-year survival rate. Although the incidence of GIST is increasing, it remains rare in women of child-bearing age. The optimal treatment strategy for metastatic GIST diagnosed during pregnancy is unknown, and the absence of safety data concerning imatinib use during pregnancy further compounds the treatment decision.

METHODS: We experienced a case of metastatic GIST surgically resected during pregnancy with a favorable outcome. We conducted thorough literature review of cases of GIST diagnosed or managed during pregnancy, which yielded five such case reports.

RESULTS: Case description: A healthy 20-year-old who was 16 weeks pregnant presented with severe abdominal pain. Imaging studies revealed a 15-cm complex heterogeneous gastric mass, with a 3 cm metastatic lesion on the left liver. Fine needle aspiration revealed a spindle cell tumor consistent with GIST. At 18 weeks gestation, she underwent en-bloc resection of the tumor by total gastrectomy with a Roux-en-Y reconstruction, distal pancreatectomy, splenectomy, and lateral segment partial hepatectomy. Histological analyses revealed a low-grade GIST with lymph nodes metastasis. She delivered a healthy infant at 37 weeks gestation. Follow-up CT scans were negative for disease recurrence, and she was started on imatinib 400 mg/day for 6 weeks after the delivery. A literature review uncovered 5 previous case reports of GIST in pregnancy (Table 1). Three patients underwent a simple resection without adjuvant therapy, one patient waited until 36 weeks and then underwent simultaneous resection of the tumor and a cesarean section, and one patient was found to be pregnant during treatment with imatinib for metastatic GIST, which was continued throughout the pregnancy. None of these case reports indicated pregnancy complication.

CONCLUSION: On the basis of a literature review, a reasonable treatment strategy for GIST in pregnant patients should include the following: (1) Resection of the primary tumor and metastatic lesions, if feasible, especially if the tumor was diagnosed in the first or second pregnancy; (2) If the tumor is found in the later phase of pregnancy, one should consider waiting until 36 weeks gestation and then resect the tumor after or simultaneously with delivery; (3) Adjuvant imatinib administration should be considered for high-risk tumors, and should be started after child-birth; (4) For non-resectable metastatic GIST, continuation of the pregnancy and/or imatinib treatment should be cautiously discussed with patients with collaboration from the multidisciplinary team.
BACKGROUND: Short bowel syndrome (SBS) is a serious condition that results in loss of intestinal function. In adults, residual jejunum of less than 200cm poses a risk of short bowel syndrome and those with less than 60cm of jejunum generally require intermittent to full dependence on parenteral nutrition (PN). Less than twenty percent of patients receiving PN are able to achieve parenteral independence. Early enteral feeding in animal models has demonstrated improved small bowel adaption and decreased villous atrophy in SBS subjects. We present a patient with SBS who received early enteral nutrition and was successfully weaned from PN.

METHODS: We present a case study to demonstrate the effects of early enteral feeding in the setting of short bowel syndrome.

RESULTS: L.A is a 54 year old female who presented with Type B aortic dissection resulting in acute mesenteric ischemia requiring emergent operation. During her index operation over 180cm of small bowel was resected and she underwent a common iliac artery to superior mesenteric artery bypass. She was left with 10cm of small bowel distal to the ligament of trietz and 65cm proximal to the ileocecal valve. At planned subsequent laparotomy an additional 8cm of distal small bowel was resected and she underwent primary anastomosis. TPN was started within 24 hours post operatively and a low residue, high protein, low fat diet was initiated on post-operative day 10. High dose PPI, anti-motility agents, and cholestyramine were used to control GI motility. The patient was discharged to home on full PN support and an oral diet and was seen in regular outpatient follow up. She continued to tolerate an oral diet and while maintaining stable nutrition parameters, adequate hydration and weight, was able to be weaned from PN completely after nine months.

CONCLUSION: Early enteral nutrition and pharmacologic adjuncts allowed our patient to gain parenteral independence in 9 months with only 67cm of functional small bowel remaining. This mechanism is likely related to early facilitation of small bowel adaption limiting villous atrophy. Early feeding in the setting of SBS in pediatric and animal subjects is well-represented in the literature. Adult patients at risk for SBS should be considered for early enteral nutrition in the immediate post operative period. Further research in the adult population is warranted.
BACKGROUND: Background: Pseudoaneurysm of the superior or inferior gluteal artery is uncommon and overwhelmingly related to penetrating trauma. There are few case reports of isolated gluteal artery pseudoaneurysm after blunt trauma. Even rarer are concomitant superior and inferior gluteal pseudoaneurysms, none of which have been discussed in the existing literature. The preferred treatment is trans-catheter angiographic embolization (TAE). Unfortunately, gluteal muscle necrosis may be a significant and fatal complication of this procedure. We present a case of pseudoaneurysm of both the superior and inferior gluteal arteries after blunt trauma with subsequent gluteal necrosis after TAE.

METHODS: Methods: A 30-year old male presented to our emergency department after sustaining a severe crush injury to the pelvis. Imaging revealed an acetabular fracture with significant protrusion and pelvic ring disruption. Staged open reduction and internal fixation was undertaken without any intraoperative complication. Delayed pelvic hemorrhage with hemodynamic instability three weeks post-injury led to computed tomography diagnosis of pseudoaneurysm of the left superior and inferior gluteal artery.

RESULTS: Results: Angiography revealed active extravasation of contrast with collateral flow to buttocks and coil embolization of the gluteal arteries was performed. Poor wound healing and gluteal muscle necrosis was identified during post-operative care and treated with serial debridements. The patient was discharged home with continued local wound care.

CONCLUSION: Conclusion: Combined superior and inferior gluteal pseudoaneurysms are a rare but important entity. Trans-catheter angiographic embolization is the treatment of choice. This can result in gluteal necrosis with significant morbidity and mortality. High clinical suspicion and careful attention are advised after significant blunt pelvic trauma and subsequent TAE of the gluteal arteries.