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2019 Graduate Medical Education Research Day Compendium

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2019 Graduate Medical Education Research Day Compendium



INTRODUCTION

Anyone engaged in research knows that the process can be daunting. Add the rigors of training in a graduate medical education program to this, and it might seem all but impossible to accomplish anything meaningful. However, the individuals highlighted in our 2019 Graduate Medical Education Research Day Compendium were able to overcome those odds. Their abstracts are showcased here and their efforts to advance the collective knowledge in their respective fields are commendable. We thank these Resident and Fellow Physicians and all who have supported them in their endeavors to reach this point with their research. Most of all, we encourage their great work to continue in the spirit of intellectual curiosity that will lead everyone into a better tomorrow.

Kate Martin, MD

Kate Martin, MD, MPH, MBA

Associate Dean for Graduate Medical Education and Designated Institutional Official (DIO)

University of Nevada, Las Vegas School of Medicine

Al-Hamad, Mariam, MD

Martin, Ashley, DO

[General Surgery]

ENHANCED RECOVERY AFTER SURGERY (ERAS): A PILOT PROGRAM FOR IMPROVING PATIENT OUTCOMES

PROJECT MEMBERS: Mariam Al-Hamad MD, Joshua MacDavid MD, Ashley Martin DO, Elizabeth Sodomini MD, Charles St. Hill MD.

BACKGROUND:

Enhanced Recover After Surgery (ERAS) guidelines have been implemented in hospitals nationwide. They have been shown to enhance recovery via decreased perioperative morbidity by 38-69% in studies with high compliance. Data presented at the AHPBA 2018 meeting by Dr. Clifford Ko showed that implementing 0-5 ERAS items decreased length of stay (LOS) to 6.14 days, 6-9 items to 5.13 days and 10-13 ERAS items to 4.08 days. The development of these guidelines has been accomplished by studying antiquated surgery practice and showing the deleterious effects of these practices. For example, the practice of fasting after midnight the day of surgery has been shown to inhibit insulin secretion and induce a catabolic state which is unfavorable for wound healing. Studies have shown that administration of high carbohydrate load prior to surgery decreased insulin resistance by 50% and decreased wound infection rates. Imaging studies have shown gastric emptying within 90 minutes, supporting the safety of clear liquids up to 2 hours prior to anesthesia. The use of 0.9% saline when compared with balanced crystalloid solution have been shown to cause an increased rate of in hospital mortality, an increase in blood transfusions, an increase in infectious complications and increase need for dialysis. ERAS has also been shown to reduce costs. One study showed that the annual cost of the ERAS program alone was \$552,783; however, the total annual cost saving of the ERAS program was \$948,500, saving a total of \$395,717.

OBJECTIVES:

To design an ERAS pilot study for implementation at University Medical Center.

DESIGN/METHODS:

Single-center prospective cohort study before and after implementation of an ERAS pilot study.

This pilot program will include surgeries in the fields of colorectal, pancreatic and hepatic surgery, with components in pre-operative, intraoperative, and post-operative care. A pamphlet has been designed for patient education and setting expectations. Implementation and analysis will take place with the use of EPIC for orderset entry, data collection and analysis.

RESULTS:

Protocol design and implementation is in progress. Results are pending.

NEXT STEPS:

Once the ERAS pilot study has been implemented, the association between protocol adherence and postoperative outcomes following major colorectal, pancreatic and hepatic resection surgery will be analyzed.

Bahadori-Esfahani, Fardokht, MD

Farooq, Asma, MD

[Psychiatry]

PSEUDOCYESIS AND OTHER PREGNANCY IMITATING CONDITIONS: SORTING THROUGH DIFFERENTIAL DIAGNOSIS: A CASE REPORT

Phantom pregnancy is rarely encountered in psychiatry, but when witnessed it is a mysterious and fascinating phenomenon for medical professionals. Pseudocyesis is characterized as the development of the standard symptoms of pregnancy such as amenorrhea, nausea, breast enlargement and pigmentation, abdominal distension, and labor pains that occur in a nonpregnant woman. It is included in the “Not Elsewhere Classified section of Somatic Symptom Disorders,” in the DSM-5. This case report aims to present a case of pseudocyesis and the importance of distinguishing it from other additional conditions that resemble this diagnosis. We report on a 38-year-old African American female patient with pseudocyesis who during the encounter was in a relationship, reported no children and was admitted due to complaints of heavy bleeding and the belief that she was pregnant. Four other conditions that mimic pregnancy include; Delusion of pregnancy, pseudopregnancy, simulated pregnancy, and couvade syndrome. Identifying the difference from other disorders imitating pregnancy can help determine a more accurate treatment plan for these patients who are suffering.

Chawla, Vonita, MD

[Pediatrics]

COMPARISON OF PAIN ASSESSMENT TOOLS AND ADDRESSING KNOWLEDGE GAPS REGARDING NEONATAL PAIN AMONG NICU STAFF AT UNIVERSITY MEDICAL CENTER - A QUALITY IMPROVEMENT PROJECT

Vonita Chawla MD1, Alaa-Eldin Eldemerdash MD2, Kanayo Ezeanolue MD2, Francis Banfro MD2, Dahna Reyes MD2

1 Resident, Department of Pediatrics, UNLV School of Medicine

2 Neonatologist -University Medical Center of Southern Nevada

Background: Current research has shown vast inconsistencies in neonatal pain management, worldwide, despite expert recommendations. Inadequate pain control in babies can result in adverse sequelae including but not limited to altered brain development. The American Academy of Pediatrics recently provided updated guidelines for neonatal pain management including accurate pain assessments by use of validated pain scales.

Objective: This QI project compares a non-validated pain assessment tool or PAT (being used in the NICU until 2017) to NPASS (Neonatal Pain and Sedation Score, a recently introduced validated pain scale). Additionally, we aimed at educating NICU staff on using NPASS and identifying and addressing knowledge gaps.

Design:

“SMART” aim statements:

“Compare PAT with NPASS for compliance, reliability and ease of use as perceived by NICU nurses over a period of one year.”

“Identify and address knowledge gaps about neonatal pain among NICU nurses over a period of one year”.

Plan/Do: A twelve-question preintervention survey determined existing knowledge and perception of PAT. After initial survey, education was provided regarding use of NPASS and current AAP recommendations. The project was carried out in the UMC NICU between Dec 2017 – Dec 2018. Survey was repeated after NPASS had been used for 1-2 months.

Study: Survey results were shared during inter-disciplinary team meetings.

Act: Modifications for the upcoming PDSA cycles were discussed.

Results: Improved compliance in use of pain assessment scale (from 89% to 97%) was seen. Providers noted increased reliability with NPASS (61.7% to 71.4%) and found it easier to use (76.5% to 89.7%). There was an increase in correct identification of painful procedures (70.5% to 96%) and use of non-pharmacological measures (utilization of breast milk, skin-to-skin care, massage and decreasing environmental stimulation). Sixty-three percent of the nurses identified a need to further improve pain control practices in the NICU. Half of the nurses recognized a change in practice since educational interventions and use of NPASS.

Conclusions: Based on the results of this PDSA cycle, a review of the current pain policy is recommended. Upcoming PDSA cycles will include periodic educational reinforcement and identifying ways to change clinical practice by utilization of current knowledge.

Cheng, Daniel, MD

[General Surgery]

COMPARING TREATMENT PATTERNS OF HEPATOCELLULAR CARCINOMA AT ACADEMIC CENTERS AND NON-ACADEMIC CENTERS WITHIN THE MOUNTAIN REGION

Daniel Cheng; Charles St. Hill; Chad Cross; Jennifer Baynosa; Greg Calfee, Shelley Williams, Daniel Kirgan

Background: Treatment patterns for hepatocellular carcinoma (HCC) vary across the nation, and there is currently no literature looking specifically at the Mountain Region (MR). Our objective is to explore differences in survival and treatment approaches between academic centers (ACs) and non-academic centers (NACs), which may contribute to disparities.

Methods: Using the National Cancer Database (NCDB), we identified 6,500 HCC cases from 2004 to 2015 in the MR (AZ, CO, ID, MT, NM, NV, UT, WY). Of these cases, 3,494 (53.8%) were treated at NACs and 3,006 (46.2%) were treated at ACs. Cox-proportional hazard regression and binary logistic regression was performed to analyze survival, compare treatment patterns, and examine the effect of facility type on margin status. We compared surgical (including local tumor destruction), systemic, and radiation treatment patterns.

Results: There were significant differences in age, gender, race, ethnicity, Charlson/Deyo Score, NCDB Analytic Stage Group, Great Circle Distance, and Primary Payer between AC and NAC cases ($p < 0.01$). Regression analyses were performed to control for these differences. Treatment at ACs, compared to NACs, was associated with improved survival (HR 0.61, $p < 0.01$). At ACs, the odds of receiving treatment or being in active surveillance were 2.03 times higher ($p < 0.01$). The odds of receiving or being recommended surgical treatment or systemic treatment were 2.31 times higher and 1.85 times higher, respectively ($p < 0.01$). The odds of receiving radiation were 0.41 times lower ($p < 0.01$). After controlling for surgical approach, the odds of positive margins were 0.23 times lower at ACs compared to NACs ($p < 0.01$).

Conclusions: Treatment at an AC is associated with improved survival, increased odds of receiving or being recommended surgical treatment and systemic treatment, and improved surgical margin status. Although further study is warranted, efforts should be made to improve patient access to ACs in the MR.

Chiang, Jonathan, DO
[Family Medicine]

THERE CAN BE SUCH A THING AS A FREE CLINIC- AN INTRODUCTION FOR IMPLEMENTATION OF A RESIDENT AND STUDENT-RUN FREE CLINIC FOR THE LAS VEGAS ADOLESCENT AND YOUNG ADULT UNINSURED COMMUNITY TO IMPROVE MENTAL HEALTH OUTCOMES

Background/Introduction: In 2017 the UNLV School of Medicine Family Medicine Residency partnered with Volunteers in Medicine of Southern Nevada (VMSN) to form a free clinic called Community Adolescent and Young Adult Clinic (CAYAC). Eligible patients are ages 18-30, have no medical insurance, and a household income lower than 200% of 2015 Federal Poverty Level. CAYAC occurs monthly and during the study had ten patients per session. All CAYAC patients are given a PHQ-9 questionnaire to fill prior to their appointment to screen for depression per the United States Preventative Services Task Force (USPSTF) screening for depression guidelines (Grade B)¹. Patients with a positive screen are offered to see a UNLV Master of Social Work student to discuss resources outside of health care. Patients with positive screens also are encouraged to return for further evaluation/treatment of mental health concerns.

Objective: Our pilot study is establish a baseline of PHQ-9 scores for future quality improvement studies. We hypothesized our population would have positive PHQ-9 scores due to lack of access to health care.

Design/Methods: We designed a retrospective study to analyze de-identified PHQ-9 scores. We evaluated charts from November 15, 2017 to September 30, 2018 (ten clinic sessions, 100 patient maximum) on VMSN protected computers. Data was imported utilizing a limited data set onto a spreadsheet.

Results: Out of 100 patients, 42 patients either did not complete a PHQ-9 or not show up to their appointment. 15 subsequent PHQ-9 forms completed, leaving a total of 43 initial PHQ-9 questionnaires. Our average score was 5.39 (range 0-23). Positive scores (defined as a score of 5 or above) were seen in 18/43 patients (40.9%).

Next Steps/Conclusions: Our study population met criteria to continue evaluation for depression. We hypothesize having limited access to health care is a leading cause of positive screens. A potential next study by the UNLV Family Medicine Residents is evaluate if CAYAC improved PHQ-9 scores and which intervention improved outcomes the most.

Claman, Barry, MD

[Plastic Surgery]

SELECTIVE DRAIN PLACEMENT IN TRANSMASCULINE TOP SURGERY: AN 8-YEAR EXPERIENCE

Barry Z Claman MD, Shawna R Kleban MD, John Brosious, MD, Zol Kryger MD, and Gil Kryger, MD.

Background/Introduction: Gender-affirming and oncologic mastectomies differ with respect to the extent and composition of tissue removed. In both procedures, breast drains are typically placed to prevent fluid accumulation and resulting sequelae. Surgeons will often forego the placement of drains in double-incision top surgery; However, no literature has been published to date that indicates what effect, if any, drain placement has on complication rates following gender-affirming mastectomy.

Objective/Testable Hypothesis: The primary purpose of this study is to assess whether there is a relationship between the practice of selective intraoperative drain placement and the development of complications in patients undergoing double-incision transmasculine top surgery. The secondary purpose is to characterize and compare the complication profiles associated with drain placement and non-placement.

Design/Methods: A retrospective review of 191 consecutive patients undergoing double-incision gender-affirming mastectomy involved dividing the sample into two groups according to whether they underwent surgery before or after the practice of selective drain placement was instituted at a single institution. The former group invariably received drains (n = 35), whereas the latter group received drains only when chest liposuction was concurrently performed (n = 156). A second analysis divided the latter group into two sub-groups – patients who received drains (n = 90) and those who did not (n = 66). Hematoma, seroma, and surgical site infection/abscess rates were then compared between groups.

Results: Complications were seen in 28 of the 191 patients (14.7%), with 4 of the 28 patients (2.1%) requiring reoperation. No significant difference in complication rate was observed between the selective (23 of 156 patients, 14.7%) and invariable drain groups (5 of 35 patients, 14.3%). No significant difference in complication rates was observed between sub-groups in the selective-drain group, in which complications were seen in 12 of the 90 patients who received drains (13.3%) and in 11 of the 66 patients who did not (16.7%). The complication profile, characterized by the rates of the three investigated complication types were not significantly different between groups in either analysis.

Conclusions: Our results suggest no association between net or individual complication rates and drain placement. This finding supports the notion that selective drain withholding is a safe practice that warrants further study.

Danscuk, Nicolas, DO

[General Surgery]

CASE REPORT: A RARE MORGAGNI DIAPHRAGMATIC HERNIA IN AN ADULT

Abstract:

Congenital diaphragmatic hernias occur in about 1 per 2,500 live births, comprising roughly 8% of all congenital anomalies. Most cases (85%) occur through a posterior-lateral defect of the diaphragm, known as a Bochdalek hernia. More rarely, they can occur through the substernal foramen of Morgagni, which constitute about 2% of all diaphragmatic hernias. These hernias occur when the diaphragm fails to fuse with the sternum or anterior chest wall, and have the potential to cause significant morbidity. We present a case of a 39-year-old female with complaints of one year of increasing exercise intolerance and shortness of breath. This patient was found to have an elevated right hemi-diaphragm on chest x-ray with subsequent CT of the chest/abdomen/pelvis demonstrating a large right anterior diaphragmatic hernia containing small and large bowel. We performed a repair of her diaphragmatic hernia via a midline laparotomy incision with reduction of her intestinal contents, excision of her hernia sac, and primary repair of her diaphragmatic hernia with retro-rectus mesh placement. Her hernia occupied roughly 50 percent of her right thoracic cavity and was noted to cause compression and collapse of her right lower lobe of her lung. Pre-operative CT imaging also demonstrated an apparent lack of ascending colon peritoneal attachments, with her cecum and ascending colon within her thoracic cavity, concerning for a possible malrotation. However, no signs of malrotation were seen at time of surgery. Clinical suspicion and appropriate radiological images and interpretation help diagnose congenital diaphragmatic hernias, which can present later in adulthood. Surgical repair often has excellent outcomes with resulting improvement in functional status and daily wellbeing.

Davis, Sean, MD

[Orthopaedic Surgery]

RISK FACTORS FOR THE DEVELOPMENT OF A SYMPTOMATIC CONTRALATERAL DISCOID LATERAL MENISCUS

Introduction: The purpose of this study was to evaluate potential risk factors that may lead to the development of a symptomatic discoid meniscus requiring arthroscopic saucerization in adolescents with a history of a symptomatic discoid meniscus involving the contralateral extremity.

Objective: To determine which risk factors, if any exist for a patient to develop bilateral symptomatic discoid menisci requiring operative intervention.

Methods: We retrospectively reviewed 126 patients with an arthroscopic diagnosis of discoid meniscus to evaluate for the presence of a contralateral discoid meniscus. Statistical analysis was performed to identify potential risk factors that would predispose patients to develop contralateral symptomatic discoid meniscus requiring operative intervention.

Results: Of the 126 patients identified with discoid lateral meniscus 21 patients had a symptomatic contralateral discoid meniscus that required operative intervention. Patients age less than 10.8 and patients active in athletics, particularly basketball, resulted in a higher risk for developing a symptomatic contralateral discoid meniscus requiring operative intervention.

Conclusions: Younger patients participating in athletics that present with a symptomatic discoid lateral meniscus are at increased risk for developing symptoms requiring operative intervention in the contralateral knee.

Diego, Jose, MD
[General Surgery]

PARASTOMAL HERNIA CAUSES GASTRIC OUTLET OBSTRUCTION

Jose Diego, Terry Lewis
Department of Surgery
University of Nevada Las Vegas, School of Medicine

Background: Gastric outlet obstruction (GOO) is a syndrome caused by mechanical obstruction and typically presents as abdominal pain and vomiting. The most common etiology of GOO is malignancy. GOO secondary to a parastomal hernia is rare. Few reports are found in the literature; 12 in total. Those managed non-operatively are less, the first being reported in 2018.

Case Summary: 38 year-old female with history of complicated diverticulitis status post elective sigmoidectomy requiring conversion to end colostomy who subsequently develop a parastomal hernia, presented to the Emergency Department with two days of increasing emesis and increasing bulge at the site of her stoma. Computed Tomography scan revealed the stomach had herniated through the parastomal hernia causing gastric outlet obstruction. The herniated stomach was successfully reduced with a nasogastric tube placed to low continuous suction. The patient's diet was advanced. Her GOO resolved and she was discharged the following day.

Reason case selected: Rare etiology of gastric outlet obstruction.

Conclusions: Gastric outlet obstruction secondary to parastomal hernia is a very uncommon presentation. Many are managed operatively. However, it can also be managed non-operatively with nasogastric decompression.

Dunn, Joy, MD
Tuano, Krystle, MD
[General Surgery]

CHOLECYSTOCOLONIC FISTULAE AND PREOPERATIVE PLANNING

Background (Clinical Relevance):

Cholecystocolonic fistulae (CCF) are complications of chronic cholecystitis that if known preoperatively, can guide operative planning and pre operative discussions with patients as the procedure can vary between the simple resection of the tract with a cholecystectomy to also including a colonic resection. Chronic diarrhea is common symptom with CCF. With the low incidence, there are no accepted recommendations for work up, despite the low sensitivity, most are still diagnosed intra operatively, which does not allow for appropriate preoperative counseling.

Case Summary:

64 year-old female presented with complaints of persistent diarrhea for 3 weeks without a history of a previous colonoscopy. She was diagnosed with cholelithiasis one year ago. A CT scan was performed in the emergency department, noting air within the gallbladder along with areas of thickened colon at the hepatic flexure. With these findings, there was a concern for a cholecystocolonic fistula, which guided additional preoperative testing. The patient underwent a colonoscopy, which did not reveal a fistulous tract. Long discussions were had with the patient about the necessity to resect the fistula, which may include a colon resection and a colostomy concurrently with a cholecystectomy, important factors that may affect post-operative quality of life and need for further interventions. Upon laparoscopy, the colon was well adhered to the edge of the liver, making a laparoscopic dissection difficult and we converted to an open cholecystectomy to full resect the fistulous tract without a colon resection.

Reason case selected:

Acute diagnoses are not solely based on imaging but require a careful history and review of the obtained imaging, to establish a broad differential diagnosis. Recognizing specific findings within a patient's history and within the imaging is crucial to guide a patient specific work up to allow for the appropriate discussion of surgical options to optimize treatment.

Conclusion:

CCF should be considered in the differential for chronic diarrhea with a history of cholelithiasis or CT findings concerning for emphysematous cholecystitis as this will allow for the appropriate preoperative testing and counseling of the possible surgical options. It is crucial to discuss intra operative possibilities in a preoperative setting to appropriately obtain informed consent.

Estrada-Munoz, Oscar, MD

Tuano, Krystle, MD

[General Surgery]

STANDARDIZATION OF DISCHARGE INSTRUCTIONS AND EFFECTS ON POST-OPERATIVE CARE

Background/Introduction

Post-operative instructions are essential to prevent readmissions, and to provide our patients with necessary information following surgery, at the time of discharge. A successful transition to discharge requires adequate education about the key elements of care, such as: information regarding the surgery performed, scheduled follow-up visits, wound care, diet recommendations, discharge medications, and return precautions. A consistent, common, and high-quality template for post-operative instructions should be included in the electronic medical record, in order to enable a safe transition to home, improve post-operative care and aid in preventing re-admissions.

Design/Methods

A standardized discharge instruction template was created, in conjunction with surgical faculty, to be included in the After Visit Summary. This template was translated into Spanish, with the assistance of the UMC Interpretive Services, and both versions will be distributed to all surgery residents. The template includes the following: surgery performed, follow-up appointment, diet, activity, wound care, medications, and return precautions. To evaluate the efficacy of this standardized template, the patient will be given a short survey at their first post-operative visit at the UNLV Department of Surgery Clinics. The survey will include questions about their understanding of the instructions, and the ease of instructions.

Patients given the standardized discharge instructions will also be monitored prospectively via chart review to evaluate post-operative complications and compliance with follow-up. A retrospective review of re-admissions related to conditions covered in post-operative instructions, specifically: post-operative ileus, surgical site infections, and patient compliance with follow-up will be completed in order to provide a baseline for comparison with the prospective data obtained.

Results

Retrospective chart review will be performed to assess the re-admissions related to conditions covered in post-operative instructions, specifically: post-operative ileus, surgical site infections, and patient compliance with follow-up, and compared to prospective results collected.

Next steps/Conclusions

Using the prospective data collected, a cost analysis for re-admissions and utilization of UMC Interpretive Services can be done to further identify the efficacy of standardized discharge instructions in both English and Spanish. The clinic survey can help identify key areas in the discharge instructions that can further optimize the level of understanding of postoperative care to aid in preventing readmissions and improve compliance.

Francis, Katie, MD
[General Surgery]

A STANDARDIZED APPROACH TO THE USE OF WATER-SOLUBLE CONTRAST AS A DIAGNOSTIC TOOL IN ADHESIVE SMALL BOWEL OBSTRUCTION

*Daniel Cheng, MD, MPH; **Katie Francis, MD**; Krystle Tuano, MD; Frances Phang, MD; Charles St. Hill, MD; Daniel Kirgan, MD*

Introduction: The treatment for adhesive SBO (ASBO) has historically been nasogastric tube (NGT) decompression and/or operative intervention, but the timing of such interventions varies widely. The use of a water-soluble contrast has been studied as a tool to aid in the identification of partial obstructions, but has not seen widespread use. Through a thorough review of the literature, we aim to develop a standardized approach that reflects the optimal use of water-soluble contrast in the management of ASBO.

Methods: Utilizing the US National Library of Medicine National Institutes of Health MEDLINE database, we performed searches for Medical Subject Headings: “Small bowel obstruction”, “water-soluble contrast”, “intestinal obstruction”, “Gastrografin”, and “Adhesive small bowel obstruction”. We prioritized recent controlled clinical trials, prospective case series, and meta-analyses. We identified 6 major clinical studies and meta-analyses from 1998 to 2015 which analyzed the use of water-soluble contrast as a diagnostic tool to identify partial SBO.

Results: The traditional practice of waiting 48 hours before any intervention is unnecessary and only prolongs hospital stay and patient discomfort. All patients should be properly resuscitated and decompressed with a NGT. After ruling out any indications for urgent surgery, patient should obtain a high quality CT scan with PO and IV contrast to rule out other urgent etiologies. Water-soluble contrast should be administered shortly after admission. The available evidence demonstrates that water-soluble contrast has excellent diagnostic value in predicting resolution of SBO if contrast is seen in the colon at 24 hours. While studies looked at examining the passage of contrast to the colon with plain films at anywhere from 4 to 16 hours, the strongest evidence remains for examination at 24 hours. There is a demonstrable increase in false negative rate for abdominal films taken before 24 hours, which would ultimately subject patients to unnecessary surgeries. There is a population of patients that do pass contrast before 24 hours, which would allow them to progress sooner.

Conclusions: A standardized approach to the use of water-soluble contrast will more likely be adopted by healthcare institutions and practitioners, and will decrease patient discomfort, length of stay, and complications.

**Freedman, Colin, MD
[Psychiatry]**

THIS “PARASITE” KEEPS “BUGGING” ME: A CASE OF DELUSIONAL PARASITOSIS

Authors: Colin Freedman M.D., Ry Reyes D.O.

Background:

Delusional parasitosis is a disorder characterized by a fixed false belief that one is infested with a living organism (e.g., parasites, insects). In order to meet criteria for diagnosis, an individual must be operating under the control of the construct for greater than a month and the disturbance is not better explained by a medical condition or substance abuse. Such individuals are often reluctant to seek psychiatric intervention making treatment a challenge.

Case Summary:

The patient is a 58-year-old Caucasian female with no reported psychiatric history who presented to UMC hospital complaining of a supposedly worsening scabies infection. The patient reported that she had been exposed to mange from her deceased dog. She had previously visited her primary care provider after several days of itching, rash, and sores around her ears, leading to a presumptive diagnosis of a scabies infection. However, her condition continued to worsen prompting the patient to present to UMC hospital for additional evaluation where extensive work up was unremarkable. Otolaryngology and Infectious Disease were consulted with both services concluding there was no evidence of parasitic infection and the sore formation was likely secondary to excoriation. Nevertheless, the patient continued to believe she suffered from parasitic infection. Consequently, the psychiatry team was consulted to explore a possible underlying mental illness. The patient was diagnosed with delusional parasitosis and offered low dose Risperdal which she rejected. The patient then completed a course of IV antibiotics to treat a soft tissue infection and was later discharged continuing to believe that she was suffering from a scabies infection.

Reason case selected:

The case was selected due to the low incidence of the disorder, marked distress patients sometimes experience and strain on healthcare resources. This case also highlights some of the difficulties encountered in management.

Conclusions:

Delusional parasitosis is challenging to treat given the patient’s lack of insight into the illness and subsequent opposition to treatment. Providers must adopt a non-judgmental approach to build a therapeutic alliance that is collaborative in nature.

George, Akeem, MD
[Pediatrics]

TUBERCULOUS MENINGITIS AND DIAGNOSTIC DIFFICULTY IN A 2-YEAR-OLD: A CASE REPORT

The burden of tuberculosis in the United States continues to be among the lowest in the world, and globally the incidence continues to fall yearly. Nevertheless, tuberculosis continues to be a leading cause of death worldwide and efforts to end this disease requires ongoing vigilance in the ability to recognize and treat this infection. Extrapulmonary manifestations of the disease are more common in children, and roughly 1% of all pediatric cases present with tuberculous meningitis (TBM). We present the case of a 2-year-old female, who presented to the emergency department with acute onset of unsteady gait after one month of intermittent vomiting, fever, and headaches. The child was previously evaluated by her primary care provider twice, with care for a presumed viral infection and later two courses of antibiotics for strep pharyngitis failing to improve symptoms in the interval. A CT brain w/o contrast showed a severe communicating hydrocephalus with diffuse cerebral sulcal effacement. MRI demonstrated diffuse basilar leptomeningeal enhancement and communicating hydrocephalus with small infarcts of perforating vessels and edema in the midbrain and upper pons. The child required intubation and neurosurgical intervention for placement of an external ventricular drain. Lumbar puncture confirmed meningitis with elevated protein, low glucose, and pleocytosis with lymphocytic dominance. A PPD was found to be positive, and ultimately the patient's grandmother was confirmed to have active cavitary pulmonary TB with positive cultures for *Mycobacterium tuberculosis*. Interestingly the patient was found to have negative serial AFB smears of CSF, CSF *M. tuberculosis* PCR, and AFB cultures over the one-month hospitalization prior to out of state transfer for ongoing management and inpatient rehab for severe neurological impairments. This illustrates the difficulty in establishing a diagnosis in these cases without a high index of suspicion. TBM is associated with high rates of mortality and morbidity due to often devastating complications within the central nervous system. Early diagnosis can be a challenge but the significance of prompt treatment is essential to improving outcomes.

George, Akeem, MD

[Pediatrics]

NEPHROTIC SYNDROME CONFUSED WITH SCROTAL CELLULITIS: A CASE REPORT

Nephrotic syndrome is one of the more common kidney diseases of childhood. Disease-associated infectious, cardiovascular, hypovolemic, and renal consequences are associated with high morbidity and mortality when present. The annual incidence of nephrotic syndrome in healthy children is estimated at two to seven new cases per 100,000 children younger than 18 years of age. This disease can impact children of any age, but most commonly is seen among school-aged children and adolescents. We describe the case of a 3-year-old patient, transferred from an outside hospital for management of scrotal cellulitis. The patient arrived afebrile with normal inflammatory markers, but was noted to have a significant leukocytosis ($21 \times 10^9/L$) and a testicular ultrasound concerning for scrotal cellulitis per the outside facility. Initial physical exam noted significant scrotal edema that was warm to touch with associated erythema and scattered papules extending into the buttocks and perianal area. The patient was started on IV antibiotics prior to transfer, and was admitted to the general pediatric floor for ongoing IV treatment with clindamycin. Over one hospital day the child developed significant bilateral periorbital swelling and pitting lower extremity edema. Additional investigation revealed normal renal function, greater than 300 protein on urinalysis, and a serum albumin of 0.8. Normal complement levels and hyperlipidemia was also noted (triglycerides 306, cholesterol 407), and blood pressure remained normal. Pediatric nephrology was consulted and the patient was started on prednisone, salt restriction, and serial albumin infusions. Peripheral edema and proteinuria resolved with treatment for presumed minimal change nephropathy and the overlying rash improved with conservative management for moderate candida diaper dermatitis. Discharge was achieved on hospital day three. This case highlights the ability to clinically identify features of idiopathic minimal change disease, and the high success rate of appropriate treatment. Classically nephrotic syndrome is described with a recognizable constellation of signs and symptoms that increase clinical suspicion, nonetheless significant variability and overlap with other pathologic processes can lead to both a delay in diagnosis, increasing the potential for life-threatening complications.

Gray, Aaron, MD
[Orthopaedic Surgery]

TIME TO CASE CLOSURE OF OCCUPATIONAL HAND INJURIES

Gray, Aaron, MD, PhD; Young, Colby, MD

Introduction: It is universally recognized that patients sustaining orthopedic injuries and receiving treatment under a workers' compensation claim tend to do more poorly in terms of recovery, function, and pain than similar injuries treated unattached to such claims. Current literature fails to provide guidance on expectations, specifically final disposition and treatment duration, to patients and physicians in regard to occupational injuries involving the hand and wrist.

Hypothesis: We hypothesized that case length, the amount of time between injury and case closure, among hand injuries treated under workers' compensation differs between injury type, treatment received, and case disposition (i.e. closure with return to work and no restrictions (RTW) versus requiring functional capacity evaluation (FCE)).

Methods: All cases treated under workers' compensation by a single fellowship-trained hand surgeon during 2016 were retrospectively reviewed. Demographic, injury, and treatment data were extracted. Independent variables included age, sex, BMI, comorbidity, occupation, injury type, and treatment modality. Dependent variables included treatment duration and case disposition. Univariate statistics were calculated for all independent variables. Comparison between groups was accomplished with ANOVA. Multivariate analysis, in the form of linear and logistic regression, was performed to predict case length and disposition. Efficient models were calculated using forward, backward, and stepwise methods. Statistical significance was set at $p < 0.05$.

Results: 452 cases were included for analysis. 78 (17.3%) were lost to follow up, 24 (5.3%) required an FCE, and 348 (77%) RTW. Overall average case length among FCE and RTW

cases was 150.6 days (SD=156.4). RTW cases averaged 138.4 days, while those requiring FCE averaged 331.5 days ($P<.0001$). Crush injuries (76.8 days) and fractures (111.8 days) had significantly shorter time to closure ($P<.0001$). Cases of soft tissue injury were significantly longer at 192.2 days ($P<.0001$). Multivariate linear regression suggested treatment received (injection $b=79.9$, therapy $b=34$, surgery $b=106.9$ days, $P<0.05$) and injury type (nerve compression $b=253.6$, soft tissue injuries $b=53.5$ days), significantly influenced case length ($R^2=0.3154$).

Conclusions: Cases requiring FCE were open over twice as long as those resulting in RTW. Independent of disposition, nerve compression, soft tissue injury, and the need for therapy, surgery, or corticosteroid injection predicted longer case length.

Hom, Katherine, MD
[OBGYN]

CONTROVERSIES IN SYPHILIS SCREENING: A PARADIGM SHIFT IN
PREGNANT VERSUS NON-PREGNANT PATIENTS TESTED WITH A REVERSE
SEQUENCING TECHNIQUE

Authors: **Hom, Katherine**, Jackson, David, Matsunaga Kirgan, Marsha

Introduction: Vertical transmission of syphilis is responsible for fetal disease, stillbirth, and serious complications in surviving newborns. The prevalence of syphilis in Las Vegas is high, prompting use of universal rapid screening processes when patients present to Labor and Delivery. Since October 17, 2016, a “traditional” two-step non-treponemal screening algorithm (initial RPR followed by direct testing) has been replaced by a three-step, “reverse sequence” treponemal screening process (RSTS) of direct treponemal antibody with reflex to RPR and, if discordant, confirmatory Fluorescent Treponemal Antibody (FTA).

Objective: The purpose of this study was to determine the impact of reverse sequence screening in the pregnant population at a single academic center; and to determine if this new screening process warrants further modification to optimize results.

Design/Methods: After IRB approval, a retrospective review was performed comparing test results of traditional screening (Jan 2015 to Oct 2016) versus RSTS (Oct 2016 to Feb 2019) in Labor and Delivery (L&D). True positives, false positives, and equivocal results on initial testing were identified using confirmatory testing as a gold standard. A control group of non-pregnant females screened in the emergency department (ED) during the same time period was established.

Results: There were 7,698 female patients screened during the study time period (964 in L&D and 6,734 in the ED). Of these, 168 patients (2.2%) had reactive screens. Following introduction of RSTS, L&D reactive screens increased from 0% (0/104) to 3.2% (28/860) ($p=0.063$), while ED reactive screens increased from 0.77% (25/3227) to 3.3% (115/3507) ($p=0.001$). When comparing RSTS results for pregnant and non-pregnant patients, there was

no difference in frequency of true positive testing or false negative RPR between groups. However, the false positive rate was 21.4% (6/28) in L&D compared to 4.3% (5/115) in the ED ($p=0.0077$).

Conclusions: When compared to a non-pregnant population, pregnant patients appear to have a higher incidence of false positives when utilizing RSTS. This may lead to patient anxiety, delay in diagnosis, and potentially unnecessary treatment. Modifications to this screening algorithm may be needed in order to improve clinical application in pregnancy.

Hong, Christopher, DO
Mattu, Ramandeep, MD
[Psychiatry & Behavioral Development]

MANAGEMENT OF BENZODIAZEPINE WITHDRAWAL IN PREGNANCY WITH CO-OCCURRING OPIOID ABUSE

Background (clinical relevance):

There is no safe-level of benzodiazepine usage during pregnancy. Our population has a high utilization of benzodiazepines as well as recreational drugs, some of whom become pregnant. Yet, there is little guidance in management of benzodiazepine withdrawal in pregnant women and even less so in women with co-occurring opioid abuse. This case is of a patient who presented for methadone conversion with co-occurring benzodiazepine abuse. The psychiatry team was consulted for recommendations regarding benzodiazepine withdrawal management.

Case Summary:

30-year-old G6P2-0-3-2 female with longstanding history of IV drug abuse who was admitted for methadone conversion. Patient endorsed that she snorts 2.5g of heroin daily, frequent but vague Xanax usage, and valium 10mg p.o. b.i.d.. Later, patient endorsed much greater Xanax usage than initially stated, but remained vague. Patient also reported frequent “Krokodil” usage. Patient then left prematurely against medical advice on day 5, relapsed, and returned 5 days later. At that time, she reported using 1-3 bars of Xanax, along with 2-3 pills of 10mg Valium and an undescribed amount of Heroin daily for the 5 days between hospitalizations. Patient started on Valium taper, starting at 10mg PO q6H, with Lorazepam 1mg PO q6h PRN administered according to CIWA-B score. Owing to numerous setbacks due to patient noncompliance and ingestion of outside drugs, taper required 17 days. She remained stable without significant withdrawal symptoms for 48 hours and was discharged on hospital day 19.

Reason case selected (unusual case etc.):

Experience in treating benzodiazepine withdrawal during pregnancy with co-occurring opioid abuse is limited due to infrequent presentation and ethical concerns regarding studies in these populations.

Conclusions (justified by information submitted in case report):

There are no structured guidelines for management in this population. We propose guidelines of management: Inpatient management by obstetrics, daily fetal monitoring, use of a long-acting

benzodiazepine (such as diazepam) in the first and second trimester which is tapered, and use of CIWA-B with quick-acting benzodiazepine (such as lorazepam) for breakthrough withdrawal symptoms.

Horner, Lance, MD
[General Surgery]

ASSOCIATION OF ANGIOTENSIN-CONVERTING ENZYME INHIBITORS WITH INCREASED MORTALITY AMONG PATIENTS WITH ISOLATED SEVERE TRAUMATIC BRAIN INJURY

Joshua S. Catapano; Alistair Chapman; Mathew Dull; **Lance Horner**; Jakub Godzik; Scott Brigeman; Clinton Morgan; Alexander Whiting; Minggen Lu; Joseph Zabramski; Douglas Fraser

Background: Traumatic brain injury (TBI) is associated with one-third of all deaths from trauma. Preinjury exposure to cardiovascular drugs may affect TBI outcomes.

Angiotensin-converting enzyme inhibitors (ACEIs) exacerbate brain cell damage and worsen functional outcomes in the laboratory setting. β -blockers (BBs), however, appear to be associated with reduced mortality among patients with isolated TBI.

Objective: Examine the association between preinjury ACEI and BB use and clinical outcome among patients with isolated TBI.

Methods: A retrospective cohort study of patients admitted to an academic level 1 trauma center with isolated TBI between January 2010 and December 2014 was performed. Isolated TBI was defined as a head Abbreviated Injury Scale (AIS) score ≥ 3 , with chest, abdomen, and extremity AIS scores ≤ 2 . Preinjury medication use was determined through chart review. All patients with concurrent BB use were initially excluded. In-hospital mortality was the primary measured outcome.

Results: Over the 5-year study period, 600 patients were identified with isolated TBI who were naive to BB use. There was significantly higher mortality ($P = .04$) among patients who received ACEI before injury (10 of 96; 10%) than among those who did not (25 of 504; 5%). A multivariate stepwise logistic regression analysis revealed a threefold increased risk of mortality in the ACEI cohort ($P < .001$), which was even greater than the twofold increased risk of mortality associated with an Injury Severity Score (ISS) ≥ 16 . A second analysis that included patients who received preinjury BBs ($n = 98$)

demonstrated slightly reduced mortality in the ACEI cohort with only a twofold increased risk in multivariate analysis (P=.05).

Conclusions: Preinjury exposure to ACEIs is associated with an increase in mortality among patients with isolated TBI. This effect is ameliorated in patients who receive BBs, which provides evidence that this class of medications may provide a protective benefit.

Jacovetty, Erica, MD

[OBGYN]

SURGICAL TECHNIQUES AND OUTCOME OF PERIPARTUM HYSTERECTOMY AT A UNIVERSITY HOSPITAL

Erica Jacovetty, MD and David Jackson, MD

Introduction: Peripartum hysterectomy is a relatively rare procedure with a high potential for perioperative complications. Due to the scarcity of this procedure, there are few studies to determine the modern intra-operative factors that contribute to morbidity of this procedure. University Medical Center of Southern Nevada functions as a referral center with a relatively large number of peripartum hysterectomies.

Objective: Our primary goal was to evaluate incidence and outcomes of peripartum hysterectomy, and to determine if the utilization of consultation with sub-specialty providers and/or use of advanced surgical instruments for vessel coagulation (Ligasure, Echilon stapler) have a measurable impact on length of surgery, blood loss, need for transfusion, and post-operative complication frequency.

Methods: After IRB approval, we performed a retrospective case series of peripartum hysterectomies performed at University Medical Center from Jan 1, 2013 thru March 30, 2018. The incidence, indications, surgical techniques and operative outcomes were reviewed. The operative characteristics of patients with use of exclusive traditional clamp and sutures-ligation technique were compared to patients with use of traditional technique plus advanced vessel sealing devices. Total estimated blood loss, operative time, transfusion utilization, ICU care and post-operative complications were compared between the two surgical techniques.

Results: 25 cases of peripartum hysterectomy with complete data were reviewed. We compared 11 hysterectomies utilizing advanced vessel sealing techniques versus 14 hysterectomies performed with traditional clamp and suture technique. The average operating time was substantially decreased in surgeries using the vessel sealing devices (mean 91.2 +/- 43.6 min vs 175.7 +/- 100.6 min; P = 0.016). Estimated blood loss was also significantly lower when vessel sealing devices were utilized (mean 1464 +/- 602cc vs 2782 +/- 1805cc; P=0.03).

Blood loss was ≥ 2500 cc in 27.3% of cases utilizing advanced instruments versus 42.9% of cases using traditional techniques.

Conclusions: The ability to use advanced vessel sealing devices has the potential to decrease morbidity associated with peripartum hysterectomy by facilitating decreased operative times with lower blood loss. Further study into optimal use of these technologies is needed.

Jang, Eun Ji, MD

[Pediatrics]

FULMINANT INFECTIOUS MONONUCLEOSIS AS A CLINICAL MANIFESTATION OF X-LINKED LYMPHOPROLIFERATIVE DISEASE IN A HEALTHY 15-YEAR-OLD MALE.

Jang, Eun Ji., Natarajan, Rupesh Kumar., DiJohn, David., Alhushki, Waseem.

Background:

Epstein-Barr Virus (EBV) infection is associated with a variety of lymphoproliferative disorders. One such rare entity is X-linked lymphoproliferative disease (XLP) which occurs often in response to EBV infection. Fulminant infectious mononucleosis (FIM) is the most common clinical manifestation of XLP.

Case Summary:

A 15-year-old obese male presented with 10 days of left upper quadrant pain and intermittent fevers. Laboratory tests showed microcytic anemia, thrombocytopenia, elevated CRP and ESR, elevated PT, PTT, and fibrinogen, but normal transaminases. CT of the chest and abdomen revealed a hepatic mass in addition to diffuse hepatosplenomegaly and generalized lymphadenopathy. Monospot was tested negative, but EBV serological panel showed evidence of past infection, and EBV PCR was positive with >100 copies/mL. Lupus anticoagulant (LA) was positive as well. Interventional radiology-guided liver biopsy showed no evidence of hepatocellular carcinoma or lymphoma and supported findings of focal nodular hyperplasia with a normal alpha-fetoprotein. Unfortunately, the procedure was complicated by bleeding and coagulopathy. Furthermore, the patient developed clinical myocarditis with SVT, borderline LV function, elevated troponin, and BNP. Treatment with IV immunoglobulins, steroids, and Valacyclovir was given, and cardiac functions improved. With strong clinical suspicion for XLP, genetic testing for SH-2D1A mutation was pursued, but was not completed due to insurance problems.

Follow-up at 6 months showed elevated PT/PTT with positive LA and persistent hepatosplenomegaly on PET scan. At 12 months, MRI abdomen showed normal liver and spleen.

Conclusion:

EBV infection causes a dysregulated and exaggerated immune response that results in a systemic fulminant response in patients with XLP. Thrombocytopenia, anemia and hepatic dysfunction are common findings in FIM. Only 60% of individuals with XLP phenotype have the *SH2D1A* mutation, and most affected individuals have no apparent disease prior to presentation. Thus, XLP is not always tested in patient with FIM and is underreported. Moreover, transient presence of LA and prolongation of APTT has been previously reported in EBV infections which could explain the coagulopathy in this patient.

Javaid, Awad, MD

[Internal Medicine]

HEART FAILURE QUALITY IMPROVEMENT AT THE LAS VEGAS VA

Background:

Recently there has been a push to prevent patients admitted with acute decompensated heart failure from being readmitted to the hospital within 30 days. At the Las Vegas VA, we found that congestive heart failure was the most common cause of admission to the hospital from January 2017 to June 2018, as well as the diagnosis with the highest 30-day readmission rate to the hospital.

Objective

The goal of the project was to research the cause of heart failure readmissions at the Las Vegas VA and recommend how they can be reduced.

Methods

We obtained a list of all patients at the VA who were documented as being readmitted within 30 days for heart failure from January 2017 to June 2018. We compared each patient's hospital management to recommendations from the AHA "Get with the Guidelines" quality improvement program, which lays out a specific set of evidence-based benchmarks that should be achieved for patients admitted with heart failure.

Results

We identified 36 patients and analyzed their hospital courses for compliance with AHA quality improvement measures. Ten patients did not receive GDMT for heart failure on discharge, who were not found to have any contraindications. Eight patients did not have an echocardiogram performed in the previous six months who may have benefitted from repeat left ventricular function assessment. Importantly, 16 patients were not seen within one month of discharge from the hospital.

Conclusion

We presented our findings to the chief of medicine at the VA and worked with the systems redesign team to determine how to obtain close follow up for patients. An acute care transition clinic was created for patients at high risk for readmission on discharge and a nurse practitioner was asked to make follow up appointments for all patients before discharge. We also created a heart failure order set in the EMR, so that providers will be more likely to follow AHA recommendations from admission.

We plan to conduct a follow up study to determine whether 30-day readmission rates improve after our recommended measures are instituted. Our objective is to reduce 30-day readmission rates and improve patient morbidity and mortality.

Abbreviations

VA: Veteran's Health Administration

AHA: American Heart Association

GDMT: Guideline directed medical therapy

Kahane, Jacob, MD
[Otolaryngology]

EXIT-TO-ECMO: A LIFESAVING TECHNIQUE IN THE SETTING OF A GIANT OBSTRUCTING CERVICOFACIAL TERATOMA

Jacob Kahane, MD; Lauran Evans, BS; Alycia Spinner, MD, Juan Lehoux, MD; Michael Ciccolo, MD; TJ O-Lee, MD

Introduction: Ex utero intrapartum treatment (EXIT) is a well described method for maintaining maternal-fetal circulation after delivery in the setting of airway obstruction from compressive neck masses. When EXIT to airway is not feasible, EXIT to extracorporeal membrane oxygenation (ECMO) has been described in thoracic surgery case reports. We present a case of a massively compressive midline neck teratoma requiring EXIT-to-ECMO prior to endotracheal intubation.

Case Description: A primigravid 35 year-old-female presented with ultrasound concerning for fetal neck mass. MRI demonstrated a 15cm compressive midline neck teratoma. Preoperative concern for EXIT to airway failure was high. A timely tracheostomy would be precluded in the neonate because of the size of the neck mass. The addition of EXIT to ECMO would allow for a more controlled airway and, if necessary, resection of the mass. The infant was delivered at 32 weeks gestation via EXIT procedure. Immediate attempts at bronchoscopy during umbilical circulation demonstrated a severely compressed airway. As the umbilical circulation weakened, the decision was rapidly made to progress to central ECMO cannulation, as the jugular veins and carotid arteries were severely compressed. This allowed for further efforts at rigid bronchoscopy, which did reveal a severely malacic but patent airway. A 3.5 endotracheal tube was inserted; however, ventilation was reduced secondary to underdeveloped lungs and the compressive nature of the teratoma. Teratoma resection was performed 24 hours later. Once removed, the child's ventilatory status and circulation improved dramatically. The child was weaned from ECMO on day of life 5. Tracheostomy was performed and the child is now tolerating intermittent CPAP.

Discussion: EXIT procedures have allowed for the securing of the difficult neonatal airway while maintaining a supply of oxygenated blood to the newborn. Under ideal circumstances and optimal anesthetic, the EXIT circulation lasts on average less than 10 minutes. The arrival of ECMO has allowed for survival of neonates with disease processes previously considered incompatible with life. We present a case where EXIT-to-ECMO allowed for bronchoscopy and endotracheal intubation followed by controlled resection of a massively compressive teratoma.

Kaminiski, Carter, MD

[General Surgery]

ABDOMINAL COMPARTMENT SYNDROME IN THE BURN PATIENT: A CASE SERIES

D. Cheng, E. Sodomini, C. Kaminski, P. Chestovich, D. Fraser, S. Saquib

Background:

Patients with severe burns are at increased risk for abdominal compartment syndrome (ACS). There is currently no consensus on management of ACS. A close analysis of trends may elucidate opportunities to improve care.

Case Summaries:

Case 1:

72M with 60% total body surface area (TBSA) flame burns. Remained anuric. Within 19 hours, ventilator requirements and peak inspiratory pressures (PIP) rose. At hour 31, pulses were lost; ACLS and DL performed with ROSC. No improvement with resuscitation. At hour 43, patient expired.

Case 2:

27M with 99% TBSA flame burns. Received escharotomies and resuscitation with good urine output. Within 8 hours, PIP rose, requiring paralysis and bilateral chest tubes (CT). At hour 32, had pulmonary decline, oliguria, and bladder pressure (BP) of 44 mmHg. DL was performed with improvement. Clinical status remained poor despite resuscitation. At hour 37, patient expired.

Case 3:

60M with 70% TBSA flame burns. Received escharotomies and resuscitation, but remained oliguric. Within 10 hours, PIP and BP (32 mmHg) rose despite paralysis. At hour 13, DL performed with transient response. Bilateral CT placed. Clinical status continued to decline. Based on patient's wishes, comfort measures initiated and he expired at hour 30.

Case 4:

49M with 75% TBSA flame burns. Received escharotomies and resuscitation, but remained anuric. Within 9 hours, had pulmonary decline and went into cardiac arrest; ROSC was achieved. At hour 16, PIP and BP (28 mmHg) remained high, despite bilateral CT and paralysis. DL performed and CRRT initiated. At hour 17, patient went into cardiac arrest and expired.

Reason cases selected:

At an urban burn center, 5 burn patients developed ACS and underwent decompressive laparotomy (DL) from 2017 to 2018. A review of clinical trends was performed.

Conclusions:

Over-resuscitation in high TBSA burns may increase the risk of ACS, which tends to occur in 48 hours. Pulmonary and renal decline foreshadow ACS, which carries a grim prognosis. Extreme vigilance imperative for earlier detection of ACS. Greater attention to judicious fluid management and earlier interventions may mitigate the need for DL.

Kasar, Prachi, MD
[OBGYN]

**URINARY INCONTINENCE AND PELVIC FLOOR REHABILITATION (PFR):
A RETROSPECTIVE OBSERVATIONAL ANALYSIS**

AUTHORS: Adam Levy, MD; **Prachi Kasar, MD**

BACKGROUND: Urinary Incontinence (UI) affects almost all aspects of everyday life, influencing both the affected individuals as well as their families. It is associated with depression, impaired emotional well-being, isolation, and difficulties in daily activities. Risk factors include age, race, parity, type of delivery, body mass index, hormonal status, use of medications, alcohol, caffeine use, socioeconomic status and co-morbidities, such as hypertension.

OBJECTIVE: Our goal was to evaluate patients who had positive responses on urinary incontinence questionnaires who then underwent pelvic floor rehabilitation in the form of advanced Kegel exercises, electrical stimulation and anal manometry biofeedback.

METHODS: IRB approval allowed for retrospective review of patients who completed six or more weekly pelvic floor rehabilitation treatments at the UNLV School Of Medicine Women's Health clinic, Physiotherapy Division from June 2016 to March 2019. The primary outcome was the patient's subjective evaluation of improvement related to treatment. Secondary outcomes were anal manometry measurements, evoked stimulus responses or bulbocavernosus response to stimulus delay in milliseconds both prior to and after treatment.

ANALYSIS: Continuous variables were evaluated with one tail parametric T- tests. Significance was assessed at P values < 0.05.

RESULTS:

- Women with UI reported cure or significant improvement.
- Pelvic floor rehabilitation treatment resulted in higher anal manometry measurements.
- Pelvic floor rehabilitation increased normal evoked responses on bulbocavernosus response to stimulus.

- Women treated with pelvic floor rehabilitation leaked urine less often and in smaller amounts.
- Adverse effects were not detected in any treated patients.

CONCLUSIONS: Pelvic floor rehabilitation is an effective non-surgical treatment for women with urinary incontinence.

Kent, Tyler, MD

[Orthopaedic Surgery]

MOPED RIDERS LESS LIKELY TO USE HELMETS, MORE LIKELY TO SUSTAIN HEAD, FACE, OR NECK INJURIES THAN MOTORCYCLISTS

Introduction: Legislation requiring helmet use for mopeds is not universal, despite a wide body of research on helmet usage in preventing injuries among motorcycle riders. Furthermore, national and state traffic accident information combine moped and motorcycle accidents into the same category, so it is nearly impossible to distinguish and differentiate the two.

Objective: Our level one trauma center institutional database distinguishes moped from motorcycle accidents, and tracks helmet usage. We will compare rates of helmet usage, and the incidence of head/face and neck injuries among moped and motorcycle accident victims.

Methods: We performed a retrospective database review from 2013-2017 for all motorcycle and moped accidents. Descriptive statistics were calculated for the full sample, and for each vehicle type. Predictors of injury consisting of gender, race, age, vehicle type, injury location, Glasgow Coma Scale, clinical course, and helmet usage were analyzed, and binary logistic regression models were constructed. These models were then used to calculate adjusted odds ratios. All models were deemed significant according the Hosmer-Lemeshow test (all $p > 0.05$).

Results: 1,728 patients met inclusion criteria; 1372 motorcyclists and 356 moped riders. Helmet use for the total sample was 74.4%. However, significantly fewer moped than motorcycle riders wore helmets, 34.4% compared to 84.9%. Overall, moped riders were 1.4 times more likely (95% CI 1.05-1.86) than motorcyclists to sustain a head or neck injury, and 1.61 times more likely (95% CI 1.06-2.46) to sustain an injury to the face. When stratified based on helmet use, those not wearing helmets were 1.69 times (95% CI 1.32-2.15) and 2.06 times (95% CI 1.41-3.01) as likely to sustain head/neck, or face injuries, respectively, when compared to those wearing helmets across both groups.

Conclusion: Moped riders were statistically less likely to be wearing a helmet at the time of injury, and were more likely to sustain injuries to the head, neck, or face. Those not wearing helmets during a motorcycle or moped accident are more likely to sustain injuries to the head, neck, or face.

Khawaja, Harris, MD

[Pediatrics]

NEONATAL PRESENTATION OF OMPHALOCELE, EXSTROPHY, IMPERFORATE ANUS, AND SPINAL DEFECTS

Khawaja H, Natarajan RK, Eldemerdash AE, Reyes D

Introduction:

Cloacal Exstrophy also known as OEIS complex (omphalocele-exstrophy-imperforate anus-spinal dysraphism) is a rare and complicated multi-system congenital malformation that often includes defects gastrointestinal, genitourinary, musculoskeletal and neurological systems. Cloacal Exstrophy occurs in 1 of every 250,000 births and other epidemiological statistics are poorly understood given its rare nature, however, greater concordance among monozygotic than dizygotic twins supports a genetic basis for the disorder. Its pathogenesis is also poorly understood because of the lack of cases but it is hypothesized that cloacal exstrophy most likely results from a very early defect in the closure of the ventral body wall rather than an abnormality related to premature rupture of the cloacal membrane. A series of reconstructive surgeries are performed to allow for bowel and urinary control.

Case Summary:

A 35 week infant male born to a 30 year old G1P0 mother. She had poor prenatal care and only had been seen for an initial visit and was lost to follow up. She had denied genetic studies and had not had any prenatal ultrasound before delivery. The infant was delivered vaginally and it was noted on delivery that the infant had an omphalocele present with bladder and possibly with cecum and terminal ileum interposed between exstrophied hemi-bladders along with an imperforate anus. No obvious spinal deformities were evident on exam. Sex of the baby was unclear but there appeared to be a scrotum with rugae. MRI study of the lumbar spine showed findings consistent with a tethered cord syndrome or intrathecal lipoma. Repair of the cloacal exstrophy was done at 5 days of life. At one month of life, the infant was tolerating full feeds, extubated. Further, reconstructive repair will be necessary.

Reason:

Recognition of the abnormalities comprising OEIS complex and the potential associated abnormalities is important.

Conclusion:

Cloacal exstrophy is a poorly understood congenital malformation because of rarity. Fetal ultrasound and MRI are critical in the diagnosis of OEIS complex, and the findings are reliable.

Kleban, Shawna, MD

[Plastic Surgery]

LIFE SAVING LEECHES? A CASE OF PULMONARY EMBOLISM AFTER FREE FLAP SCALP RECONSTRUCTION

Shawna R. Kleban, MD, Ashish Francis, MD, Barry Z. Claman, MD, John P. Brosious, MD

Background

Many early physicians believed bloodletting via leeches allowed bad humours to escape the body. Throughout history, leeches have been used to treat a variety of ailments, from arthritis to deep vein thrombosis to epilepsy to cancer. Leeches are now commonly used to assist with venous congestion of compromised microvascular free flaps and replanted digits. Hirudin (a direct thrombin inhibitor) is the active substance in leech saliva that causes its anticoagulant and thrombolytic effects.

Case Summary

An 84-year-old female presented for free flap reconstruction of her scalp after MOHS excision of a large squamous cell carcinoma. The patient was progressing well until the flap became venous congested on POD3. Medicinal leeches were started on POD 5 with improved clinical exam. The patient then became hypotensive and tachycardic and there was concern for pulmonary embolism. Bilateral lower extremity venous ultrasounds were negative for DVT and the patient was diagnosed with anemia and urosepsis given acute blood loss from leeching, leukocytosis, and positive UA. The patient's status slowly improved and, prior to discharge, a CT chest was performed for staging purposes. Bilateral pulmonary emboli were identified and the patient was started on anticoagulation and discharged to a rehab facility.

Reason case selected

This case represents a missed pulmonary embolism after free flap reconstruction. There were many distracting factors leading to this misdiagnosis including, normal lower extremity ultrasounds, a positive urinalysis, leukocytosis, and ongoing blood loss from leeching. The patient was treated with leech therapy for flap congestion which may have provided a low-dose systemic anticoagulant effect preventing further progression of her pulmonary embolism. There is a possibility that without leeching her pulmonary embolism could have ultimately been fatal.

Conclusions

A high index of suspicion for pulmonary embolism should exist in all free flap patients with hypotension and tachycardia. Leeching should not be used in place of systemic anticoagulation

for pulmonary embolism. Further study is indicated to assess the systemic effects of hirudin in patients receiving large volume leeching for other indications.

Kleban, Shawna, MD

[Plastic Surgery]

THE MICROSURGERY FELLOWSHIP MATCH: WHAT'S THE COST?

Joshua J. Goldman, MD, **Shawna R. Kleban, MD**, Shelley Williams, MS, Richard C. Baynosa, MD

Background

A significant amount of research exists assessing the selection of plastic surgery fellows from the perspective of fellowship directors. To date, the same level of research has not been conducted on the application, interview, and match process from the applicant perspective.

Objective

This survey aims to assess the cost of the Microsurgery Fellowship Match to the applicant in terms of training time lost and economic cost and to determine the factors applicants consider when forming their rank list.

Methods

A cohort of Microsurgery Fellowship applicants served as a focus group to help design of a 35-question survey assessing applicant perspectives on the Microsurgery Fellowship Match. The survey was generated using Qualtrics and focused on the costs, potential time burdens, and decision-making in the application process. Factors affecting program application choice, interview choice, and rank list were assessed using five-point and ten-point Likert scales; aspects, such as cost and number of interviews, were assessed as interval data and reported as means. This pilot survey was then sent to the cohort of applicants from the focus group (n=5).

Results

The average debt accumulated by the surveyed applicants was \$3100 (range \$0 - \$7000). Faculty interviews (6.38 out of 10) and interactions with current fellows (5.4) were the most important factors affecting rank list position, while social events (3.16) and institution tours (1.24) were the least important. The most important program characteristics leading to higher rank list position were institution prestige (8.4 out of 10), case mix (8.34), and case numbers (7.96). Applicants were asked to comment on ways to improve the current match process; all applicants would prefer either regionally grouped interview days (n=3) or a centralized interview process (n=2). None of the applicants preferred the current match process.

Conclusion

The Microsurgery Fellowship Match is burdensome, to both applicants and programs, which is

a common theme among many subspecialty fellowship selection processes. This preliminary survey provides a window into the match applicant experience. The forthcoming results of our large, validated survey study will further elucidate applicant preferences, points of burden, and potential areas for practical improvements to the current process.

Lee, Alice, MD
[OBGYN]

PARADIGM SHIFT FOR ECLAMPSIA: INITIAL MANAGEMENT IS NOW BY EMS AND EMERGENCY DEPARTMENT

Alice Lee, MD and David Jackson, MD.

Background: Eclamptic seizures are life-threatening emergencies that require proper management to minimize morbidity and mortality.

Objective: Our primary objective was to review the incidence, demographics, clinical characteristics, and outcomes of women with eclampsia at a single University Medical Center. Our secondary objective was to develop evidence-based guidelines for future management.

Methods: We reviewed and abstracted data from medical records of all women diagnosed with eclampsia in our institution from January 2003 to December 31, 2018. Demographics and clinical characteristics were stratified to outcomes. Cohort analysis based upon antepartum versus postpartum onset and early (<32 weeks of gestation) versus late presentation were assessed. Comparisons were made using chi-square, Fisher's exact, and t-tests. A two-sided $P < 0.05$ was considered statistically significant.

Results: We identified 59 patients with eclampsia in 63,584 live births, for an incidence of 1 per 1077 livebirths. Onset of seizure was 67.7% before delivery, and 32.3% occurring postpartum. Among the antenatal patients the mean gestational age at seizure was 35 weeks +/- 4.3 weeks with a range of 24 4/7 to 40 4/7 weeks. Location of the initial seizure was Home/EMS 47.5% (28/59), Emergency Department 13.5% (8/59), Labor and Delivery Unit 30.5% (18/59), and Post-partum Unit 8.5% (5/59). Patients with initial care by EMS or Emergency Department had trends towards > 1 seizure, increased benzodiazepine use, and increased intubation.

Conclusion: In our center, eclampsia is trending towards less onset of seizure in the hospital and increasing onset at home or in the emergency department. The EMS and Emergency Department are now the initial point of care for 61% of our eclamptic patients. We propose interdisciplinary standardized management guidelines and simulation exercises for this syndrome.

Lei, KaChon, MD
[Internal Medicine]

ST-ELEVATION MYOCARDIAL INFARCTION IN A 27-YEAR-OLD FEMALE WITH SYSTEMIC LUPUS ERYTHEMATOSUS

KaChon Lei MD, Ahl Jeffrey Caseja MD
Department of Internal Medicine, UNLV School of Medicine

BACKGROUND:

Systemic lupus erythematosus (SLE) is a known independent risk factor for the accelerated development of coronary artery disease (CAD). SLE patients carry a fifty-fold increase in risk for acute MI compare to group without SLE, with a median age of 49 years. The pathogenesis of CAD in SLE is poorly understood and it is likely a combination of atheroma formation, hypercoagulable state, chronic arteritis, and small vessel vasculitis. We here present a rare case of a young SLE patient admitted for ST-segment elevation MI with significant CAD found on coronary angiography.

CASE SUMMARY

A 27-year-old female with poorly controlled SLE presents with left-sided chest pain for one day. The chest pain is sharp and it radiates to her left shoulder with diaphoresis. It is exertional and is relieved by rest. She has no history of MI, structural heart disease, hyperlipidemia, and no family history of premature cardiac death. She denies smoking, alcohol, and recreational drug use. EKG shows 1mm ST-segment elevation in V1 and 2mm elevation in V2 with reciprocal 1mm ST-depression in the inferior leads. Troponin is elevated at 0.09 (ref: 0.03-0.29 ng/ml). A transthoracic echocardiogram reveals a low left ventricular ejection fraction of 30%. The coronary angiogram shows near total occlusion of the proximal left anterior descending artery, 90% ostial stenosis of the first diagonal artery, and an elevated end diastolic pressure of 25mmHg (ref: 5-12 mmHg). A drug eluting stent is deployed into the LAD and patient is treated with dual antiplatelet therapy, along with guideline directed medical therapy for new onset heart failure secondary to ischemic cardiomyopathy.

REASON CASE SELECTED:

Unusual presentation

CONCLUSION:

A thorough history and physical exam including risk stratification and ischemic workup should be considered for young patient who has autoimmune diseases presenting with chest pain. Reduction in cardiac risk factors remains an important aspect of management in young patients with SLE. Lifestyle modification is an appropriate first step which includes achieving optimal BMI, blood pressure control, exercise, and smoking cessation. Routine follow-up and compliance with medications are critical in minimizing the development of chronic inflammation that leads to obstructive CAD.

Lim, Jay, MD

[Pediatrics]

**A CASE OF BILATERAL RENAL MASS IN BECKWITH–WIEDEMANN SYNDROME:
NEPHROMEGLY VS NEPHROBLASTOMATOSIS**

J. Lim, RK. Natarajan, H. Cheam, J. Lasky

UNLV School of Medicine, Las Vegas, NV, United States

Introduction:

Wilms tumor is the most common cancer in children with Beckwith-Wiedemann syndrome (BWS), accounting for about 60% of malignancies. The association of BWS with non-malignant renal abnormalities is less well known but is important because benign lesions can be mistaken for malignant lesions during screening studies.

Case Summary:

A newborn baby boy who was born at 36 weeks and 5 days, weighing 4160 grams via emergency cesarean section due to fetal distress. Prenatal ultrasound showed bilateral renal masses, cardiac hypertrophy, and polyhydramnios. Upon delivery, he was found to be limp, hypoglycemic, and apneic. He was resuscitated, intubated and given dextrose and saline boluses with improvement in tone, color, and respiratory effort.

Clinical features including macrosomia, macroglossia, hypoglycemia and hemihypertrophy were concerning for overgrowth syndromes, mostly BWS. Microarray is pending. BUN & creatinine are normal for age. Abdominal MRI revealed diffuse enlargement of both kidneys with replacement of the parenchyma by numerous homogeneous confluent masses, which is most compatible with nephroblastomatosis (Figure 1 & 2). However, CT of the abdomen with contrast identified bilateral nephromegaly with no discrete masses to confirm nephroblastomatosis. Upon further discussion with COG renal experts, it was believed to be nephromegaly associated with BWS.

Discussion:

Nephromegaly has been shown to be a high risk factor in developing nephroblastomatosis and Wilms tumor in patients with BWS.¹ Nephroblastomatosis is the presence of diffuse nephrogenic rests, which are clusters of embryonic metanephric cells. The finding of nephroblastomatosis is significant, as it is considered to be a precursor of Wilms tumor. It has been found in 100% of kidneys with bilateral Wilms tumor and 40% with unilateral Wilms tumor.² Although, over 90% of the patients with BWS will not develop a tumor, the presence of nephromegaly and/or hemihypertrophy are strong risk factors for developing WT in patients with BWS.³ It has been suggested that even with no evidence of nephroblastomatosis on ultrasound, it can be missed if they have microscopic nephrogenic rest which may later develop into Wilms tumor.

Conclusion:

With the challenges of differentiating nephroblastomatosis from nephromegaly, close follow-up with serial imaging should be considered in patients with BWS before deciding on chemotherapy or surgery.

MacDavid, Joshua, MD
[General Surgery]

HETEROTOPIC REPLANTATION OF INDEX FINGER TO AMPUTATED THUMB

Joshua MacDavid, MD and John Brosious, MD

Traumatic amputation of the thumb carries significant functional consequences. The thumb contributes between 40-50% of hand function, and the presence of an opposable thumb is necessary to carry out many activities of daily living that require pinching, grasping and fine motor functions. Herein, we describe a case of a 73-year-old male who suffered a complete amputation of the thumb at proximal phalanx, as well as a near amputation of the index finger. Given the extensive destruction of tissue of the amputated thumb, it was not able to be replanted. We elected to perform a heterotopic replantation of his left amputated index finger to his left thumb stump. The replantation was successful without post-operative complications and the patient was discharged on post-operative day number two. At his 6-month follow up appointment, he had gained acceptable function of his hand with partial return of sensation. This case was chosen not only because of its rarity, but also because it highlights the importance of microvascular expertise for a trauma center. Heterotopic replantation is an excellent technique to utilize when multiple digits have been amputated, as it leads to good outcomes in regard to both function and cosmesis.

Makar, Ranjit, MD
[Gastroenterology]

ETHNIC DISPARITIES AND BODY MASS INDEX TRENDS IN COLORECTAL CANCER SCREENING: EXPLORATIVE ANALYSIS OF SOUTHERN NEVADA AND NATIONAL DATA

Ranjit S. Makar¹, Ying Zhang², Muthena Maklad¹, Hamza Aziz, Daisy Lankarani¹, Bipin Saud¹, Shahid Wahid¹, Gordon Ohning¹

¹ Division of Gastroenterology & Hepatology, University of Nevada Las Vegas, School of Medicine

² Southern Nevada Health District, Las Vegas, Nevada

Introduction: Nevada is ranked 48th in colorectal cancer (CRC) screening based on data by the American Cancer Society. Clark county is the largest county in Southern Nevada and includes the two mostly densely populated cities of Las Vegas and Henderson. In an effort to improve CRC screening rate in Southern Nevada

we analyzed data from the CDC - Behavioral Risk Factor Surveillance System (BRFSS) regarding current trends in CRC screening in Southern Nevada and compared it with current National trends.

Aim: To identify differences in colorectal cancer screening rate by age, race/ethnicity, BMI, and health insurance in Southern Nevada and compare it with the National trends in an effort to identify barriers and improve colorectal cancer screening.

Methodology: CRC screening rates were analyzed with 2012-2016 BRFSS data in SAS 9.4. Using data available from the BRFSS, we ran a logistic regression model using age group (50-54, 55-64, and 65-75), race/ethnicity (NH-White, NH-Black, Hispanic), BMI (overweight/obese, normal/under-weight), and health insurance coverage (no, yes) as predictors of receiving one or more of the recommended CRC tests within the recommended time interval.

Results: All other variables being equal, results for Clark county reveal age group 50-54 (OR=0.260, 95% CI=0.197-0.344) and age group 55-64 (OR=0.524, 95% CI=0.413-0.664) were less likely to receive the recommended screening than age group 65-75; non-Hispanic White (OR=2.328, 95% CI=1.664-3.258) and non-Hispanic Black (OR=3.066, 95% CI=1.890-4.975) were more likely to receive the recommended screening than Hispanic (Figure1); those who are overweight or obese were more likely to receive the recommended screening than those who were normal or under-weight (OR=1.294, 95% CI=1.034-1.620) (Figure2); those with no health insurance coverage were less likely than those with coverage to receive the recommended screening (OR=0.232, 95% CI=0.163-0.330). These were similar to national trends, although higher percentage of Hispanics did not seek CRC screening in Southern Nevada (Table 1).

Conclusion: Current trends suggest that significant ethnic disparities exist amongst Hispanic population regarding CRC screening. Likely major factor is lack of health insurance. Younger recommended age group i.e. 50-65 years and lower or normal BMI patients are also less likely to participate in CRC screening, likely as they are presumed to be healthy. Concerted effort towards improving CRC screening in Hispanics and raising awareness amongst younger age group patients and those with normal BMI can help achieve the national CRC screening goal.

Marshall, Travis, MD
[Emergency Medicine]

RETHINKING INTRAVENOUS CATHETER SIZE AND LOCATION FOR COMPUTED TOMOGRAPHY PULMONARY ANGIOGRAPHY

Travis Marshall MD¹, Nae Meng Chen BS², Eric Nguyen BS², Wesley Forred RN¹, David Slattery MD¹, Tony Zitek MD¹

University of Nevada Las Vegas School of Medicine, Department of Emergency
Medicine, Las Vegas, Nevada¹
University Medical Center, Las Vegas, Nevada²

Background

One of the most difficult and critical diagnoses to make in the emergency department is pulmonary embolism (PE). This is due to the wide variability in the presentation of PE from mild shortness of breath to cardiac arrest. Computed tomography pulmonary angiogram (CTPA) is the test of choice for diagnosis of PE in the emergency department (ED).

Hypothesis

We hypothesized that IV size and location did make a difference in the rate on non-diagnostic CTPAs.

Methods

This was a retrospective cross-sectional study performed at a single large urban county hospital. Adult patients were identified who underwent CTPA in the ED to evaluate for PE from June 2016 to March 2017. Patients were excluded if they had undergone a CTPA for any reason other than to rule out PE. Trained research assistants assessed each final attending radiology impression to determine if the CTPA met our definition of “non-diagnostic.” A CTPA was considered non-diagnostic if the final radiology impression indicated that the radiologist felt the study was inadequate to exclude a PE. As an exception, if the radiologist indicated that he or she could not exclude a “subsegmental PE,” the CTPA was not counted as non-diagnostic. Additional patient data was abstracted, including basic demographics, disposition, hospital length of stay, and the size and location of the intravenous (IV) line. Data was collected and analyzed via Microsoft Excel.

Results

A total of 1500 studies were identified and 288 were determined to be non-diagnostic for PE, corresponding to 19.2% (95% CI 17.2 to 21.3%) of all CTPAs. For those with non-diagnostic CTPAs, hospital admission rates were greater (85.4% [95% CI 80.8 to 89.3%]) compared to those with diagnostic CTPAs (78.6% [95% CI 76.4 to 80.7%]). Neither the size nor locations of the IV line were associated with increased rates of non-diagnostic CTPAs.

Conclusions

The rate of non-diagnostic CTPAs in our ED is high, occurring in almost one in every five studies. IV size and location did not make a statistical difference in the rate of these non-diagnostic CTPAs.

Mattu, Ramandeep, DO

[Psychiatry]

MANAGEMENT OF BENZODIAZEPINE WITHDRAWAL IN PREGNANCY WITH CO-OCCURRING OPIOID ABUSE

Authors: Christopher Hong D.O. , Ramandeep Mattu D.O.

Background (clinical relevance):

There is no safe-level of benzodiazepine usage during pregnancy. Our population has a high utilization of benzodiazepines as well as recreational drugs, some of whom become pregnant. Yet, there is little guidance in management of benzodiazepine withdrawal in pregnant women and even less so in women with co-occurring opioid abuse. This case is of a patient who presented for methadone conversion with co-occurring benzodiazepine abuse. The psychiatry team was consulted for recommendations regarding benzodiazepine withdrawal management.

Case Summary:

30-year-old G6P2-0-3-2 female with longstanding history of IV drug abuse who was admitted for methadone conversion. Patient endorsed that she snorts 2.5g of heroin daily, frequent but vague Xanax usage, and valium 10mg p.o. b.i.d.. Later, patient endorsed much greater Xanax usage than initially stated, but remained vague. Patient also reported frequent "Krokodil" usage. Patient then left prematurely against medical advice on day 5, relapsed, and returned 5 days later. At that time, she reported using 1-3 bars of Xanax, along with 2-3 pills of 10mg Valium and an undescribed amount of Heroin daily for the 5 days between hospitalizations. Patient started on Valium taper, starting at 10mg PO q6H, with Lorazepam 1mg PO q6h PRN administered according to CIWA-B score. Owing to numerous setbacks due to patient noncompliance and ingestion of outside drugs, taper required 17 days. She remained stable without significant withdrawal symptoms for 48 hours and was discharged on hospital day 19.

Reason case selected (unusual case etc.):

Experience in treating benzodiazepine withdrawal during pregnancy with co-occurring opioid abuse is limited due to infrequent presentation and ethical concerns regarding studies in these populations.

Conclusions (justified by information submitted in case report):

There are no structured guidelines for management in this population. We propose guidelines of management: Inpatient management by obstetrics, daily fetal monitoring, use of a long-acting benzodiazepine (such as diazepam) in the first and second trimester which is tapered, and use

of CIWA-B with quick-acting benzodiazepine (such as lorazepam) for breakthrough withdrawal symptoms.

McNicoll, Christopher, MD

[General Surgery]

LOW-GRADE APPENDICEAL MUCINOUS NEOPLASM: A CASE REPORT

AUTHORS: Christopher F. McNicoll, MD, Ricardo A. Noble, MD, Christian N. Chan, MD, Jaclyn L. Munn, MD, FACS

BACKGROUND: Low-grade appendiceal mucinous neoplasms (LAMN) are found in 0.4 - 0.6% of appendectomy specimens, and represent a spectrum of disease from low-grade, to high-grade, to mucinous adenocarcinoma. LAMN, also known as mucinous cystadenoma, often presents with chronic pain and distension, and vague abdominal complaints after years of asymptomatic disease. Pre-operative CT abdomen/pelvis may show a mucocele: a dilated appendix filled with mucin. It is important to avoid rupturing mucinous neoplasms, as it can lead to pseudomyxoma peritonei.

CASE SUMMARY: A 72-year-old male with a past medical history of hypothyroidism, hypertension, obesity, GERD, and stage 3a chronic kidney disease presented to the emergency department (ED) with 5 days of low-grade fevers and 10 days of right lower quadrant abdominal pain. He denied nausea, emesis, or diarrhea. His abdomen was non-tender, without Rovsing sign, but with Dunphy sign. CT scan showed a 10-cm fluid collection near the terminal ileum, and was read as a right lower quadrant abscess with no identifiable appendix. His white blood cell count, Chromogranin A, CEA, CA-19-9, CA-125, and vital signs were within normal limits. He had a previous ED visit 8 years prior for right lower quadrant abdominal pain, and a CT abdomen/pelvis showed a right lower quadrant phlegmon, inflamed ileum, cecum, and appendix. An EGD and colonoscopy at that time showed normal mucosa, no polyps, and no terminal ileitis. Five days after the ED visit for this episode, he had a CT abdomen/pelvis with oral and IV contrast that was read as ruptured appendicitis with loculated abscess, though mucinous neoplasm was a possibility. He underwent elective diagnostic laparoscopy and right hemicolectomy, and the pathology showed a 9-cm mucin-filled cecum and appendix with no epithelial invasion. A superficial surgical site infection was treated, and he was discharged on post-operative day 7.

REASON CASE SELECTED: Appendiceal mucinous neoplasms can be mis-diagnosed as appendiceal abscess, which can lead to the incorrect treatment.

CONCLUSIONS: A high index of clinical suspicion for mucinous neoplasm when reviewing a CT scan of the patient with right lower quadrant abdominal pain can prevent the mis-diagnosis of acute appendicitis.

McNicoll, Christopher, MD

[General Surgery]

TRANSIENT FEMORAL NERVE PALSY FOLLOWING LIPOSOMAL BUPIVACAINE WOUND INFILTRATION DURING INGUINAL HERNIORRHAPHY

AUTHORS: Christopher F. McNicoll, MD, James R. Markey, MD, Cassandra Joffs, MD, Julian E. Losanoff, MD

BACKGROUND: Femoral nerve palsy is a known complication of ilio-inguinal nerve block from lidocaine or bupivacaine during inguinal herniorrhaphy. Liposomal bupivacaine is a longer acting form of bupivacaine that was approved for field block use in surgical wounds in 2011, and less is known about its potential complications.

CASE SUMMARY: Patient #1 is an 88-year-old male who underwent elective right inguinal herniorrhaphy with polyester mesh placement using the Lichtenstein technique. 133mg (20mL)

of liposomal bupivacaine was instilled into the subcutaneous tissue surrounding the wound following closure of Scarpa's fascia. In the recovery room, patient #1 began to have weakness with right hip flexion and knee extension, and numbness in the right anterior and medial thigh and anterior knee. Patient #2 is a 65-year-old male who underwent elective right inguinal herniorrhaphy with polypropylene mesh placement using the Lichtenstein technique. 266mg (40mL) of liposomal bupivacaine was instilled into the subcutaneous tissue surrounding the wound following closure of the skin. In the recovery room, patient #2 had weakness with right hip flexion and knee extension, and numbness in the right anterior thigh, lateral thigh, medial thigh, medial leg, and anterior knee. He fell in the recovery room when attempting to stand, and fractured the proximal phalanx of the right ring finger. MRI lumbar spine showed no lumbar spinal stenosis or nerve injury in both patients. Both patients were admitted to the hospital for physical therapy and supportive care. Patient #1 had resolution of his numbness and weakness on hospital day 4, and he was discharged home. Patient #2 had resolution of his numbness and weakness on hospital day 2, and he was discharged home.

REASON CASE SELECTED: Liposomal bupivacaine is a relatively new local anesthetic, and femoral nerve palsy from wound infiltration is an uncommon complication, but led to two patients being admitted to the hospital after an outpatient surgery.

CONCLUSIONS: Liposomal bupivacaine has different pharmacokinetic and pharmacodynamic activity compared to the amide anesthetics lidocaine and bupivacaine hydrochloride. Liposomal bupivacaine is lipophilic, and may lead to its distribution along the iliacus fascial plane and onto the femoral nerve causing femoral nerve palsy after inguinal hernia repair.

Mehta, Zubin, MD

[Pediatrics]

USE OF INTRANASAL FENTANYL IN PEDIATRIC ED TRIAGE FOR RAPID TREATMENT OF VASO-OCCLUSIVE CRISIS

Zubin Mehta, Michael Leibman, Daniel Grissom

Background:

Vaso-occlusive crisis (VOC) is a common complication in pediatric patients with Sickle Cell Disease (SCD) presenting to the emergency department. Patients presenting to the ED with VOC may experience significant delays in treatment of their debilitating pain.

Objective: Implement a quality improvement project to decrease the wait time to receiving pain medication in the pediatric emergency department for patients with VOC.

Methods:

Charts in a tertiary, urban pediatric ED were reviewed retrospectively in order to establish a control group. A standardized algorithm was then created to assess SCD patients presenting with pain crises in triage to direct them towards a fast track for rapid pain treatment if the patient was indeed in VOC. A treatment protocol was implemented to use intranasal fentanyl (INF) instead of IV opioids as initial treatment as INF is known as an effective treatment in VOC and administering medications intranasally eradicates the time spent on IV insertion. Charts were then reviewed 6 months after the initiation of the treatment protocol. Our primary outcome was time (in minutes) to first analgesic after arrival to the ED. Secondary outcomes included time to second analgesic administration, time to disposition decision, and admission rates.

Results:

A total of 57 patients were included in the retrospective analysis, with a mean age (years) of 11.9. In the intervention group, there were a total of 46 patients, with a mean age of 12.2 (Table 1). There was a significant reduction in mean wait time to the first analgesic following implementation of the INF protocol (20 vs. 51 minutes, $P < 0.0001$). Mean time to second analgesia was also reduced following the intervention (97 vs. 121 minutes, $P = 0.08$). Mean time to disposition decision increased following the intervention (221 vs. 194 minutes, $P = 0.06$).

Percentage of patients admitted was 57% in the control group and 61% in the intervention group.

Conclusions:

Implementation of a standardized triage algorithm and treatment protocol with the use of intranasal fentanyl greatly improved the time to first analgesic treatment in SCD patients presenting to the ED in VOC. As rapid treatment is an important factor in proper management of a patient in VOC, institutions would benefit from implementing standardized protocols to increase the speed of analgesia delivery. Further study is indicated to examine the impact of balancing measures of increased time to decision of disposition and increased admission rate identified by this study.

Natarajan, Rupesh, MD
[Pediatrics]

PREDICTORS OF IMMUNOGLOBULIN THERAPY RESISTANCE IN KAWASAKI DISEASE

Natarajan, Rupesh Kumar, Bhoopalan, Senthil Velan, Rothman, Abraham, Shah, Rita

BACKGROUND:

Approximately 10% to 20% of patients with Kawasaki disease (KD) are intravenous immunoglobulin (IVIG) resistant. Because IVIG-resistant patients are at higher risk for coronary artery aneurysms, it is important to identify these patients who might benefit from more aggressive initial therapy. Currently available IVIG resistance prediction models, originally developed with data from Asian populations, are insufficiently studied on North American patients.

OBJECTIVE:

To evaluate existing scoring systems and develop a new model to predict IVIG resistance.

METHODS:

A retrospective cohort study performed between 2004 and 2017 identified 115 patients treated with IVIG for classic or incomplete KD. IVIG resistance was defined as fever for >36 hours and patients were divided into responders and non-responders. A univariate analysis was performed to identify independent predictors of IVIG resistance. The predictors were combined into a new scoring system and compared with existing scoring systems.

RESULTS:

Sixty five patients had classic KD and 50 had incomplete KD. Among the 115 patients, 80 (69.6%) responded and the remaining 35 were resistant (30.4%) to IVIG. Of the 35 resistant patients, 16 (45.7%) patients had incomplete KD. Hispanic children comprised 43% of our sample population. Coronary artery abnormalities developed in 14 of the 35 IVIG resistant patients (39%). Patients with incomplete KD had significantly lower age, WBC count, serum creatinine and AST levels than patients with classic KD. Univariate analysis showed that IVIG resistant patients were older, and present with lower platelets, potassium and creatinine ($p < 0.05$). Multivariate logistic regression analysis showed that platelets, potassium, body

surface area (BSA) and creatinine were independent predictors of IVIG-resistance. The latter were used to devise the Natarajan scoring system, which demonstrated sensitivity of 76.2 % and a specificity of 68.6 %.

CONCLUSION:

Compared to published data, we observed a higher rate of IVIG resistance and coronary artery abnormalities in our patient population. Natarajan score which incorporated platelets, potassium, BSA and creatinine showed higher specificity and comparable sensitivity to other scoring systems devised to predict IVIG resistance.

Nguyen, David, MD

[Internal Medicine]

A FOREBODING MIMICKER, RING ENHANCING LESION FROM A PULMONARY EMBOLISM

Neilmegh Varada, MA, David Nguyen, MD, Jibrán Rana, MD

Background:

Ring Enhancing lesions are an abnormal radiologic sign found in patients undergoing scans with radio-contrast. Ring enhancing lesions are often seen as a result of infection, but may be a result of a pulmonary embolism.

Case Summary:

A 58-year-old Hispanic male presented to the ER for complaints of shortness of breath and chest pain. The patient had a history of diabetes mellitus type 2, hepatitis, and non-ischemic cardiomyopathy with HFrEF. He had been experiencing dyspnea with worsening left-sided chest pain for the past month, and hemoptysis and hematemesis for the previous 2 weeks. On presentation the patient's HR was 105, and a PaO₂ of 88%. Physical exam was significant for jaundice, mild crackles in the lung bases, and +2 bilateral lower extremity edema. A CT Angiogram of the chest demonstrated pulmonary emboli in the left upper lobe and bilateral lower lobe branch pulmonary arteries. As a result, the patient was admitted for further management.

On day 4 of hospitalization, he demonstrated worsening dyspnea, desaturation to 60%, with significant mental status change, and the patient was upgraded to the ICU. Repeat CT scan of the chest demonstrated a new ring-enhancing lesion in the superior segment of the right lower lobe.

As a result, blood cultures, thoracentesis fluid analysis, AFB smear, and mycobacterium complex PCR labs were ordered. All tests subsequently were negative. The patient continued to improve and the findings were attributed to his pulmonary emboli.

Reason Case Selected:

Ring Enhancing lesions are found in 10-15% of all cases of PE, but not commonly seen in clinical practice.

Conclusion:

Ring Enhancing lesions may be a result of a pulmonary embolism, but not commonly seen in clinical practice. Our patient's extended hospital stay, an upgrade to ICU care, and other comorbidities led to follow up imaging, which led to lesions visualization. The differential for ring enhancing lesions includes infection, pulmonary abscesses, septic emboli, TB infection, Aspergillosis, Granulomatosis with Polyangiitis, Rheumatic Nodules, Sarcoidosis, and other causes. Due to this extensive differential, PE's are often much lower on physician's gestalt for a ring enhancing lesion, but should be considered in patients presenting with this common finding.

Noble, Ricardo, MD

[General Surgery]

PNEUMATOSIS CYTOIDES INTESTINALIS: A CASE REPORT

AUTHORS: **Ricardo A. Noble, MD**, HB Moore, MD, N Venardos, MD, Catherine Velopulos, MD, Jon Vogel, MD, Elisa Birnbaum, MD

BACKGROUND: Pneumatosis cystoides intestinalis is a rare condition associated with a variety of diseases. These associations make discovery and clinical presentation rather heterogenous and, as such, presents a unique management challenge in the emergent setting. This condition is characterized by the presence of gaseous cysts (containing nitrogen, oxygen, and carbon dioxide) typically in the ileum (42%), colon (36%), small and large intestine combined (22%).

CASE SUMMARY: 33 year old male with a history of Crohn's disease was transferred from an outside hospital (OSH) with altered mental status and imaging demonstrating pneumoperitoneum after an unwitnessed fall snowboarding. Due to his confusion at the base of the mountain his wife urged him to be evaluated at the local emergency department. At the OSH his vitals were within normal limits, but he was AOx2 and perseverating. The patient was pan-scanned, and injuries identified included: left 7-11 nondisplaced rib fractures, T7-8 endplate compression deformities, diffuse pneumatosis, large volume pneumoperitoneum, and intraabdominal free fluid. At presentation to our facility, the patient had heart rate of 79, blood pressure of 123/82, temperature 38.1 C, respiratory rate of 16, with a Glasgow Coma Score (GCS) of 14 due to confusion. His abdomen was tympanic, distended, without rigidity and minimal tenderness. Initial labs were a WBC of 19.2, hemoglobin of 15, and platelet count of 353. His initial chemistry was unremarkable aside from a bicarbonate of 16. The patient was taken to the operating room for exploratory laparotomy. There was large volume ascites, numerous severe small bowel strictures with proximal bowel dilation, and no evidence of hollow viscus injury. The first 100 centimeters of bowel appeared grossly normal, but remaining bowel had large segmental patches of sub-serosal air-filled cysts concentrated proximal to strictures. The pneumatosis was also present on the diaphragm, transverse colon, falciform ligament, and central tendon of the diaphragm, and no additional injuries were identified. Temporary abdominal closure allowed for full participation of the patient and his family in the decision-making process. The patient was taken to the OR within 48 hours of initial laparotomy the bowel edema and pneumatosis had decreased, but remained grossly abnormal. After intraoperative consideration of stricturoplasty, versus resection or diversion, it was determined that the optimal

option was to resect 2 areas of small bowel affected by fibrostenotic disease that incorporated the majority of the pneumatosis intestinalis. Of note the patient had a large length of small bowel and after anastomosis, he remained with 310 cm of viable small bowel and an intact ileocecal valve.

REASON CASE SELECTED: Unexpected findings during exploratory laparotomy will continue to pose management difficulties, but discussion of uncommon conditions can improve outcomes for these patients

CONCLUSIONS: Multidisciplinary treatment of complicated problems during emergency surgery has better outcomes for patient recovery. Temporary abdominal closure is an important adjunct allowing the surgery team to address life threatening problems and return to handle non life threatening, but complex issues in delayed fashion.

Ogley, Scott, MD
[Plastic Surgery]

ROBOTIC RECTUS HARVEST FOR PERINEAL AND POSTERIOR VAGINAL WALL
DEFECTS AND FOR RECTOVAGINAL FISTULA REPAIR: A CASE SERIES

Scott Ogley, MD, Joshua J. Goldman, MD, Ashish Francis, MD, Shawna Kleban, MD, Shelley Williams, MS, John Brosious, MD, Richard C. Baynosa, MD,
University of Nevada, Las Vegas School of Medicine, Division of Plastic and Reconstructive
Surgery

Introduction:

Robotic surgery has gained widespread use in several surgical specialties when working in the pelvis. Plastic surgeons are challenged to reconstruct defects after robotic pelvic tumor extirpation, abdominoperineal resection, and rectovaginal fistula takedown. Reconstruction of the defect with a muscle flap can significantly improve healing and decrease risk of major complications. The rectus abdominis flap is favored for pelvic reconstruction given its lower complication rate when compared with the gracilis flap. We present a case series using the novel technique of robotically harvesting the rectus abdominis flap from an intraperitoneal approach to reconstruct these defects.

Methods:

From October 2014 to present, a single surgeon harvested 16 robotic, pedicled rectus abdominis flaps after colorectal fellowship trained surgeons performed the pelvic excisions. Indications for reconstruction included APR (n=12) and rectovaginal fistula (n=4). 15/16 patients underwent neoadjuvant radiation therapy, and in all cases of APR the perineal defect was *closed primarily* over the flap. In 11/16 cases the posterior sheath was left open. Follow-up ranges from 5 months to 4 years.

Results:

There were no *major* pelvic complications (deep pelvic abscess, pelvic hernia or evisceration) encountered. All minor (9/16) wound dehiscence was treated with local wound care. No rectovaginal fistulas recurred since flap reconstruction. One patient developed anterior rectus sheath attenuation leading to obstructive symptoms and another developed a significant abdominal bulge - both were treated with mesh repair.

Conclusions:

Robotic rectus harvest has produced the success previously seen with flap reconstruction and maintained the benefits of extirpative robotic surgery.

Olson, Tyler, MD
[General Surgery]

ATRAUMATIC INTRAPERITONEAL BLADDER RUPTURE AFTER ALCOHOL INDUCED LOSS OF CONSCIOUSNESS

Background:

It is estimated that 80-85% on injuries to the bladder is due to blunt, high energy trauma and 83%-95% of them have associated pelvic fractures (Gomez RG, *BJU Int* 94:27-32, 2004). Spontaneous rupture, however, is very rare.

Case Summary:

A 28 year old male presented to the emergency department with acute onset of abdominal pain, distention, and oliguria one day after losing consciousness secondary to alcohol intoxication. He denied a history of trauma and physical examination was negative for signs of trauma. He was tachycardic and mildly tachypneic with his abdominal exam tense, distended, and mildly tender to palpation. His labs were significant for 129 sodium, 97 chloride, and 3.93 creatinine with a normal BUN and 3+ RBCs on urinalysis after foley placement. A computed tomography (CT) scan of the abdomen/pelvis without contrast demonstrated massive intraperitoneal fluid collection and a suspected defect of the bladder dome. A CT cystogram was performed, confirming intraperitoneal bladder rupture. Emergent urologic consultation was made, with the patient taken for emergent exploratory laparotomy with bladder repair. The abdomen contained 1.5L of urine and the bladder defect was repaired with 2-0 vicryl in 2 layers, a pelvic drain was left in place, and the foley was continued post-operatively with plans for XR cystogram 14 days after repair, prior to foley removal.

Reason Selected:

Spontaneous bladder rupture is extremely rare and provided a diagnostic challenge. The diagnosis can be made simply with an XR cystogram, which would expose the patient to less radiation than CT.

Conclusion:

Uroperitoneum can be mis-diagnosed as ascites and the peritoneal reabsorption of creatinine can be mis-diagnosed as acute renal failure. Thus, correct diagnosis is vital to not only making correct interventions, but also in avoiding unnecessary utilization of resources in these rare cases.

Pham, Chau DO
[Psychiatry]

EUTHANASIA AND ASSISTED SUICIDE IN PSYCHIATRY

Authors: **Chau Pham** and Sahar Azim

Abstract:

Euthanasia and physician-assisted suicide (PAS) in patients with psychiatric disease, especially those who are tired of living has remained highly controversial. A 52 years old Caucasian male was followed for 8 months over multiple admissions to a community hospital following multiple suicide attempts. Patient was known to have several comorbid medical illnesses and on initial evaluation communicated hopelessness due to ongoing disputes with family members and dire financial situation. Despite efforts to treat his psychiatric illness in hospital settings with medications and within multidisciplinary mental health programs in the community, patient appeared determined to die as he persistently continued to attempt to end his life by walking into traffic and other means, resulting in severe and permanent bodily harm including brain damage. The accumulative effects of patient's suicide attempts further lowered patient's overall quality of life and diminished likelihood of patient being able to lead any sort of meaningful life in the future. The case brought the issue of euthanasia and PAS to the forefront and highlighted the arguments of those who have advocated in favor of allowing patients to safely and humanely end their own life with dignity per their own choice. Additionally, the case also raised the question of how effectively clinicians are able to predict and/or prevent future suicide attacks in high risk patients. Through the discussion, we want to address the medical-ethical dilemmas related to euthanasia and PAS as well as further debate about the acceptability of PAS in cases of serious and refractory mental illness.

Phang, Frances, MD

[General Surgery]

EVALUATION OF VIDEO MOTION AMPLIFICATION SOFTWARE TO IDENTIFY ANATOMIC STRUCTURES

Principal Investigator: Charles St. Hill, MD

Additional Investigators: Ovunc Bardakcioglu, MD; **Frances Phang, MD**; Daniel Cheng, MD

Address: 1701 West Charleston Blvd, Suite 400, Las Vegas, NV 89102

Introduction – Background and Rationale:

With the advent of minimally invasive surgery (MIS), laparoscopic and robotic approaches have increased in use. The laparoscopic cholecystectomy is now the most common general surgical procedure performed in the United States, and has become the gold standard for gallstone disease (1, 2). However, compared to open techniques, MIS has limited depth perception and does not allow for conventional maneuvers, such as palpation, to help delineate anatomy. Significant advances in video imaging, such as high definition and 3-dimensional systems, have been achieved in the past decade in order to improve surgeon performance and patient safety (3-5). Beyond cholecystectomies and appendectomies, minimally invasive approaches are also now becoming widespread for more complex surgeries. Techniques to help surgeons identify anatomy in more complex cases have been explored. The use of indocyanine green (ICG) to delineate anatomy has increased in the past several years (6-8). However, ICG requires intravenous injection of the dye, which subjects patients to potential adverse reactions. While ICG is largely considered safe, adverse reactions have been reported (9). Additional non-invasive techniques to continually improve the identification of anatomic structures in MIS should continue to be explored.

Eulerian Video Magnification (EVM) has been described as a method to extract additional information from a video that is typically invisible to the naked eye. The technology “takes a

standard video sequence as input, and applies spatial decomposition, followed by temporal filtering to the frames ... to reveal hidden information”. The method can run in real time and has been shown to have the ability to “visualize the flow of blood as it fills the face” (10). Being software based, it is a non-invasive method that involves no risk to the patient. This technique has been demonstrated to help identify occluded vasculature during robotic nephrectomy, however the study of this technique has been limited to only a series of cases (11, 12). Additional investigation is necessary to determine the efficacy of this technique in more widespread surgeries. We are looking to apply Video Motion Amplification (VMA) software to recordings common surgeries in order to determine its ability to assist in the identification of anatomic structures. We will also look at the application of VMA in conjunction with other anatomy delineating techniques and whether this will improve in the identification of anatomic structures more accurately than either alone.

Raman, Ankita, MD
[OBGYN]

THE EFFECT OF OVARIAN FOLLICLE SIZE ON THE FORMATION OF GOOD QUALITY BLASTOCYSTS

Bruce Shapiro, **Ankita Raman**, Forest Garner, Martha Aguirre, Chelsea Morrison, Shyni Thomas, Anika Bill, Carrie Bedient

Background:

During in-vitro fertilization, controlled ovarian stimulation is commonly used to develop multiple ovarian follicles so that many oocytes may be obtained. Despite many studies correlating follicle size with oocyte maturity and fertilization, good blastocyst formation (GBF) has not yet been studied as a function of follicle size.

Objective:

Assess relationships between good-quality blastocyst formation and the diameter of the follicle from which the oocyte originated.

Design and Methods:

In this IRB-approved prospective observational cohort study, patients underwent conventional ovarian stimulation. During subsequent oocyte collection, follicle diameters were sonographically measured on two perpendicular axes, and the mean diameter was calculated for each follicle. Embryos were group-cultured to the blastocyst stage according to ranges of mean follicle diameter (≤ 9.5 , 10-12.5, 13-15.5, 16-18.5, 19-21.5, 22-24.5, 25-27.5, and ≥ 28 mm). Rates of GBF (with no C grades) were calculated for each group. Chi-square analysis followed by analysis of means for proportions was used to compare good blastocyst formation rates among follicle diameter groups.

Results:

There were 4462 follicle punctures, 2152 collected oocytes and 566 good-quality blastocysts. Weighted averages of oocytes collected and good-quality blastocysts per punctured follicle are shown in Table 1, along with 95% confidence interval. The follicle groups differed significantly in GBF rate ($P < 0.0001$). Follicles ≤ 12.5 mm in diameter had significantly lower GBF

than average. Those ≥ 16 mm had significantly greater GBF. Intermediate-sized follicles (13-15.5mm) had intermediate GBF rate.

Conclusions:

Mean follicle diameter predicted good-quality blastocyst formation, with a plateau starting at 16mm and no significant evidence of diminution above that. This may have important implications for controlled ovarian stimulation protocols in some patients.

Reeve, Nathaniel, MD
[Otolaryngology]

A RARE CASE OF SINONASAL LARGE CELL NEUROENDOCRINE CARCINOMA

Nathaniel H Reeve MD¹, Robert C Wang MD¹

¹Department of Otolaryngology - Head and Neck Surgery, University of Nevada Las Vegas
School of Medicine, Las Vegas, NV, USA

Background: Large cell neuroendocrine carcinoma (LCNEC) is a rare, high-grade epithelial neuroendocrine malignancy first described in the lung and subsequently well documented in many other anatomic sites. It has only recently been recognized that LCNEC can also arise in the head and neck. Fewer than 50 head and neck cases have been reported. LCNEC appears to occur most commonly in the larynx, while cases of sinonasal origin are very rare. These tumors appear to represent a highly aggressive carcinoma similar to small cell carcinoma and LCNEC of the lung and other sites.

Case Summary: A 29 year old female with a history of left nasal cavity esthesioneuroblastoma resection via a lateral rhinotomy approach followed by adjuvant radiation therapy at the age of 15 presented to our institution due to recurrent epistaxis. She was found to have a mass of the left nasal cavity and ethmoid sinus which grew rapidly to involve bilateral nasal cavities and the anterior skull base. Biopsy showed poorly differentiated LCNEC. She underwent an extensive endoscopic surgical resection, however clear margins were unable to be achieved due to dural and perineural invasion at the skull base. She was then referred for chemotherapy and radiation therapy, however prior to beginning therapy she had already developed a recurrent mass with intracranial extension on the right side. At last follow up she was receiving chemotherapy with cisplatin and etoposide with a dramatic partial response and symptomatic improvement but had not yet initiated radiation therapy.

Conclusions: This represents the first reported case consistent with esthesioneuroblastoma transformation into LCNEC, perhaps radiation-induced. This occurred in our patient almost 15 years after her initial treatment for esthesioneuroblastoma. Sinonasal neuroendocrine tumours are rare, aggressive neoplasms with a high recurrence potential, and sinonasal LCNEC appears to be particularly aggressive with rapid growth potential. Due to the rarity of these tumors, there are no robust protocols for their treatment at this time. This case highlights the need for early, accurate diagnosis of these tumors, prolonged postoperative surveillance, and the need for future research to establish evidence-based treatment protocols.

Regas, Nicholas, DO
[Pediatrics]

INFANT BOTULISM IN A TWO-MONTH-OLD FEMALE

Eesha Farooqi, **Nicholas Regas**, Rita Shah, Oriaku Kas-Osoka, and Alvaro Galvis

Reason Case Selected: Two cases per 100,000 live births

Abstract:

We present a classic case of infant botulism in a two-month-old female treated at Children's Hospital of Nevada at UMC. Infant botulism is a rare neuromuscular condition that results from ingestion of neurotoxins produced by the *C. botulinum* bacterium. The condition was first described in California in 1976, and typically affects infants less than 12 months of age. The immature intestine of an infant is a hospitable breeding ground for the *C. botulinum* bacterium to produce its potent neurotoxin. The toxin acts by blocking presynaptic cholinergic transmission, and effectively inhibits the function of smooth muscle, skeletal muscle, and the autonomic nervous system. The treatment for infant botulism is BIG-IV, a human-derived antitoxin which has led to a reduction in the length of hospital stay, dependence on mechanical respiratory support, and health care cost. Infant botulism is an area of public health concern as *C. botulinum* spores can be harbored in honey, soil, powdered infant formula, and natural sweeteners. It is imperative that all confirmed cases of infant botulism be reported to health officials and that clinicians include it in the differential for infants presenting with bulbar dysfunction, weakness, and respiratory failure.

Regas, Nicholas, DO
[Pediatrics]

QUALITY IMPROVEMENT: REDUCING THE RATE OF BLOOD CULTURE CONTAMINATION
IN THE EMERGENCY DEPARTMENT AT SUNRISE CHILDREN'S HOSPITAL

Jacob Snow MD, **Nicholas Regas DO**

Abstract:

The objective of the Quality Improvement (QI) project was to determine if a QI nursing education team could effectively reduce the rate of blood culture contamination in the Pediatric Emergency Department (ED). False-positive blood cultures in the Pediatric ED is a safety and quality issue that leads to costly intravenous antibiotic use, laboratory charges, and hospital admissions. To address this issue, we created a QI team of superuser nurses who led workshops on proper blood draw technique as published by the Emergency Nurses Association in the "Clinical Practice Guideline: Prevention of Blood Culture Contamination". After staff members were re-certified by the nursing education team, they were mandated to adhere to the strict blood draw guidelines. After running several PDSA cycles to create and implement the QI nursing education team, the results of the QI project demonstrated a significant reduction in the rate of peripheral blood culture contamination ($P < 0.001$). The project not only effectively reduced unnecessary patient risk and hospital costs, but it also reinforced the importance of judicious use of blood cultures in pediatric patients with low pretest probability for bacteremia.

Romero, Brandon, MD
[Orthopaedic Surgery]

TOXIC NOISE LEVELS DURING TOTAL JOINT ARTHROPLASTY SURGERY

Authors: Brandon Romero, MD, Michael Rutter, MD, Aaron Gray, MD, Tyler Kent, MD, Shain Howard, DO, Erik Kubiak, MD

INTRODUCTION

Occupational hearing loss is one of the leading causes of work-related illnesses in the United States. It has previously been reported that approximately half of orthopaedic surgeons suffer from noise-induced hearing loss.

OBJECTIVE

The purpose of this study was to quantify the amount of noise to which surgeons are exposed during total joint arthroplasty surgery, and to compare these levels to the exposure recommendations put forth by the National Institute for Occupational Safety and Health (NIOSH).

METHODS

Noise information was gathered during 17 total hip arthroplasty (THA) and total knee arthroplasty (TKA) cases. Noise levels were measured using the NIOSH Sound Level Meter application for smartphones, a validated program for the measurement of sound levels. The smartphone was placed in the front pocket of either the surgeon or assisting resident. Measurements were taken for the entirety of the procedure. Excel was used for univariate and multivariate statistics.

RESULTS

The average time-weighted noise level during surgery was 72.45 and 72.13 dB for total hip arthroplasty and total knee arthroplasty, respectively. The average percentage of the maximum allowable daily noise dose was 6.46% and 6.13% per case for THA and TKA, respectively. The average peak noise level was 120.87 and 121.18 dB for THA and TKA, respectively. This was not significantly different than 120 dB, which NIOSH recommends exposure for no more than 9 seconds per day to prevent permanent hearing loss. The maximum peak noise levels were 133.3 dB for THA, and 133.4 dB for TKA.

CONCLUSION

Orthopaedic surgeons are exposed to toxic levels of noise during total joint arthroplasty. According to the NIOSH, exposure to sound at 120 dB can cause permanent hearing loss within 9 seconds. This level of noise routinely occurs during TKA and THA surgery, and represents a significant workplace hazard. It would be prudent to develop a form of hearing protection for surgeons to wear during surgery to decrease the risk of noise-induced hearing loss.

Schanda, Taylor, MD
[General Surgery]

WHERE'S THE BLEED? A CASE OF AN ANATOMICAL VARIANT COMPLICATING THE MANAGEMENT OF BLUNT HEPATIC TRAUMA

Authors: **Schanda T**, Dickhudt T, Saquib S

Background: Blunt hepatic trauma is an area of extensive research, and with the advancements in interventional radiology there has been a transition over the last 20 years to pursue nonoperative management in these types of injuries. If this fails the next choice often is to operate, but this may be unnecessary. We discuss a case of failed angioembolization in a patient who was later found to have an anatomical variant of the right hepatic artery.

Case Summary: We present the case of a 35-year-old blunt trauma patient with a grade 3 right-sided liver laceration that underwent embolization by IR. Shortly after, she became unstable-hypotensive and tachycardic- requiring multiple transfusions. On review of her imaging we found that despite the presence of extravasation on CT scan, there was none seen on celiac angiography. Embolization had been performed to what appeared to be a truncated branch of the right hepatic artery. A repeat CT scan again showed active extravasation and we called IR to repeat angiography, this time at the level of the superior mesenteric artery (SMA). This confirmed our suspicion: the patient was bleeding out from a replaced right hepatic artery coming off the SMA. The bleeding branch was embolized and the patient was taken back to the ICU, where she was resuscitated and finally stabilized.

Reason case selected: This case was selected to highlight the importance of reviewing images and keeping in mind anatomic variants (about 20% of patients have some variant of the hepatic artery).

Conclusions: While taking the patient to the operating room for exploration would have been up to standard of care, we were confident that the source of bleeding could be better dealt with by embolization. Although not the standard, this case underlines the importance of individualizing care for trauma patients.

Sodomin, Elizabeth, MD

[General Surgery]

HYPOGLYCEMIC ENCEPHALOPATHY SECONDARY TO VITAMIN C INFUSION IN BURN RESUSCITATION

Elizabeth Sodomin MD, Francis Simon, PharmD, BCPS, BCCCP, Paul Chestovich MD, Syed Saquib MD

Background

Vitamin C (VitC) infusion in acute burn resuscitation has been shown to decrease overall fluid requirements. Protocols have been implemented for use in many centers for burns with TBSA >30% for the first 24 hours of resuscitation. A sentinel event occurred during this infusion and compromised patient safety.

Case

52 yo M presented following a mobile home fire from leaking propane tanks. He sustained 40% TBSA burns involving the bilateral legs, arms, and face. GCS was 15 at time of initial evaluation. The patient was intubated for airway protection due to evidence of inhalation injury. Parkland resuscitation and VitC infusion protocol were initiated. He remained hemodynamically stable.

Tube feeds were initiated, along with Insulin sliding scale (ISS). Overnight his point of care glucose (POCG) ranged from 158-240 mg/dL. On hospital day (HD) 1 POCG remained in the mid to high 200s, despite insulin. He was placed on an insulin drip. His POCG remained elevated and his insulin drip was increased accordingly. On HD2, his serum blood glucose was 5 mg/dL and on recheck was 9 mg/dL, with the corresponding POCG 283 mg/dL. Insulin drip was stopped and D50 administered. Total duration of drip was 12 hours 40 minutes, and the maximum dose was 23 units/hr.

Following correction of hypoglycemia, the patient was GCS 3T. A Head CT was unremarkable, and a subsequent MRI brain showed acute demyelinating encephalopathy. Repeat imaging 10 days later showed bilateral basal ganglia acute stroke vs. anoxic brain injury. He ultimately decompensated from sepsis. Family elected to withdraw care on HD#24.

Case selection

This case prompted implementation of a multidisciplinary approach for education. Teaching was provided to nurses and physicians with new protocols. Pharmacists modified our EMR to

include safeguards with hard stops whenever insulin and VitC are being used together. With these changes, VitC is now safer to use in the resuscitation of critically ill burn patients.

Conclusion

VitC alters the electrochemical reaction needed to generate a POCG reading. This case highlights the unreliability of POCG testing in VitC infusions with detrimental results and the need for interdisciplinary collaboration and care to overcome these complications

Sun, Josephine, MD
[Pediatrics]

CONCURRENT PRESENTATION OF JUVENILE MYELOMONOCYTTIC LEUKEMIA AND NEUROFIBROMATOSIS TYPE 1

Josephine Sun, MD, Rupesh Natarajan, MBBS, Francine D. Bynum, MD, Joseph L. Lasky III, MD

Introduction:

Neurofibromatosis Type 1 (NF1) presents with café-au-lait macules, axillary/inguinal freckling, Lisch nodules and neurofibromas. Juvenile Myelomonocytic Leukemia (JMML) is characterized by clonal proliferation and infiltration of monocytes/granulocytes in various organs. Patients may present with fever, leukocytosis, anemia, thrombocytopenia, hepatomegaly, lymphadenopathy and splenomegaly (diagnostic criterion). Juvenile Xanthogranuloma (JXG) consists of asymptomatic yellow-brown papules/nodules, usually solitary and located on the head/neck. It is rarely associated with systemic manifestations. The triad of JMML, NF1, and JXG occurring together is rare with 20 cases reported in literature.

Case:

5-year-old male presents with fevers and weight loss for 2 weeks. Physical exam showed tongue sores, petechial rash and diffuse adenopathy in the neck, axilla and inguinal regions. Labs were notable for leukocytosis with left shift, thrombocytopenia, anemia, elevated uric acid, and negative mono spot. Patient was initially started on allopurinol and clindamycin, and remained afebrile. Concerns for malignancy prompted a bone marrow biopsy that showed left shift with monocytosis. Clindamycin was discontinued when he was positive for enterovirus. However, one week into hospitalization, he became febrile with increasing leukocytosis up to 60,000 and new findings of multiple café-au-lait spots and axillary freckling, which led to concerns of NF1 and associated JMML. Abdominal US showed splenomegaly. He was transferred with continued fever, but down-trending WBC. Genetic studies detected two NF1 mutations and novel ASXL1 confirming JMML and NF1. He is being treated with chemotherapy, while being clinically monitored for JXG.

Discussion:

Individuals with germline NF1 mutations have 200-500 fold increased risk of developing JMML and about 10-15% of JMML cases arise in children with NF-1. However, concurrent clinical presentation of JMML and NF-1 is unique to our case and ASXL1 mutations have been observed in only 8% of JMML cases. JMML is aggressive and fatal if left untreated. Children with two of the three conditions (JMML, NF1 and JXG) should be evaluated and monitored closely for the possible development of the triad.

Conclusion:

In patients with unexplained fever, monocytosis, lymphadenopathy, hepatosplenomegaly and café-au-lait spots, there should be high suspicion for JMML and appropriate genetic testing.

Teisch, Laura, MD

[Pediatrics]

LEFT VENTRICULAR THROMBUS WITH EXTENSION INTO THE AORTIC SINUS STATUS POST STAGE ONE HYBRID PROCEDURE IN HYPOPLASTIC LEFT HEART SYNDROME

Laura F. Teisch MD, Michael L. Ciccolo MD, Andrew S. Kim MD, Oscar A. Ingaramo MD

Background: Hypoplastic left heart syndrome (HLHS) is a congenital heart defect leading to underdevelopment of the structures of the left heart. Treatment includes three staged surgical palliative procedures. The hybrid procedure is an alternative to stage one palliation involving either a Blalock-Taussig or Sano shunt. To our knowledge, no other case of left ventricular (LV) thrombus with extension into the aortic sinus after hybrid procedure has been published to date.

Case Summary: A 2-week old male with HLHS status post balloon atrial septostomy was postoperatively admitted to the PICU after stage one hybrid procedure. The procedure was tolerated without any complications. The patient remained stable until post-operative day (POD) six when he was noted to have altered mental status. An echocardiogram showed a large echogenic mass within the LV cavity suggesting the presence of an intracardiac thrombus with extension into the sinus of Valsalva in the region of the non-coronary cusp. The origin of the right and left coronary arteries appeared to be unaffected by the thrombus. Hematology was consulted and subcutaneous enoxaparin was started with BID dosing. Anti-Xa levels were monitored closely and enoxaparin doses were titrated appropriately. Protein S, protein C, and antithrombin III levels were within normal range. The patient was successfully extubated on POD 8. Repeat echocardiogram on POD 12 showed persistence of the LV thrombus; however, it was significantly decreased in size and no longer had extension into the aorta. Enoxaparin therapy was continued and subsequent echocardiograms showed progressive decrease in size of the thrombus. The patient remained stable throughout hospitalization and worked on increasing feeding and decreasing respiratory support. The patient was discharged on POD 28 on enoxaparin and aspirin with appropriate follow up. Currently, the patient remains on enoxaparin and the thrombus has completely resolved as of his seven-month post-surgery follow up echocardiogram.

Reason Case Selected: This case was selected to show an interesting and rare complication found in a HLHS patient status-post hybrid procedure.

Conclusion: HLHS patients are a high risk subset of patients to manage. LV thrombus with extension into the aortic sinus is rare but can have significant comorbidity.

Tran, Kevin, MD
[OBGYN]

MATERNAL MORTALITY IN SOUTHERN NEVADA: WHAT ARE THE CRITICAL DIAGNOSES AT A UNIVERSITY MEDICAL CENTER?

AUTHORS: Kevin Tran, MD (PGY3); David Jackson, MD

BACKGROUND/ OBJECTIVE: The prevention of maternal deaths is a benchmark for civilized societies. More women die in the United States from pregnancy complications than other developed countries. The Healthy People 2020 national target is for a maternal mortality rate of 11.4 per 100,000 live births. Nevada is one of 17 states lacking systematic maternal mortality review. Our primary objective was to define the incidence, causes, and risk factors associated with maternal deaths at our institution for 2000-2019. Our secondary goal was to assess our compliance with the Healthy People 2020 national target for maternal mortality. With this information, we hope to identify opportunities to reduce preventable maternal deaths for specific causes in our region.

METHODS: IRB approval allowed for retrospective review of maternal deaths that occurred up to 42 days after delivery (or pregnancy termination) at University Medical Center from January 2000 to January 2019. For each patient, we identified demographics, comorbidities, diagnosis, and calculated frequency based upon deaths per 100,000 livebirths.

RESULTS: There were 25 maternal deaths from January 2000 to January 2019. Excluding trauma (n=5), we analyzed potentially preventable death for 20 women who delivered at our institution. For these patients, the maternal mortality rate was overall 25.2 per 100,000 live births. The rate increased from 19.7 during 2000-2010 to 38.2 during 2011-2019. The leading causes of delivery related deaths were maternal cardiac 35% (7/20), arrest related to drug use 20% (4/20), infectious related 15% (3/20), and amniotic fluid embolism 10% (2/20). There were no losses from obstetrical hemorrhage or complication of deep venous thrombosis.

CONCLUSION: Although we have eliminated venous thromboembolism and obstetrical hemorrhage as causes for maternal mortality at our center, we maintain a maternal mortality rate that exceeds national averages and is well above target goals for 2020. A paradigm shift is towards maternal cardiac disease and cardiac arrest complicated by maternal drug use as our most prevalent syndromes. Future preventative programs should be focused on these entities in our region.

Tuano, Krystle, MD
[General Surgery]

THE OMPHALOCELE-EXSTROPHY-IMPERFORATE ANUS-SPINAL DEFECTS (OEIS)
COMPLEX, A CASE REPORT

Background:

The etiology of cloacal exstrophy remains unknown, with no single, recurrent, chromosome abnormality, genetic defect, or environmental exposure associated.⁵ The underlying defect is thought to be associated with abnormal development and premature rupture of the cloacal membrane.⁴ Omphaloceles are present in 88% to 100%, short gut syndrome in 25%, abnormalities of the upper urinary tract in 41% to 66%, and a form of spinal dysraphism in 64% to 100% of cases.^{4, 6, 7, 8, 9, 10, 11, 12}

Case Summary:

A neonate was born at 35 weeks, 1 day via normal, vaginal delivery to a 30-year-old G1P0101 mother, with limited prenatal care, who was noted to have cloacal exstrophy at birth. The patient subsequently had additional diagnostic imaging and was diagnosed with OEIS complex.

The patient had no structural heart defects, had findings concerning for a tethered cord, dysraphism involving the sacrum, and intrathecal lipoma extending along the length of the conus medullaris. Grade 3 left hydronephrosis, with a normal right kidney were also identified.

The patient was taken to the operating room by pediatric surgery at 4 days old, in conjunction with pediatric urology, and pediatric orthopedic surgery. Initial gastrointestinal management involved identification of all of the intestinal components, with reconstruction of the entire length of the intestines in-line, leading to an end colostomy.¹³ Intra-operatively, the patient was found to have intra-abdominal testes, a bifid penis, a scrotum, and hemibladders that joined superiorly to the prolapsed intestine.

He was able to be extubated on post-operative day 3, started on enteral feeds post-operative day 13, his parents had ostomy and wound care training, and he was discharged home on post-operative day 29. Pediatric urology has coordinated follow up with specialists at Johns Hopkins at 6 months of age.

Reason case selected:

This is a rare condition, that occurs in 1 of 200,000 to 400,000 live births.^{1,3,4}

Conclusions:

Although rare, occurring in 1 of 200,000 to 400,000 live births, OEIS complex, is a well-described entity that can be diagnosed prenatally.^{1,3,4} Treatment has evolved since repair was originally described, with survival approaching 90-100%.² Principle goals of treatment have now become directed towards improvement in quality of life.³

Vega, Jorge, MD
[Acute Care Surgery]

A FIVE-YEAR REVIEW OF PAVEMENT BURNS FROM A DESERT BURN CENTER

Jorge Vega Jr., MD, Paul Chestovich, MD, FACS, Syed Saquib, MD, Douglas Fraser, MD, FACS

INTRODUCTION: Pavement burns account for significant burn related injuries in the Southwestern United States and other hot climates with nearly continuous sunlight and daily maximum temperatures above 100°F. At peak temperatures, pavement can be hot enough to cause second-degree burns in a matter of seconds. Patients at particular risk include children who are unaware of the hot pavement, diabetics with peripheral neuropathy who do not feel the significant heat, patients who become unconscious due to medical reasons, such as seizures, strokes, or intoxication, or trauma victims who are incapacitated on the ground.

OBJECTIVE: The goal of this study was to review pavement burn injury admissions at a desert burn center compared to maximum ambient temperatures to determine which temperatures correlated to an increase in burn admissions.

METHODS: We obtained ambient temperature data from the National Oceanic and Atmospheric Administration. We reviewed our registry for 5-years retrospectively of all pavement burn injury admissions to our burn center. The number of pavement burn patients admitted were plotted against each daily maximum temperature. To identify the risk per day, the number of pavement burn injury admissions was divided by the number of days at each maximum ambient temperature, yielding a rate of burn admissions for each max temperature.

RESULTS: A total of 173 pavement related burn cases were identified. We demonstrated an exponential increase in the rate of burn admissions as maximum ambient temperatures increased. Over 88% of pavement related burn injury admissions occurred when the ambient temperature reached 95°F or higher. The risk per day was extrapolated based on the number of pavement burn injury admissions and the number of days at each of the maximum ambient temperatures recorded.

CONCLUSIONS: The risk of pavement burns in areas of direct sunlight begins around 95°F and increases exponentially as ambient temperatures rise. This information will be used for burn outreach prevention and public health awareness programs. The benefit of this study relates to the entire community since high ambient temperatures put everyone at risk for hot pavement burns.

Ward, Brian, MD
[General Surgery]

COLORECTAL SURGERY AND SURGICAL SITE INFECTIONS AT UNIVERSITY MEDICAL CENTER

Brian C. Ward, Minh Tri Pham, Jane Nzuna, Charles R. St. Hill

Background/introduction:

In 2003, the centers for Medicare and Medicaid Services in collaboration with the CDC, the Institute for Healthcare Improvement, and The Joint Commission established the Surgical Care Improvement Project (SCIP). Since its inception, hospitals, including University Medical Center (UMC), have devoted significant resources to this program. The annual cost of surgical site infections is greater than 1.6 billion dollars annually. In the specific area of colorectal surgery, the surgical site infection rate remains 17-26% in national clinical trials.

Objective/Design/Methods:

This rate of surgical site infection from colorectal surgery is reported to be even higher at UMC. The goal of this project is to examine all colorectal surgical procedures since the onset of the McKesson electronic medical record system at UMC. The project will examine adherence to SCIP recommendations for colorectal surgery and whether non-adherence to SCIP colorectal surgery recommendations affected SSIs at UMC. The study will also attempt to identify other factors that influence colorectal related SSIs at UMC. The analysis of UMC colorectal SSIs will be compared to national studies and publications in an attempt to identify how to improve the quality of care at UMC with regard to colorectal surgery and prevention of surgical site infection rates.

Results/Next Steps/Conclusions:

Note that the IRB for this project was just approved in April of 2019. The authors hope to present preliminary data collected as well as historical data from the infection control department at UMC. Preliminary conclusions and next steps will be presented. The authors also hope to solicit feedback from the diverse audience at this early stage of the project.

Wilson, Christopher, MD
[General Surgery]

ASSESSING THE EFFECTS OF COMPETITION ON THE DEVELOPMENT OF SURGICAL PROFICIENCY AND VOLUNTARY USAGE OF AN ENDOSCOPIC VIRTUAL REALITY SIMULATOR

Christopher L Wilson, MD; Adnan Mohsin, BS; Charles St. Hill MD, MSc, FACS

Background: Virtual reality endoscopic training devices that provide virtual images and haptic response have been implemented in many surgical curriculums to allow residents to develop operative skills in the simulation setting, thereby reducing errors and complications during actual patient gastrointestinal endoscopy. This study aims to investigate whether competitive training stimulates higher performance and voluntary usage of such endoscopic training devices.

Methods: Surgical residents comprised of PGY1-5 were randomized into control and competitive groups. It was conveyed to the competitive group that they would be competing with other residents of similar post-graduate year, and the highest performers would be displayed publicly. Simulations were carried out using the GI Mentor Flexible Endoscopy Simulator. It was communicated to both participant groups that use of the simulator was unlimited. Performance data from each group were collected, including information on clear view time, total procedure time, and cecal intubation time.

Results/Conclusion: Data collection is ongoing to support an advantage for competition-based training. Demonstrating proficiency in endoscopic technique is essential to surgical training, and transitioning from traditional endoscopic training to a competition based approach may enhance endoscopic performance in surgical residents and stimulate more voluntary time in the skills lab.

Young, Allen, MD
[Otolaryngology]

SALIVARY GLAND CHORISTOMA: A RARE MIDDLE EAR MASS

Allen Young MD, Lauran Evans, Matthew Ng MD

BACKGROUND: Choristomas are congenital, benign overgrowth of mature tissue found in an abnormal location of the body. On extremely rare occasions, salivary gland choristomas can present in the middle ear cavity, causing unilateral hearing loss, tinnitus, otalgia, and otorrhea. Anatomically, they can cause anomalies of the ossicles, facial nerve, middle ear muscles, and labyrinthine windows. Their rare presentation and proximity to vital structures make diagnosis and treatment a challenge.

CASE SUMMARY: A 14-year-old female with recurrent otitis media presented for left-sided hearing loss since birth. Audiogram showed maximum conductive hearing loss on the left. CT showed a left hypotympanic mass. The left tympanic membrane was retracted with a white retrotympanic mass suspicious for cholesteatoma.

Intraoperatively, the eardrum was elevated and revealed a white, smooth pulsatile mass. Compression of the external jugular veins did not expand the mass. Needle aspiration revealed clear fluid. Combined with the CT findings, suspicion for a vascular or intracranial mass was low. The oval window and middle ear muscles were absent, incus malformed, but there was no facial nerve involvement. The mass was completely excised and pathology showed respiratory sinus mucosa lined with pseudostratified columnar ciliated epithelium consistent salivary gland choristoma.

DISCUSSION: Salivary choristomas of the middle ear are hypothesized to form from maldevelopment of the second branchial arch. Embryonic salivary tissue becomes trapped in the middle ear during the fusion of the tympanic ring and temporal bone, along with abnormalities of the ossicles and facial nerve involvement.

45 prior cases have been reported. Most cases were initially misdiagnosed as cholesteatoma with confirmation requiring histopathology. Malignant transformation is rare with limited local invasion. Physicians must weigh the benefits and consequences of total or partial excision, considering their small chance of malignancy versus possible facial nerve damage. Regardless of approach, use of a facial nerve monitor is highly recommended.

CONCLUSION: Salivary gland choristoma is an extremely rare diagnosis of a middle ear mass. Radiographic imaging and careful middle ear exploration are needed to rule out vascular and intracranial tumors. As facial nerve involvement is common, physicians may consider partial excision to avoid facial nerve palsy.

Young, Allen, MD
[Otolaryngology]

HADDAD SYNDROME: A NEED FOR SCRUTINY PRIOR TO DECANNULATION

Allen Young MD, Tsungju O-Lee MD

BACKGROUND: Congenital central hypoventilation syndrome (CCHS) or Ondine's curse is a rare disorder causing autonomic dysfunction of breathing. Patients are ventilator-dependent with adequate respiration during wakefulness, but hypoventilation when asleep. When concomitant with Hirschsprung's disease, it is extremely rare and classified as Haddad syndrome. Diagnosis is confirmed with PHOX2B mutation.

Although there are some reports of successful decannulation as the respiratory system matures, there is no standardized protocol and premature decannulation can pose a significant life-threatening risk.

CASE SUMMARY: A 24 weeks premature female was found to have decreased respiratory drive at birth requiring intubation. Due to prolonged hypoxemia in the NICU, she received a tracheostomy. She was subsequently diagnosed with Hirschsprung's disease and genetics screening confirmed PHOX2B mutation for Haddad syndrome. At 22 months of age, she passed her sleep study with tracheostomy cap. There was strong parental endorsement of adequate ventilation at night and pulmonology recommendation for decannulation. Unfortunately, 1 month after decannulation, she presented to the emergency room with severe hypoxia and hypercapnia requiring intubation and recannulation. She has since remained stable on nighttime ventilator support.

DISCUSSION: The incidence of Ondine's curse is 1 in 50,000-200,000. 16-20% are concomitant with Hirschsprung's disease, classified as Haddad syndrome, with less than 100 cases ever reported. Our case highlights how the alternating ventilation pattern of these patients can create a confusing clinical picture for both parents and physicians.

Parents are often biased on their children's improvement and sleep studies may not capture the true extent of hypoventilation if sleep quality is poor. To prevent future premature decannulations, these patients require more rigorous requirements including parental education and serial sleep studies.

CONCLUSIONS: Haddad syndrome is a very rare disorder requiring significant lifelong care. Early diagnosis of these newborns is key in order to quickly establish ventilation and prevent hypoxic injury and death. As the respiratory system matures, some patients may be candidates for treatment de-escalation. Due to the fluctuating symptoms of the disease, these patients require a more stringent protocol, including serial sleep studies, to prevent premature decannulation.