Incidental Diagnosis of Four Lid Orbital Lymphoma During A Blepharoplasty

Abstract: 1422
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Format: Oral Presentation
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Case Study

Introduction: Chronic Lymphocytic Leukemia (CLL) is characterized by the accumulation of mature CD5-positive B-cells in the lymphoid organs. Extranodal involvement occurs in up to 10% of cases and can arise in various tissues including the orbit. Less than 400 cases of orbital lymphoma are diagnosed per year in the United States, typically manifesting as a form of B-cell non-Hodgkin's lymphoma, with extranodal marginal zone B-cell lymphoma (MALT) being the most common subtype. Orbital lymphoma typically presents with proptosis and a palpable mass; however, patients may also have a relatively benign exam.

Methods: Here we present a 76-year-old male with symmetric dermatochalasis and marked fat prolapse of all four lids who presented for a cosmetic four lid blepharoplasty. His history was significant for RAI Stage 0 CLL diagnosed 15 years prior to consultation.

Results: He was incidentally diagnosed with secondary orbital lymphoma in all four eyelids during a cosmetic four lid blepharoplasty.

Conclusions: Orbital lymphoma presenting as orbital fat prolapse has only been reported a few times in the literature. To our knowledge, this is the first case of secondary orbital lymphoma in all four eyelids found incidentally during an aesthetic four lid blepharoplasty.

Complex Rib Plating Fixation for Injury After Fall

Abstract: 1423
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Format: Oral Presentation
Category: General Surgery
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Presentation Type: Case Report (< 3 patients)

Introduction: Ten percent of all trauma patients will suffer from rib fractures, and surgical fixation can help with morbidity and mortality if they have flail or multiple rib fractures. EAST conditionally recommends rib plating for all patients with a flail segment and internal fixation is a recent innovation for this which we will show today. Minimally invasive thorascopic rib plating is an option for patients a select patient population, particularly elderly patients with osteoporosis. The intrathoracic plating system may allow for minimal disruption to periosteum and intercostal muscles. This technique may be combined with the open technique to address patients' injuries.

Patient Description: We present the case of a very fit and healthy 49 year old male who presented after a fall from a deer stand while hunting. The patient landed onto his side and presented with a severe left chest wall injury including multiple displaced and comminuted fractures of ribs 2-9 which included a flail phenomenon of the thoracic cage. The patient was admitted to the SICU and had ongoing respiratory insufficiency, retained hemothorax, and uncontrolled pain.

Intervention: He was taken to the operating room for rib fixation using a unique technique. The anterior left rib fractures 4 and 6 were fixed with open rib fixation anteriorly and anchored to the sternum medially. The posterior left ribs 4-6 were fixed using VATS visualization for evacuation of retained hemothorax and intrathoracic plates. Cryoablation was also performed of left intercostal nerves 3-9 and two chest tubes were placed. The patient did very well and discharged home post operative day 5 after chest tubes were removed and pain was well contro

Conclusions: There are multiple ways to repair rib fractures using plating, include the open and intrathoracic technique. Here we present the case of a successful and unique way to repair a complex chest wall injury, improving the patient's respiratory function and pain control.

Lipoblastoma-related Volvulus in a 9-Year-Old Female.

Poster Number:	58
Abstract:	1424
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Format:	Poster
Category:	Oncology
Author Status:	Medical Student
Presentation Type:	Case Report (< 3 patients)

Introduction

Lipoblastoma is a rare, benign mesenchymal neoplasm of embryonal white fat that predominantly impacts the pediatric population Indeed, over 90% of lipoblastoma cases occur during the first three years of life Lipoblastoma typically presents as a soft, palpable painless mass most commonly involving the superficial connective tissues of the extremities and trunk Approximately 7% of lipoblastomas involve the abdomen However, intraabdominal complications secondary to lipoblastoma are incredibly rare.

Patient Description

A 9-year-old female presented to the emergency department with one week of intermittent lower abdominal pain. Her initial workup also included an US A/P that showed a large mass in the left upper quadrant of the abdomen. Subsequent CT A/P demonstrated a well-circumscribed hypodense omental mass measuring 10.1 cm x 4.7 cm x 13.4 cm with minimal mass effect or bowel displacement. At that time, the patient's abdomen was soft without tenderness, distention, or rigidity. Thirteen days after her initial ED visit, the patient returned to the ED with nausea, vomiting, and diffuse abdominal pain. The patient's vitals and repeat labs were within normal limits. Her physical exam revealed significant abdominal distension, tenderness to palpation and rebound tenderness. Repeat CT A/P revealed shifting of the omental mass from the left hemi-abdomen to the right hemi-abdomen with associated mesenteric 'swirl sign' and dilated loops of small bowel consistent with small bowel obstruction.

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Intervention — Given the patient's CT findings and signs of peritonitis on physical exam, she was emergently taken to the operating room where the mass along with 20 cm of small bowel intimately associated with the mass was resected. The proximal end of involved bowel was found to be twisted and necrotic consistent with volvulus. Histologically, the mass resembled mature adipocytes with vague lobular architecture lacking fibrous septation, zonation, and myxoid change. There was no atypia, multivacuolated lipoblasts or spectrum of cellular maturation. A specimen was sent for cytogenetics and found to be negative for MDM2 and positive for FLAG1, ultimately revealing a diagnosis of lipoblastoma. The patient's mass and involved small bowel were successfully resected with negative margins. Following surgery, the patient had delayed return of bowel function, required TPN, and developed electrolyte disturbances thought to be associated with re-feeding syndrome. She was discharged on post-op day 6 with follow up in 3 weeks.

Conclusions — The majority of lipoblastoma development is underpinned by gene rearrangements in the zinc-finger transcription factor PLAG1. Indeed, 90% of lipoblastomas possess cytogenetic abnormalities in PLAG1, which ultimately leads to amplification of genes involved in hyaluronic acid and collagen synthesis. Although benign, these tumors can exhibit rapid proliferation during the post-natal period and have a recurrence rate that approaches 50%. Patients should be surveilled with US or magnetic resonance imaging for ten-years following surgery to assess for recurrence.

Association of Electrodiagnostic positivity and severity of Lumbar Central/Neuroforaminal Stenosis

Poster Number: 76
Abstract: 1425
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Format: Poster
Category: Other
Author Status: Resident Physician
Presentation Type: Clinical Study

Introduction: Lumbar central canal spinal stenosis (LSS) and neuroforaminal stenosis (LNS) are common diagnoses in patients with low back pain. These conditions can lead to low back pain with associated neurogenic claudication. Magnetic resonance imaging (MRI) and electrodiagnostic testing (EDX) are routinely used for evaluation purposes. The severity of Lumbar Central canal and Neuroforaminal stenosis has not been researched with reference to associated positivity on EDX. Our study investigates if a link exists between EDX and the degree of LSS/LNS.

Methods: Retrospective cohort study on patients with EDX and lumbar MRI. Data analyzed using statistical tests, including Chi-Square and logistic regression.

Results: Our study found no statistically significant associations between EDX-confirmed radiculopathy and the presence or severity of LSS ($p = 0.50$ and $p = 0.54$, respectively) or LNS ($p = 0.69$ and $p = 0.11$, respectively). Multivariable logistic regression also showed no statistical significance. MRI findings were not reliable predictors of EDX results.

Conclusions: The natural history of LSS with moderate symptom levels rarely shows symptom deterioration over a median 3.3 years. Moreover, it has been found that probability of spontaneous activity on EDX is unrelated to symptom duration. This is unlike the evolution of findings associated with acute pathology, and emergence of changes apparent on EDX 3-6 weeks after insult. MRI and EDX can place burdens on the healthcare system, costs on patients and ultimately may not have clinical significance. Clinically, most patients with LSS/LNS will improve with conservative treatments.

Subpial Hemorrhage: Case Based Discussion of Etiology, Diagnosis, and Clinical Outcomes

Abstract: 1426
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Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Educational Study

Introduction: The diagnosis of a subarachnoid hemorrhage (SAH) or subpial hemorrhage (SPH) is often grouped into the broader category of leptomeningeal hemorrhage, though the two pathologies differ in risk factors, clinical sequelae, and prognosis. This fallacy is due to anatomical complexity, lack of robust literature, and imaging limitations - therefore this educational presentation aims to illuminate the characteristics and implications of the often forgotten and misdiagnosed subpial hemorrhage. Our objective is to provide radiologists and clinicians with insight into an unusual perinatal disease process.

Methods: While guiding the discussion with case studies we provide an overview of subpial hemorrhage via the most recent and accepted literature on the topic. Using multimodal imaging, we illustrate diagnostic and clinical nuances of subpial hemorrhage. Additionally, we use published research to highlight the importance of proper imaging selection, distinction from subarachnoid hemorrhage, pathophysiology, predisposing factors, and prognostication of subpial hemorrhage.

Results: SPH occurs on the most superficial surface of the cortex, and conforms to sulci. It has a predilection for the temporal and peri-sutural locations, and can be subdivided into typical and atypical types. The pathophysiology of subpial hemorrhage is explained by damage to the glial limitans' and trauma to the penetrating vasculature from the leptomeninges, resulting in venous congestion that causes mass effect and ischemia to cortical gray matter. SAH are usually diffuse throughout cerebrospinal fluid containing spaces, revealing xanthochromia, and are more hypointense than SPH on T2 FLAIR images. Subpial hemorrhages are typically focal, and show relatively high density with increased signal on T2 FLAIR, T1, and low gradient echo MR. Red blood cells, and xanthochromia in cerebrospinal fluid is absent in SPH due to sequestration of blood below the impermeable pia mater. Perinatal SPH is usually inconsequential, though significant sequelae include developmental delay and seizure.

Conclusions: Subpial hemorrhage is a contained hemorrhage between the pia intima and the glial limitans that presents variably in the neonate and pediatric population. The hemorrhage is often misdiagnosed, and can have clinically significant developmental implications.

Acute Neurological Changes and CSF Pleocytosis in a 16-year-old Boy

Poster Number: 56
Abstract: 1427
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Format: Poster
Category: Other
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

HaNDL (headache, neurological deficit, and lymphocytic pleocytosis in the CSF) is a rare, under-diagnosed, and benign condition. It is characterized by migraine-like headaches, a neurological deficit ranging from blurry vision to acute psychosis, and a CSF pleocytosis of at least 15 WBC/µL with an otherwise negative work-up. It most commonly affects adults in the 3rd-4th decade of life, although cases in the pediatric population have rarely been reported. Cases in the literature have reported a CSF pleocytosis between 15-700 WBC/µL. I present to you a case of HaNDL in a 16-year-old boy with a CSF pleocytosis >1000 WBC/µL.

Patient Description

A 16 year old male with obesity presents to the ED with a pounding left-sided headache, diplopia, and nausea/vomiting for one week. He denies fever, chills, neck stiffness, or any other neurological deficits. He is afebrile and his vital signs are normal. His physical exam is remarkable for a left 6th cranial nerve palsy. The remainder of his neuro exam is normal. His lab work demonstratess an ESR elevated to 27.00 mm/h. His CRP, CBC, and CMP are normal. CT venogram is negative for a venous sinus thrombosis, CTA head/neck demonstrates an incidental 6 mm left supraclinoid aneurysm (Neurology and Neurosurgery deemed this unrelated), and a normal MRI brain/orbits. A lumbar puncture is performed which demonstrates an elevated opening pressure of 38 mmHg, protein of 105 mg/dL, normal glucose, and a lymphocyte dominant (97%) pleocytosis of 1,010 cells/µL. CSF bacterial culture and meningitis and autoimmune encephalopathy panels are normal. All infectious disease testing was negative.

Intervention

The patient's headache is treated with Acetazolamide given his elevated opening pressures. He is also treated conservatively with acetaminophen, ibuprofen, and antiemetics as needed. Within a day of both the lumbar puncture and Acetazolamide treatment, his headache resolves. His 6th cranial nerve palsy persists at the time of discharge for which Ophthalmology recommends that he wear an eye patch alternating on both eyes. He is ultimately discharged in stable condition and follows up with both Neurology and Ophthalmology in the outpatient setting. At a follow-up visit 3 weeks after discharge, his diplopia is noted to be significantly improved and he has no headache recurrence.

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Conclusions The patient met the ICHD-3 diagnostic criteria for HaNDL. HaNDL may be difficult to diagnose, and that is partially due to its great diversity-some cases report opening pressures of up to 400 mmHg, and others report deficits from blurry vision to acute confusional states. Our case demonstrates a CSF pleocytosis of >1000 WBC's, which to our knowledge is more than has been documented in the literature thus far. Our hope is that this case will shine further light on the incredible variability of HaNDL, potentially aiding in its diagnosis.

Lambl’s excrescence and ESUS, a case series and review of the literature

Poster Number: 78
Abstract: 1428
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Author Institutions: Corewell Health West
Format: Poster
Category: Stroke
Author Status: Resident Physician
Presentation Type: Case Study

Introduction: Lambl’s excrescences are described as thin filiform fronds present on the cardiac valves. A cluster of these fronds can break off leading to ESUS. LE is a rare cause of ESUS. Data remains limited on the connection of LE and ESUS and its management.

Methods: We described five patients (age 49±9; 2 female and 3 male) with unremarkable stroke workup. Brain MRI revealed cortical embolic stroke. No hemodynamic large vessel stenosis extracranial or intracranially was detected on CT angiogram. Transthoracic and/or transesophageal echocardiogram demonstrated thickening of mitral leaflets and LE at the site of aortic valve closure. All five patients have preserved cardiac function, and no interatrial shunt was detected. Relevant laboratory results including hypercoagulable study were normal. Cardiac monitoring (up to a month) was unremarkable. Patients were discharged with aspirin and high intensity statin. One patient returned to hospital with arm numbness a month later from her initial left middle cerebral artery (MCA) stroke, repeated brain MRI revealed new stroke in the right MCA territory. Dual antiplatelet therapy was initiated. A year later, the patient came back with new onset hearing loss and brain MRI showed new Left MCA territory stroke

Results: Most patients with LE are asymptomatic and the valvular strands are fund incidentally on echocardiogram. However, they can be the culprit of ESUS. ESUS patient with LE should be on antiplatelet therapy. If recurrent stroke occurs, anticoagulation can be considered as an escalation therapy.

Conclusions: The goal of this case series is to discuss Lambl’s excrescence (LE) and embolic stroke with undetermined source (ESUS) as a rare cause of stroke. Escalation of medical management should be considered in patients with recurrent stroke. Patients who fail on anticoagulation might benefit with surgery.

Impact of Ribavirin vs. Ampicillin treatment on length of hospital stay in infants admitted for RSV bronchiolitis

Abstract: 1429
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Basic Research Study

Introduction: RSV is a highly contagious virus that most commonly infects pediatric populations and is the leading cause of infant hospitalization in the US. According to the CDC, 2-3% of infants with RSV infection may need to be hospitalized, leading to increased patient and healthcare costs, burden, and increased risk of subsequent infection. Following literature review, we found that a significant proportion of pediatric patients were treated with antimicrobial medications versus supportive treatments while hospitalized with RSV bronchiolitis. While it is understood that antibiotics are not effective in treating viral illnesses, they are still routinely used for these purposes despite increasing rates of antibiotic resistance. We aim to compare two different antimicrobial treatments, Ribavirin and Ampicillin, to better define and create an evidence-based approach to RSV bronchiolitis treatment.

Methods: The general design of this study is a retrospective chart review of pediatric patients, aged 2 months to 2 years, at Helen Devos Children's Hospital that were admitted and treated for RSV bronchiolitis from 2020 to 2023. Length of stay will be calculated for all subjects and defined as 'days since arrival to the emergency department'. Longer LOS will be interpreted as decreased effectiveness in antimicrobial treatment. Data will be extracted from electronic medical records from Corewell Health Systems.

Results: Our results will help to confirm effectiveness of antimicrobial treatments in viral illnesses. The results of our study will be interpreted as statistically significant if the difference in LOS for both population groups has a p-value of less than 0.05

Conclusions: This study may help future clinicians make more informed decisions when potentially using unnecessary antibiotics in pediatric RSV bronchiolitis cases. Our results may promote safer pediatric RSV treatment and decrease the risk of antibiotic resistance. Possible future projects could involve exploring the impact of unnecessary antibiotic usage in other viral diseases as well as gathering data for antibiotic usage in viral illnesses in other populations.

Seasonal affective disorder, stress and burnout in teaching faculty, residents, and fellows.

Abstract: 1430
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Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Basic Research Study

Introduction The field of healthcare has a long history of difficult work hours and sleep schedules. Teaching faculty, residents, and fellows typically have shift work, which requires both day and night shifts. Because of these long workdays, burnout is very common. Burnout is self-reported symptoms of emotional exhaustion, depersonalization, and low sense personal accomplishments. There are very few studies looking at the role of seasonal affective disorder (SAD) in physician burnout. Disruption of circadian rhythms can lead to declines in mental health and physical health. The Midwest has a high incidence of SAD because of the long seasons, especially winter. The purpose of this research study is to assess the incidence of seasonal affective disorder in residents, teaching faculty, and fellows. This study aims to understand the effects of SAD on stress and burnout.

Methods The general design of our study includes administering an anonymous, self-administered, longitudinal survey to residents, teaching faculty, and fellows in Michigan. Participants will answer questions about their sleeping habits, work hours, and a PHQ-9 (patient health questionnaire). The PHQ-9 will be used to determine depression in participants. The survey will be sent out twice, the first time in the winter and the second time in the summer. The PHQ-9 scores will be compared to determine depression status in the different seasons.

Results Because this study is longitudinal, the sequence of events can be established, allowing better insight into cause-and-effect relationships. A change score analysis will analyze the difference between outcomes at two different time points. A multivariate ANOVA (MANOVA) will analyze repeated responses over time, treating the observations as multivariate. Significant results will show a correlational relationship between different seasons and healthcare workers mental health. If the results are insignificant, this could mean that the methods used for this study were not appropriate and that future projects may need to utilize different study designs.

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Conclusions This study may open the door to potential follow-up studies that could expand into therapies. By getting a better understanding of SAD, healthcare systems and administrations may be encouraged to implement policies and change environments to better help residents, teaching faculty, and fellows struggling with SAD. The hope is to move into possible treatment options for healthcare professionals. Future projects could look at effectiveness of light therapy in residents and faculty.

Bottle Mix-Up: Ethanol Intoxication in an Infant

Poster Number: 21
Abstract: 1431
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Format: Poster
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Alcohol intoxication was among one of the top 25 most common ingestion toxicities among pediatrics. With the rise in pediatric alcohol ingestion, emergency medicine physicians must be familiar with the common presentation. However, the clinical presentation of pediatric alcohol ingestion can vary depending on dosage. Hypoglycemia, vomiting, neurological depression (ataxia, coma, nystagmus, etc.) and unstable vitals are among the most common findings. Vital sign abnormalities, including hypothermia, hypotension, bradycardia, and respiratory depression may be observed. Although these patients tend to have positive outcomes, early identification and intervention can help to ensure these outcomes. This case represents a patient who did not present with the classic findings of pediatric alcohol intoxication. Proper interventions were therefore delayed until proper testing was ordered.

Patient Description

The patient is a 3 month old female who was brought into the emergency department (ED) for one day of decreased oral intake and inconsolability. The mother describes that on her return home from work in the middle of the night the patient has been sleeping with intermittent periods of inconsolability. Vital signs are as follows; tachycardia at 195 beats per minute, normotensive at 104/72, respiratory rate at 30 respirations per minute, afebrile, and oxygen saturations at 100%. On physical examination there was a dysconjugate gaze which the mother states is the patient's baseline. She is also noted to have a gaze preference to the right with inability to look left despite great efforts by the care team and family and hypotonia. There are no outward signs of trauma including bruising, battle sign, or hemotympanum. Computed tomography (CT) of the head was unremarkable.

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Intervention	The patient was started on intravenous (IV) fluids and laboratory studies including urine drug screen (UDS) and urinalysis (UA) were ordered to determine the etiology of her vague presentation. On reevaluation the patient seemed to be improving clinically with decreased fussiness and improved gaze deviation. After being transferred to the pediatric floor, the laboratory studies returned and showed a mild metabolic acidosis and normocytic anemia which were likely due to physiologic nadir. UA showed ketonuria but was otherwise unremarkable without signs of infection. UDS was positive for ethanol. Follow up serum ethanol was elevated at 162 mg/dL. With IV hydration and frequent neurological evaluation the patient soon returned to her baseline mental status. The patient continues to meet developmental milestones and does not seem to have lasting effects of her alcohol intoxication.
Conclusions	We presented a case of infant alcohol intoxication with presentation of hypotonia, gaze preference, stable vital signs, and normoglycemia. Extensive work-up was performed but proper diagnosis was delayed. This patient only exhibited one of the common presentations of alcohol intoxication in an infant. Alcohol intoxication is a common occurrence in pediatric populations and therefore early detection is critical to proper interventions. This paper highlights yet another variation to patient presentation which can hopefully aid in early detection.

Safety and Effectiveness of Percutaneous Transesophageal Gastrostomy (PTEG) tube placement: Institutional Experience and Analysis of The International Literature

Abstract: 1432
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Format: Oral Presentation
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Systematic Review

Introduction: Percutaneous transesophageal gastrostomy (PTEG) tube placement is a minimally invasive technique to place gastrostomy tube through an esophagostomy access initially developed in Japan in 1998 as an alternative to nasogastric decompression in patients with malignant obstruction [5]. Later, the technique was adopted for long-term tube feeding in cases unsuitable or contraindicated for percutaneous gastrostomy tube placement. Here, we report our institutional experience with this technique as well as pool data from previously published cases.

Methods: Three patients with peritoneal carcinomatosis or prior gastrectomy or gastric bypass precluding traditional gastrostomy access (2 females, 1 male; mean age: 54 years) presented with dysphagia secondary to intracranial hemorrhage (n=1) or malignant small bowel obstruction (n=2) underwent PTEG. All procedures were technically and clinically successful with no immediate adverse events. Long-term complications included multiple tube dislodgements (n=1) and clogging and discomfort after 2 weeks (n=1). PubMed was interrogated to identify relevant publications (n=143). A total of 36 studies with 714 patients were selected for the final analysis including 3 local patients. Pooled analysis was performed using the random-effect meta-analysis and meta-regression techniques.

Results: There were 13 case reports, 12 case series, 9 retrospective, 2 prospective studies and 1 randomized controlled trial. Indication for PTEG was feeding (35%), decompression (30%) or both (35%). Patients' mean age was 59±8 years with overall male:female ratio of 1.3:1. Pooled reported technical and clinical success rates were 97% and 99%. Pooled overall and major complication rates were 21% and 2%. Tube dislodgement (7%), infection (6%) and bleeding (3%) were the most reported complications. Mean follow-up duration was 170 days. On meta-regression analysis, no significant association was found between complication rates and duration of follow-up or other publication- or patient-related characteristics.

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Conclusions	Balloon-assisted percutaneous transesophageal gastrostomy (PTEG) is an effective and relatively safe procedure when a more traditional approach is not technically feasible. Complications including tube dislodgement, infection or bleeding can occur in about 21% of the cases with no identifiable predisposing factors.

Title: Magnetic Resonance Imaging (MRI)-based radiomic models in prostate cancer diagnosis, staging and response prediction: systematic review and meta-analysis

Abstract: 1433
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Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Systematic Review

Introduction: Prostate cancer (PCa) is the most common non-cutaneous cancer in men, with 1 in 8 men being diagnosed with PCa in their lifetime. While the gold standard for the diagnosis of PCa remains biopsy and histopathological grading, radiomics models have great potential in assisting radiologists in improving imaging interpretation thus reducing unnecessary biopsies providing patients economic and health benefits. The field of radiomics, extracting quantitative data from objective features in medical imaging, can optimize patient selection for prostate biopsy and the diagnosis of PCa. The aim of this paper is to summarize common MRI-based radiomic models in PCa diagnosis and staging.

Methods: A PubMed database query with no date or language restrictions using the keywords (prostate AND MRI AND radiomics) revealed 264 studies. After exclusion of non-relevant publications, 70 studies between 2017-2023 with a total of 14453 subjects (range: 16-644) were included in meta-analysis.

Results: There was a significant increase in the number of publications after 2020, majority of which originated in China and Italy. The outcome of interest involved diagnosis, staging and treatment response in 41 (62%), 21 (31%) and 5 (7%) of the publications. Pooled area under receiver operating characteristic (AUROC) curve (95% confidence interval) for the best models for diagnosis, staging and treatment response prediction were 0.889 (0.863-0.915), 0.872 (0.845-0.941) and 0.765 (0.616-0.915), respectively. On meta-regression, there was a significant positive association between publication year and AUROC in treatment response prediction studies but not other two categories (ß: 0.074, P<0.0001). There was no association between the number of the radiomic features and model AUC (ß: -0.0002, P=0.850).

Conclusions: MRI-based radiomics machine learning models show high validity in diagnosis, staging and treatment response prediction of prostate cancer. Increase in the number of radiomic features does not improve predictive value of the models. Post-treatment radiomic models have improved since their conception in predicting treatment response but not diagnosis and staging. Wide heterogeneity in patient selection and applied statistical methods can limit generalizability of the models.

Using point-of-care ultrasound for diagnosis of fractures in children

Abstract: 1434
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Format: Oral Presentation
Category: Other
Author Status:
Presentation Type: Clinical Study

Introduction: Plain radiographs remain the gold standard for diagnosis of pediatric acute bone fractures. Previous studies have demonstrated point-of-care-ultrasound (PoCUS) as a sensitive alternative diagnostic modality. However, the use of PoCUS for fracture diagnosis is not widespread and research thus far was conducted by providers with various training levels and backgrounds. This study evaluated the test performance of PoCUS in children with suspected long bone fractures. PoCUS screenings were performed by pediatric emergency medicine trained doctors without ultrasound fellowship training.

Methods: This single-center study was conducted at a dedicated pediatric emergency department (ED) in the United States. We included 65 pediatric patients from ages 2 - 18. Patients, who were suspected of having an acute, isolated, and clinically non-angulated long-bone fracture, underwent bedside PoCUS evaluation as the initial diagnostic modality with X-rays obtained as the control comparator. PoCUS screening was performed by pediatric emergency medicine trained physicians who underwent a brief simulated training. Ultrasound findings were classified as: 'No Fracture', 'Buckle', 'Fracture', or 'Indeterminate'. Secondary outcomes included pain and satisfaction scores, as well as procedure length. A kappa analysis was conducted to compare the agreement between PoCUS and X-ray findings.

Results: Out of 65 enrolled patients, 36 patients were diagnosed with a fracture by PoCUS and in 27 patients fractures were successfully ruled out. Analysis showed an agreement between PoCUS and X-ray findings in 87.5% of cases (95% confidence limits 75.6 and 99.3) (p value < 0.001). There were 2 cases that were classified as 'indeterminate', which were diagnosed as fractures on X-ray. In 1 case, an occult fracture was diagnosed by PoCUS but was not visualized on initial X-ray. Reported pain scores appeared to be lower during PoCUS, and 73.6% of study participants preferred it over X-ray imaging.

Conclusions: Our findings suggest that PoCUS is a sensitive, well tolerated, and easily teachable tool that could be utilized in EDs as an initial screening tool or as a helpful adjunct to minimize radiation in pediatric patients. While equivocal ultrasound findings will warrant further X-ray imaging, PoCUS can also be more sensitive than X-ray in detecting occult fractures. This study was limited by a small sample size and further research is warranted in this area.

The Benefits of Pediatric Simulation for Continuing Professional Education for Emergency Medicine Physicians

Abstract: 1435
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Format: Oral Presentation
Category: Emergency Medicine
Author Status: Clinical/Research Fellow
Presentation Type: Educational Study

Introduction: Pediatric patients account for ~20% of all Emergency Department (ED) visits with the majority of visits being low acuity. One of largest barriers community Emergency Medicine (EM) physicians face is the infrequent exposure to sick pediatric patients which can lead to lack of confidence and skill. Simulation based medical education (SBME) can help address this need in continuing professional education. The goal of this study was to expose community EM physicians to high fidelity pediatric simulations to gain knowledge and confidence when treating critically ill pediatric patients.

Methods: This was a prospective study where board eligible or board-certified EM physicians participated in 5 procedure and SBME labs over the course of 6 months. Community, academic, and pediatric children's ED providers participated. They were consented and enrolled in the study through anonymous online surveys via Microsoft forms. Providers completed a knowledge based and self-reported confidence pre and post-simulation questionnaire. Confidence was self-reported using a 5-point Likert scale (1-very uncomfortable, 2- somewhat uncomfortable, 3- neutral,4-comfortable, 5-very comfortable). Descriptive statistics were used to analyze and compare the data as well as summative pre/post test question performance.

Results: 41 providers completed the pre-simulation surveys, and 29 providers completed the post-simulation surveys. Participants simulated a neonatal resuscitation (n=22) or a pediatric drowning scenario (n= 19). The EM providers that participated in the neonatal resuscitation simulation self-reported a pre-simulation comfort level of 1.77 on the 5-point Likert scale, with a post-stimulation increase to 2.38. Similarly, providers involved in the pediatric drowning simulation noted a pre-simulation comfort of 2.26 with a post-simulation increase to 3.0. Participants completed 5 board style questions related to the topic of neonatal resuscitation with an overall increase in the percentage of questions answered correctly. All of the providers that completed the surveys felt that simulation was beneficial.

Conclusions: Our findings suggest that SBME can help address pediatric confidence and knowledge gaps in community EM providers. Literature is limited and offers an opportunity for additional research in this area.

A Revision, Multi-level Anterior Cervical Corpectomy with Fusion (ACCF) in response to a Resorted Fibular Autograft in a Prior ACCF: A Case Report

Poster Number: 60
Abstract: 1436
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Orthopedics
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Anterior cervical corpectomy with fusion (ACCF) is a well-utilized surgery that can relieve spinal cord compression in patients with symptomatic cervical spine pathologies. Posterior fixation accompanied with ACCF maximizes cervical stability. After vertebral body resection, a structural bone segment (allograft or autograft) or a cage is typically placed into the defect. Historically fibular autograft has been utilized, but with improving technology and the potential of graft failure, it is used less often. If the graft resorts, revision posterior decompression surgeries have been well-described in the literature. However, few examples of revision surgeries following resorted ACCFs have been reported.

Patient Description: A 19-year-old male with neurofibromatosis-1 (NF-1) and cervical kyphosis presents with increasing neck pain and distal extremity paresthesia over a six-month timeframe. Five years prior, the patient underwent a C3-C6 anterior cervical corpectomy and posterior fusion (ACCF) with fibular autograft. A cervical computed tomography (CT) scan demonstrated excessive erosion of fibular autograft. Further investigation demonstrated that dural ectasia had contributed to autograft resorption.

Intervention: A revision C3-C5 ACCF with an expandable titanium cage placement was performed. Days following the revision surgery, the patient reported mild dysphagia but was discharged with a cervical collar. At six months and two years post-operative, the previously described symptoms were alleviated and CT imaging revealed intact cervical instrumentation.

Conclusions: ACCF is a common cervical spine procedure indicated for spinal cord decompression and other cervical spine pathologies. Revision ACCFs are rarely reported in the literature. This case outlines a successful revision, multi-level ACCF with an expandable titanium cage following a failed fibular autograft caused by dural ectasia from a prior ACCF.

Hemiarch versus extended arch repair for DeBakey I acute aortic dissections

Abstract: 1437
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Format: Oral Presentation
Category: Heart and Vascular
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction DeBakey type I aortic dissections are considered a catastrophic event, characterized by an intimal tear from the ascending aorta or aortic arch down to the distal end of the abdominal aorta. The optimal repair technique for DeBakey type I acute aortic dissection (AAD) has been a matter of ongoing debate. While there is consensus that immediate surgical intervention is indicated, the decision between hemiarch repair and extended arch replacement for DeBakey I AAD patients remains a matter of contention. The purpose of this study is to compare the clinical outcomes and distal aortic remodeling in patients who had hemiarch repair versus those with an extended arch replacement in patients with DeBakey I AAD. All patients were managed post-operatively in a multidisciplinary aortic disease clinic with post-operative imaging surveillance at 1-, 6-, and 12-months, and yearly thereafter.

Methods All patients undergoing repair of DeBakey type I AAD between January 1, 2000, and January 1, 2021, were retrospectively analyzed. Patients were separated into hemiarch repair and extended arch replacement groups which included zones 1, 2, or 3 arch replacements with or without elephant trunks. Distal aortic remodeling was evaluated by assessing growth of the residual aorta as well as false lumen thrombosis on follow-up ECG-gated computed tomography angiography imaging. Linear mixed models were used to compare both aortic measurements and follow up year with subject and year follow up included as random effects.

Results No significant differences in demographics were observed between groups. Mean age was 60 years, 27.2% (n=53) were female, 61.5% (n=120) were current or former smokers, and 46.7% (n=91) presented with neurologic, visceral, and/or peripheral malperfusion. Patients undergoing extended arch replacement had longer cross-clamp, cardiopulmonary bypass, and circulatory arrest times. Postoperatively there was no significant difference in rate of stroke, paralysis, renal failure, or death within 30 days. Overall, 30-day mortality was 11.9% (n=23). Mortality at 1 and 5 years was 16.7% (n=29), and 24.1% (n=42), in the hemiarch group, respectively, versus 14.3% (n=3) and 14.3% (n=3) in the extended arch replacement group (p=0.23). Rate of aortic reintervention at 1, 5, and 10 years was 1.1% (n=2), 3.4% (n=6), and 4.0% (n=7) in the hemiarch group; in the arch replacement group it was 9.5%, (n=2), and 14.3% (n=3) at 1 and 5 years (p=0.29). There were no significant difference in aortic measurements for each year of follow up

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Conclusions In the setting of DeBakey type I AAD aggressive arch replacement can be safely accomplished despite increased technical complexity compared to hemiarch repair only. A lower-than-expected reintervention rate was observed in both groups, possibly due to post-operative surveillance and management in a specialty aortic disease clinic. Linear mixed models demonstrated progressive distal aortic growth but no difference in rate between groups.

Meeting Patient Expectations in Arthroplasty

Poster Number: 59
Abstract: 1438
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Format: Poster
Category: Orthopedics
Author Status: Resident Physician
Presentation Type: Clinical Study

Introduction: Global efforts have been made to critically analyze surgical and patient data using arthroplasty registries in order to improve patient outcomes. Recent policies have expanded data collection beyond implant attributes and survival to patient reported outcome measures (PROMs). Reflective of these policies will be the 2024 implementation of PROMs to the standard dataset collection in the Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI). In addition, The Centers of Medicare and Medicaid (CMS) has developed a mandate of having at least 60% of patients achieve what has been defined as significant improvement on PROMs. The main goal of this study is to establish satisfaction baselines for patient experience as a joint commission measure, which can also later be correlated with PROMs.

Methods: This is a retrospective study analyzing already collected data stored within the CODE registry, which is an arthroplasty registry used by Corewell Hospital for on-site data collection. We will look at the results of the PROM collected, which is 'the results of surgery have met my expectations' on a 5 point scale. Our goal is to simply analyze this PROM and stratify it based on numerous patient factors, such as total hip replacement vs total knee replacement and other factors such as revision surgery, gender, age, BMI, etc.

Results: For total hip arthroplasty, a total of 43,842 patients were gathered and analyzed through the CODE registry. Of these, 88.95% reported that the procedure has met expectations for combined hip and revision arthroplasty. Stratified further, 89.25% of patients had expectations met for primary total hip arthroplasty, with 62.28% of patients expectations were met on a 10/10 scale. For total knee arthroplasty, a total of 73,740 patients were gathered and analyzed again using the CODE registry. Of these, 81.34% of patients agreed that surgery met their preoperative expectations for combined primary and revision cases.. Stratified further, for primary total knee replacements, 81.56% of patients agreed that surgery met expectations, with 45.21% of patients expectations met on a 10/10 scale. This data reflects that overall, patients undergoing total hip arthroplasty in the primary and revision setting had expectations met following surgery more commonly than if undergoing total knee replacement.

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Conclusions The goal of this research project is to highlight the degree at which total joint arthroplasty meets patient expectations using our CODE registry. This will be significant because it will be used to establish a satisfaction benchmark based on responses from our patients, and will allow us to use this data as a baseline for patient experience as a joint commission measure and to correlate this data with other PROMs that will be used in future CMS mandates.

Hypoperfusion Index Ratio is Associated with Early Neurological Deficit Severity and Decline after Mechanical Thrombectomy in Large Vessel Occlusion Ischemic Stroke.

Abstract: 1440

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Format: Oral Presentation

Category: Stroke

Author Status: Resident Physician

Presentation Type: Basic Research Study

Introduction: Hypoperfusion Index Ratio (HIR) is a surrogate marker for collateral status and a predictor of infarct growth, malignant cerebral edema, and hemorrhagic transformation. Its utility to predict a poor NIHSS and END after MT for LVO versus DMVO has not been investigated. We aim to determine whether a HIR >0.5 is associated with a worse NIHSS score at 24h post-mechanical thrombectomy (MT) and early neurologic decline (END) in large vessel (LVO) versus distal and medium vessel occlusions (DMVO) acute ischemic stroke (AIS).

Methods: This is a retrospective study of 231 AIS patients with LVO or DMVO amenable for MT, and available CT-perfusion for HIR assessment pre-MT. Clinical and imaging characteristics were abstracted from medical records. The primary outcome was NIHSS at 24h post-MT. The secondary outcome was END, defined as >4-point increase in NIHSS between initial assessment and 24h post-MT.

Results: HIR>0.5 was more frequently present in LVO as compared to DMVO group (n=41 [66.1%] vs. n=21 [33.9%]; p=0.037). On multivariable linear regression, HIR>0.5 was independently associated with a worse NIHSS score at 24h post-MT in the entire cohort (Beta=0.132; p=0.014) and LVO (Beta=0.225, p=0.004), but not in DMVO group. END occurred in 26 (11.3%) subjects. On multivariable logistic regression, there was no association of HIR >0.5 with END in the entire cohort after adjustment. When analyzed separately, HIR>0.5 significantly increased the odds for END in LVO subjects (OR=5.787, 95%CI 1.179-28.515, p=0.031) but not in the DMVO group (OR=0.249, 95%CI 0.009-6.517-28.515, p=0.404).

Conclusions: HIR >0.5 was independently associated with worse 24h post-MT NIHSS and END in LVO, but not DMVO AIS. Further studies are needed to determine whether distinct CTP parameters should be used for outcome prediction and patient selection for endovascular treatment in DMVO.

Induction of Labor in Prelabor Rupture of Membrane: Pitocin vs Oral Misoprostol as first line agent

Abstract: 1442
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: OB/GYN
Author Status: Resident Physician
Presentation Type: Systematic Review

Introduction: There are multiple ways to manage labor in those with prelabor rupture of membrane (PROM). Patients with an unfavorable cervix may benefit from extra cervical ripening provided by oral misoprostol before starting oxytocin but there is limited date. Existing literature has looked at different methods such as foley balloon vs misoprostol [2] or buccal misoprostol (not oral) vs oxytocin [3] but it only looked at nulliparous women. The management still tends to vary by provider which is why more studies looking at different induction methods will help standardize management. This study will look at data from five years and look at the effect of induction on women (both nulliparous and multiparous) who had both vaginal and cesarean deliveries.

Methods: Patients who were admitted to L&D at Butterworth with the diagnosis of PPROM, specifically at those admitted with ruptured membranes with a Bishops score less than 6 (and/or cervix less than 2 cm dilated). This is a retrospectively review medical records of patients following a delivery. For continuous variables that meet the normality assumption based on a Shapiro-Wilk test, means and standard deviations will be provided. T-tests or ANOVA will be used to test a difference of means depending on the number of groups being compared. For continuous variables that do not meet the normality assumption a Kruskal-Wallis test will be used. For categorical variables, n-counts and percentages will be provided. Differences in distribution will be tested using a chi-square test or Fisher's exact tests depending on the size of the expected cell counts. All tests will use an alpha level of 0.05.

Results: The results of the study are still pending but will be available by time of Research Day.

Conclusions: Prelabor Rupture of Membrane is fairly common with varied management depending on the provider. More studies looking at different induction methods will help standardize management which is why comparing the two most popular managements that we use at Corewell is important.

Management of Gastroesophageal Outflow Obstruction with Heller Myotomy and Conversion of Sleeve to Roux Y Gastric Bypass

Poster Number: 34
Abstract: 1444
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Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: General Surgery
Author Status: Medical Student
Presentation Type: Case Study

Introduction The obesity epidemic has resulted in an increasing incidence of bariatric surgery, with sleeve gastrectomy being the most common bariatric surgery performed around the world. There is a large amount of literature on gastroesophageal reflux disease after undergoing sleeve gastrectomy, however there is a paucity of data on dysmotility in the post-operative sleeve gastrectomy population. Since the fundus has already been removed- the classic Heller Myotomy with Dor Fundoplication cannot be performed without causing significant post operative reflux disease. Here we review the outcomes of patients with gastroesophageal outflow obstruction that underwent Heller myotomy with conversion to Roux En Y Gastric bypass performed at the same time.

Methods We conducted a retrospective review of patients over the age of 18 years with history of sleeve gastrectomy who underwent a Heller myotomy and conversion to Roux En Y Gastric Bypass at a single institution between the years 2017 and 2023. Gastroesophageal junction outflow obstruction was diagnosed by gold standard High Resolution Manometry based on the Chicago Classification v4.0. Our primary outcome was symptom improvement at time of first follow-up 2-4 weeks post-operatively. Secondary outcomes include postprocedural complications, hospital length of stay, time to oral intake, and symptom recurrence rate. We used ranges and frequencies (percentages) to describe the patient population and outcomes.

Results Eight patients met inclusion criteria. The median age was 63 years old, all were female, and most were Caucasian (n=6, 75%). Median BMI was 39 kg/m2. Six had the heller myotomy performed at the time of conversion from sleeve gastrectomy to Roux En Y gastric bypass, whereas two had the Heller myotomy performed in staged fashion. The median procedure length was 145 minutes. There were no intraoperative complications. There was one (12.5%) 90-day complication which was a post-operative leak , managed by takeback with omental patch and gastrostomy tube placement. All patients endorsed symptom improvement at their routine follow up appointment. Only one patient had recurrence of symptoms at 15 months following her surgery, however repeat high resolution manometry demonstrated a normal relaxing and residual lower esophageal sphincter pressure.

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Conclusions Heller myotomy with conversion to Roux En Y Gastric Bypass is effective and safe in the management of gastroesophageal junction outlet obstruction and prevention of unrestricted gastoesophageal reflux disease in patients with a history of sleeve gastrectomy.

A case report of Alemtuzumab Induced Graves disease in a Multiple Sclerosis patient

Poster Number: 41
Abstract: 1445
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Monoclonal antibodies have become a mainstay in treatment of autoimmune and malignant disease. Adverse reactions to antibody therapy are often unpredictable and include endocrinopathies. The monoclonal antibody alemtuzumab, which is licensed for the treatment of MS, induces Graves' disease in 22%-35% of patients with MS receiving the drug. Alemtuzumab - a recombinant-derived humanized IgG1 kappa anti-CD52 monoclonal antibody - targets CD52 which causes depletion of mature lymphocytes and used for treatment of MS and and leukemia. The mechanisms underlying MS are unknown. however it is hypothesized that lymphocyte dysfunction may drive demyelination hence alemtuzumab lymphocyte-depletion relieves symptoms. In this case report, clinical considerations and pathophysiology are explored by commentating on a patient who developed Graves' disease, following alemtuzumab therapy.

Patient Description

Patient (pt) is 44 years old female diagnosed with relapsing remitting multiple sclerosis (MS) in 2001. Pt treated with pregabalin for neuropathic pain, dimethyl fumarate, alemtuzumab, glatiramer acetate, and Natalizumab. Pt had MS flare up with cognitive issues, weakness, gait problems, and bilateral foot drop. She was started on 5-days infusion of alemtuzumab in early 2018. A few days after therapy, she developed tachycardia, insomnia, tremors, intermittent fever, and nausea which required ED visit and treatment with metoprolol and lorazepam. She was initially diagnosed with subclinical hyperthyroidism in early 2018. At that time, TSH level was 0.02 mcIU/mL . Thyroid blood lab in early summer of 2018 , showed that thyroid function tests went back to normal. TSH and free T4 < 0.01 mcIU/mL and > 7.7 ng/dL respectively in late summer 2018. The patient was later treated with RAI uptake and had later developed RAI induced hypothyroidism for which she was started on permanent Synthroid.

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Intervention	Patient started on methimazole 30 mg daily, which later decreased to 10 milligram twice daily in Fall 2018 following thyroid lab result improvement. Later on, in 2018, she presented for radioactive iodine uptake (RAI), and scan was consistent with significantly lower level of I-131 uptake, concerning for subacute thyroiditis. TSH had later improved to 0.20 mcIU/mL and methimazole reduced to 5mg daily. Towards late Fall of 2018, TSH (outside lab) 39.25 mcIU/mL. She then began to develop severe fatigue, worsening muscle weakness, weight gain, agitation. TSH around that time found to be 91. She was started on levothyroxine 100mg daily as a permanent therapy for RAI-induced hypothyroidism.
Conclusions	Alemtuzumab, an anti-CD52 monoclonal antibody, approved for treatment of MS. Offsetting its benefit, however, is the development of novel secondary autoimmune disease, particularly affecting the thyroid gland in up to 36% of patients. The incidence of Alemtuzumab induced thyroid dysfunction (AITD) will likely rise as alemtuzumab becomes more widely used for treatment. clinicians should provide comprehensive information and inquire regarding adverse reactions in addition to carrying out appropriate biomedical tests, and provide educations to patients on its side effects

Bendamustine: alternative lymphodepleting regimen to fludarabine/cyclophosphamide in axicabtagene ciloleucel therapy?

Abstract: 1446
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Format: Oral Presentation
Category: Oncology
Author Status: Pharmacy Resident
Presentation Type: Basic Research Study

Introduction: Chimeric antigen receptor (CAR) T-cell therapy modifies T cells to more effectively find and destroy cancer cells. Lymphodepleting regimens are used prior to CAR T-cell therapy to create an optimal environment to increase CAR T-cell effectiveness. A combination of fludarabine and cyclophosphamide is historically the most used lymphodepleting regimen with axicabtagene ciloleucel. Drug shortages of fludarabine have limited access to this treatment. Minimal data is available on alternative lymphodepleting agents, such as bendamustine, prior to CAR T-cell therapy. This study will evaluate the efficacy and safety of bendamustine as a lymphodepleting agent compared to fludarabine and cyclophosphamide for patients who received axicabtagene ciloleucel CAR T-cell therapy.

Methods: This retrospective single-center study included patients who received either fludarabine/cyclophosphamide (n=31) or bendamustine (n=23) as a lymphodepleting regimen prior to CAR T-cell therapy with axicabtagene ciloleucel between December 1st, 2018, and December 31st, 2023. The primary endpoint of the study is response rate, assessed by Lugano 2014 criteria. Secondary endpoints include absolute lymphocyte count after lymphodepleting regimen, the incidence of cytokine release syndrome and immune effector cell-associated neurotoxicity syndrome, infectious complications, and survival. Chi-square or Fisher's exact test will be conducted for categorical data and Student's T-test, or Wilcoxon Rank Sum will be conducted for numeric data between the two patient populations.

Results: All 54 patients screened met inclusion criteria. The population was comprised of predominantly males (N=34, 63.0%), with diffuse large B-cell lymphoma as the most common diagnosis (N=47, 87.0%). The median age at CAR T-cell infusion was 64.5 years. Twenty-three patients (42.6%) received two previous therapies prior to CAR T-cell infusion, while twenty-three patients (42.6%) received three or more previous therapies prior to CAR T-cell infusion. Of the thirty-seven patients with available data on an initial Deauville score, twenty-nine patients (78.4%) had a Deauville score of 5 before CAR T-cell infusion. Response rate analysis between the two groups, in addition to data regarding safety endpoints, is pending.

Conclusions: The results of this study will inform institutional practice to continue or discontinue the use of bendamustine as an alternative lymphodepleting regimen in CAR T-cell therapy.

Maternal Bladder Exstrophy Complicating Cesarean Delivery: A Multidisciplinary Approach to Care

Poster Number: 4
Abstract: 1448
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine; Anesthesia Practice Consultants
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Bladder exstrophy (BE) is a rare and complex medical anomaly that requires surgical intervention early in life. BE has an incidence of 5 cases per 100,000 live births with most patients capable of living an otherwise healthy life after surgical correction. Female patients with BE can become pregnant in adulthood and are at an increased risk for complications during delivery due to their unusual anatomy, making medical decision making difficult and multidisciplinary.

Patient Description

This report is a G1P0 27-year-old female at 36 weeks gestation with a medical history of surgically corrected BE who presented for a scheduled Cesarean Section. Patient self-reported 18 total surgeries including ileal resections, pelvic floor reconstructions, a cystopexy to the right lower abdominal quadrant, and Mitrofanoff Procedure. The patient currently self-catheterizes through the Mitrofanoff stoma. The patient's pregnancy was complicated by placenta succenturiata and gestational hypertension.

Intervention

At 21 weeks gestation, a cesarean section was planned at 36 weeks with a multidisciplinary team of Anesthesiology, Maternal Fetal Medicine, Structural Urology, and OBGYN. Reconstructive Urology planned to catheterize the Mitrofanoff stoma and make the initial vertical incision then OBGYN would cut at the uterine fundus to perform the cesarean section. Given the patient's preference for an awake cesarean section, anesthesiology recommended a combined spinal-epidural (CSE) block with intrathecal morphine and the potential for a Transverse Abdominis Plane (TAP) block post-procedure. The cesarean section was performed to plan and the baby was delivered without complication. During the procedure, the patient complained of upper body tingling, to which 200µg total of fentanyl was administered. Post-procedure the patient had increased discomfort in the cephalad portion of her incision and received bilateral TAP blocks. The patient's pain was well tolerated and was discharged a few days later.

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Conclusions This case report is significant for the multidisciplinary approach for an awake cesarean section complicated by rare anatomy. The anesthetic plan was discussed 85 days before the procedure in conjunction with the multidisciplinary team considering the complexity of the case. A CSE with a TAP block was recommended due to the length of the procedure, the large abdominal incision, the preference of the mother to be awake, and current literature supporting liposomal bupivacaine prolonging analgesia and decreasing post-operative opioid usage with a neuraxial block.

A Neurologic Presentation of ANCA Positive Vasculitis

Poster Number: 49
Abstract: 1450
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Format: Poster
Category: Neurology
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Granulomatosis with polyangiitis (GPA) is a rare autoimmune inflammatory small vessel vasculitis involving the respiratory tract and kidneys. GPA can also involve the eyes, skin, gastrointestinal tract, heart, and the central or peripheral nervous system (PNS). Upper respiratory involvement is present in up to 90% of patients with GPA, while PNS involvement is present in only 15%. Diagnosis requires clinical features and the presence of specific antibodies. Proteinase-3 antineutrophil cytoplasmic antibody (PR3-ANCA) and cytoplasmic antineutrophil cytoplasmic antibody (c-ANCA) are positive in 80% of cases of GPA and only 35% of cases of other small vessel vasculitides.

Patient Description

A 52-year-old female presented with a three-week history of severe asymmetric burning pain and paresthesia of her hands and feet. She was initially prescribed two separate courses of prednisone in the outpatient setting. She had improvement; however, symptoms returned upon tapering and cessation. Initial outpatient workup showed mildly elevated ESR and CRP but was otherwise unremarkable. Due to the progressive development of bilateral dorsiflexion weakness she presented to the emergency department and was admitted to the hospital for comprehensive Neurologic evaluation. MRI of the neuraxis and CSF studies were unremarkable. Upon further discussion, she endorsed several months of intermittent blurred vision, oral and nasal sores, jaw fatigue, temporal scalp tenderness, and chronic sinusitis. EMG was consistent with an axonal motor neuropathy. Further analysis revealed a positive c-ANCA and PR3 autoantibodies and elevated urine protein: creatinine ratio, leading to the most likely diagno

Intervention

She was treated with short term high dose steroids while hospitalized and achieved significant improvement in her symptoms. She has been continued on maintenance prednisone and gabapentin and has tolerated weaning both to minimal doses.

Conclusions

Length-dependent polyneuropathy as the primary presenting symptom of GPA is rare. This case demonstrates the importance of keeping a broad differential for peripheral neuropathies.

Sub Internship Scholarships Promote Diversity in Plastic Surgery

Abstract: 1451
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Format: Oral Presentation
Category: Plastic Surgery
Author Status: Medical Student
Presentation Type: Quality Study/Initiatives

Introduction: The importance of diversity, equity, and inclusion (DEI) in graduate medical education (GME) is a well-accepted core value. Multiple initiatives have been implemented to increase DEI in GME, one of which is scholarships for 4th year visiting medical student sub-interns. The Association of American Medical Colleges (AAMC) originally defined Under Represented in Medicine (URM) as students who identify as Black or African American; Hispanic, Latino, or of Spanish Origin; or Hawaiian or Pacific Islander. Some scholarships use this as criteria for application, whereas others have expanded criteria. This study aims to determine if these scholarship opportunities increase representation of these groups in their residency programs.

Methods: Self-identified demographic data was obtained from the applications of 4th year medical students at a single Plastic and Reconstructive Surgery (PRS) residency program. Applicants who did not pass our first round of screening and those who went unmatched were excluded from our final analysis. The websites of all residency programs were reviewed to determine if their institution offered scholarships to visiting medical students from backgrounds traditionally underrepresented in medicine (URM) that could be applied to a PRS rotation. Applicants were categorized into two cohorts based on self-identified race or ethnicity; those considered to be underrepresented and overrepresented in medicine based on the AAMC's original definitions of the terms. Chi Squared analysis was performed to determine whether URM applicants were more likely to match at residency programs that offered diversity scholarships. Significance was determined using a p-value of 0.05.

Results: Just under half of all PRS residency programs are affiliated with institutions that offer scholarships for URM applicants (n= 37; 43.53%). A total of 232 applicants from the graduating medical classes of 2021 to 2023 were included in our final analysis. Our cohort is nationally representative, consisting of current residents at 81 residency programs. Applicants considered to be URM consisted of 20.69% (n=48) of our cohort. Nearly two thirds of URM applicants (n=30; 62.50%) matched into programs offering diversity scholarships. This is compared to 45.65% (n=84) of applicants considered to be ORM (p=0.04).

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Conclusions Though the definition of diversity and what it means to be under represented in medicine evolves over time and differs between settings, our analysis shows that those racial and ethnic groups originally deemed under represented in medicine by AAMC more frequently match at programs that offer diversity scholarships. This could be due to the original intent of scholarships giving opportunity to those that may not have had one otherwise, or because the presence of these scholarships advertises a URM friendly environment to applicants when they apply to and rank programs.

Assessing the Impact of 2021 E/M Guideline Changes on Breast Cancer Surgery Documentation: A Quality Improvement Research Study

Abstract: 1452
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Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: General Surgery
Author Status: Medical Student
Presentation Type: Quality Study/Initiatives

Introduction: Breast cancer surgery requires significant documentation and a wide variety of coding efforts, which can lead to excessive and unnecessary documentation and increased administrative burden for physicians. The 2021 Center for Medicare and Medicaid Services changes to the Evaluation and Management (E/M) guidelines for breast cancer surgery have the potential to reduce the administrative burden of documentation and coding, decrease the need for audits, and eliminate unnecessary documentation that is not necessary for patient care. While these changes have the potential to improve the efficiency and accuracy of the documentation process, it is important to evaluate the impact on patient care, as well as other possible benefits and risks to the practice associated with their implementation. This study seeks to assess the impact of the 2021 E/M guideline changes on breast cancer surgery docume

Methods: The research was conducted at the Corewell Health West Cancer Center Comprehensive Breast Clinic which represents a team of six surgeons and five advanced practice providers. Data was collected from the EPIC electronic health record system for records over four years, from January 1, 2019, to December 31, 2022. The study included all patient visit types during this period, with a focus on note character count. The study maintained patient confidentiality by de-identifying the collected data. We hypothesized a baseline mean note character count of 6500 with effect size of 10% reduction in character count in the time following the 2021 E/M guideline changes. Analysis of the pre- and post-2021 E/M Coding Guideline Changes in Note Length was performed utilizing the Independent-Samples Mann-Whitney U Test. Subgroup analysis was performed to determine factors that impact changes in note character count between the two periods. These included between years of service, and differences across p

Results: In an independent-samples Mann-Whitney U Test comparing note character count pre- and post- 2021 E/M guideline changes, the results indicate a significant difference ($p < .001$) between the two groups, and a Mann-Whitney U statistic of 97,611,200.500. The independent-samples Kruskal-Wallis test was conducted to examine the differences in note character count between years of service in 2019, 2020, 2021, and 2022. The results show a significant difference ($p < .001$) among the groups. The independent-samples Mann-Whitney U test conducted to analyze note character count differences across provider groups indicated a significant difference ($p < .001$) and the Mann-Whitney U statistic is 142,624,733.500.

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Conclusions Findings of this study suggest that the 2021 E/M guideline changes had a significant impact on breast cancer surgery documentation and note character count. Reduction in note character may lead to improved efficiency, patient care, and reduced administrative burden in breast cancer surgery practices.

Factors Influencing Timely Alveolar Bone Grafting Across Two Institutions

Poster Number: 69
Abstract: 1453
Author Names: Nicholas Wesely; Hanna Pfershy; John Girotto; Anna Carlson
Author Institutions: Corewell Health West
Format: Poster
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Clinical Study

Introduction: This study includes combined data from two large academic institutions in states where dental care is covered under Medicaid. However, Institution #1 does not have an associated dental school or dental/orthodontics as a part of the interdisciplinary cleft care team, while Institution #2 does. Using these institutions as proxies for affordable and accessible dental care, we hypothesize that ABG in patients with Medicaid status at Institution #1 would be delayed compared to Institution #2 due to limited access to affordable dental care in the interim between primary palate closure and ABG.

Methods: A retrospective analysis of all patients that received alveolar bone grafting was performed across two institutions. Data was combined from Institution #1, 202 patients since 2012, and Institution #2, 74 patients since 2018. Data regarding patient demographics, insurance status, driving distance, and surgical dates were stratified based on standard timing (<12 years) versus late timing (>12 years). Early bone grafting (<6 years) was excluded from the study. A univariate linear regression model was performed based on gender, race, insurance status, and driving distance. A Cochran-Mantel-Haenszel Test, controlled for insurance, was performed to determine if the proportion of patients who were late or standard differed by location.

Results: The individual regression model demonstrated that race, driving distance, and institution were not significant factors in ABG timing, with an odds ratio (OR) of 1.492 (p=0.16), 0.998 (p=0.39), and 0.728 (p=0.32), respectively. Female patients were twice as likely to receive ABG at standard timing (p<0.01). Medicaid status had an OR of 0.409 (p<0.01) for receiving an ABG at standard time. The Cochran-Mantel-Haenszel Test showed that there was no difference in proportion of patients who were standard versus late at each institution when controlled for insurance status, with an OR of 0.982 (p=0.95).

Conclusions: Our results showed that when data was combined across institutions, Medicaid status was a predictor of late ABG and female gender was a predictor of standard ABG, whereas race and driving distance did not affect ABG timing. The Cochran-Mantel-Haenszel Test showed that there was no difference in timing of ABG between institutions in those that had Medicaid versus private insurance, disproving our original hypothesis that a cleft team with integrated dental/orthodontic care and an associated dental school would maintain timely ABG in Medicaid patients. Other factors asso

An Unusual Case of Achalasia Presenting as Gastric Outlet Obstruction

Poster Number: 28
Abstract: 1454
Author Names: Sonia A. Samant, MD; Alexandra M. Charron, BS; M. Samy Behairy, MD
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Achalasia is motility disorder of the upper gastrointestinal tract presenting with dysphagia and regurgitation. Global prevalence is estimated between 1.8 and 12.6 per 100,000. A 2020 study estimated the prevalence in the United States at approximately 10.5 per 100,000 for those under 65 and 26 per 100,000 for those over 65. More uncommon than achalasia is the co-occurrence of a hiatal hernia, which is diagnosed when an abdominal structure, commonly a portion of the stomach, passes through the diaphragm into the thorax. Symptoms of hiatal hernia overlap with those of achalasia. The comorbidity of hiatal hernia and achalasia has not been widely explored. A 2019 study found that of 58 patients treated surgically for achalasia, 20.7% had a hiatal hernia. We present a case of a patient who underwent surgical repair for paraesophageal hiatal hernia and was later found to have achalasia.

Patient Description

A 63-year-old man presented for dysphagia and severe reflux. Esophageal manometry showed mildly abnormal motility and sphincter pressures, but was not consistent with achalasia. An upper GI study revealed a large hiatal hernia with mild esophageal dysmotility. An endoscopy found a small hiatal hernia and a dilated distal esophagus with retained fluid and food. The discordant EGD and UGI results were correlated with the CT finding of a large hiatal hernia. It was felt that identification of the esophagus and the stomach on EGD may have been confounded by the tortuosity and tubularization of the intrathoracic stomach as it passes the left diaphragmatic crus. Symptoms were felt to result from the hiatal hernia rather than esophageal dysmotility. A pre-operative UGI redemonstrated a large hiatal hernia with anterograde flow of contrast through the herniated stomach, into the portion of the stomach below the diaphragm, and into the duodenum. The decision was made to pursue surgical repair.

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Intervention	The patient underwent paraesophageal hernia repair with posterior cruroplasty and Dor fundoplication. A postoperative UGI study found esophageal dilation with spontaneous reflux. There appeared to be a persistent hiatal hernia. No anterograde flow of contrast was noted after 30 minutes. Due to concern for gastric outlet obstruction, the patient was taken back to the operating room. The fundoplication was intact and located below the diaphragm. The distal esophagus was intra-abdominal. The fundoplication was taken down. A partial gastrectomy was performed for ischemic changes of the fundus. Intraoperative EGD showed a dilated fluid-filled esophagus. The gastroesophageal junction was below the diaphragm. A postoperative UGI study redemonstrated a dilated, smooth-contoured structure above the diaphragm with rugal folds below the diaphragm. When correlated with intraoperative findings, the intrathoracic structure was felt to represent a massively dilated esophagus due to achalasia, rather than a hiatal hernia.
Conclusions	Two salient clinical pearls can be deduced from this case. In early achalasia, manometric changes can be mild and the lower esophageal sphincter tone may be normal. If clinical suspicion for achalasia is high, further testing or temporizing measures should be utilized prior to surgical repair. Additionally, fundoplication without concurrent myotomy can worsen the lower esophageal sphincter relaxation and lead to obstruction. Physicians should be aware of the coexistence of hiatal hernia and achalasia particularly when diagnostic testing is discordant or equivocal.

Intestinal Origami: Cecal Bascule as a Cause of Abdominal Pain and Distention

Poster Number: 77
Abstract: 1455
Author Names: Kristin Geczi, MD; David Calderhead, MD
Author Institutions: Corewell Health West; Michigan State University
Format: Poster
Category: Other
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Cecal volvulus is responsible for 1-3 % of large bowel obstructions. Cecal bascule, folding of the cecum leading to obstruction, is the rarest form of cecal volvulus with an incidence of about 2.8-7.1 per million people per year. Risk factors include peritoneal adhesions, mobile cecum, bowel dysfunction, and cecal displacement. The most common symptom is abdominal pain, usually accompanied by nausea, vomiting, and constipation. Diagnosis can be made by upright plain abdominal film, but abdominopelvic CT scan can provide better details for confirmation. Cecal volvulus is generally treated surgically by detorsion followed by colonic resection.

Patient Description

79-year-old female with past medical history of tobacco use, COPD, cholecystectomy, appendectomy, and breast cancer s/p resection in 2020 was admitted to the hospital for left lower lobe pneumonia and COPD exacerbation. Prior to hospitalization, the patient had not had a bowel movement in 6 days. Patient was noted to be hypotensive with left chest pain of the costal margin. Laboratory studies showed leukocytosis. KUB was negative for bowel obstruction on initial workup. She was passing gas, so patient was treated for constipation with oral agents and later suppositories. The patient continued to have a bowel movement and enemas were initiated. Due to the location of the patient's pain and her imaging findings, the pain was attributed to her complicated parapneumonic effusion requiring tPA/dornase. After the initiation of enemas, the location of her pain migrated caudally to her LUQ.

Intervention

She started to have increased abdominal distension, and a repeat KUB showed significant small bowel distension. However, the patient was still having flatus. At the same time, she was having worsening leukocytosis into the 30s. Patient developed worsening abdominal pain with peritoneal signs including guarding and rebound tenderness. Abdominopelvic CT showed cecal bascule. Patient had an emergent exploratory laparotomy which showed ischemic colon with areas of necrosis from the cecum to the splenic flexure. She had ascending, transverse, and distal colectomies with end ileostomy. Unfortunately, her hospital course was complicated by worsening respiratory status, shock liver, pneumatosis intestinalis, and perforation of the small intestine. Patient's family elected to proceed with comfort care, and patient died after about two weeks in the hospital.

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Conclusions The opioid medications she received may have masked some of her pain on initial abdominal exams, providing false reassurance. While a thoracic etiology of her lower chest pain made clinical sense, the etiology was multifactorial. If clinical suspicion is high for an obstructive abdominal process, an abdominopelvic CT is a better choice for initial imaging than an abdominal radiograph. CT can demonstrate a transition point and identify any other nonobstructive abdominal process. Rapid diagnosis of cecal volvulus is crucial to allow for early surgical intervention.

Virtually connecting undergraduate medical students to pediatric patients: a pilot program to assess parental perceptions

Abstract: 1456
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Educational Study

Introduction: Clinical electives offer students the opportunity to explore career interests and expand their knowledge. Lack of subspecialty presence at students' home institutions, in combination with cost-prohibitive away electives, limits this opportunity and creates educational gaps for some students. To address this disparity, the authors sought to develop an innovative elective in which students virtually attend in-person patient visits.

Methods: For curricular development patient, guardian, and provider perceptions were collected. A 2-week study whereby a medical student virtually attended in-person patient visits in the pediatric hematology oncology outpatient clinic was conducted. Surveys were distributed to patients and/or guardians, and providers regarding perceptions of virtual student attendance and the impact on their in-person visits. Quantitative data from surveys were calculated and reported as percentages. Qualitative data from survey comments were transcribed and reported as is. The protocol was approved by the local institutional review board.

Results: 92% of patients and/or guardians approached to participate consented and completed their visit with a student attending virtually. 100% of patients and/or guardians would permit students to attend virtually during future visits. 100% of providers did not feel distracted by the student attending virtually. 81% would permit students to attend virtually if this was a recurring elective.

Conclusions: Pediatric hematology oncology patients and/or guardians were willing to trial this innovative learning strategy. Faculty buy-in and a seamless workflow should be planned carefully to maximize learning while minimizing disruption to patient care. Clear expectations and telemedicine training should be provided to students. Future elective design can include this type of virtual distance-learning with the goal of expanding learner opportunities.

A Rare Presentation and Management of Cholecystocolic Fistula

Poster Number:	29
Abstract:	1457
Author Names:	Yetty Ogunneye, DO; Hannah Liefeld, MD; Lora Silverman, MD; Anacleto Diaz, MD
Author Institutions:	Michigan State University
Format:	Poster
Category:	General Surgery
Author Status:	Resident Physician
Presentation Type:	Case Report (< 3 patients)

Introduction

Biliary fistula (BF) is rarely reported in the literature. Most cases were reported in women in their 6th to 7th decade of life. There are 3 main types of BF which include cholecystoduodenal fistula, cholecystocolic fistula (CCF) and cholecystogastric fistula. CCF, which accounts for approximately 10-20% of BF cases, is often discovered intraoperatively for which operating surgeons are usually forced to switch from laroscopic to open cholecystectomy with the closure of the fistula. Some surgeons suggest that gold standard for management for biliary-enteric fistulas should be open cholecystectomy with the closure of the fistula. We report a case of CCF in a 28 year old female that was successfully managed with laparoscopic surgery.

Patient Description

A 28 year old female presented to the emergency room determined with epigastric and right upper quadrant abdominal pain. She described a constant severe pain with associated nausea and vomiting. Patient was afebrile and physical was postive for tenderness on palpation of epigastric and right upper quadrant regions. Laboratory tests was suggestive of obstructive liver pathology. Ultrasound showed a large stone in the gallbladder with distention of the common bile duct. ERCP was performed and multiple stones were removed. Patient later underwent laparoscopic cholecystectomy procedure.

Intervention

We managed our case entirely with laparoscopic surgery. Our Patient later underwent laparoscopic cholecystectomy procedure. During laparoscopy, a small fistula was found between the gallbladder and large bowel. Colorectal surgery was consulted. It was then determined best to proceed with laparoscopic cholecystectomy with take down of CCF. Patient tolerated procedure well.

Conclusions

cholecystocolonic fistula is a rare disease that may not be restricted to the elderly population. Correct preoperative diagnosis of CCF can help determine feasibility and success of laparoscopic management. Our CCF case was diagnosed at the time of laparoscopic procedure and was successfully managed entirely by laparoscopic surgery.

Trends from Behavioral Health Screening in a Pediatric Hematology Oncology Clinic

Abstract: 1458
Author Names: Jenna Braun, MD; Chi Braunreiter, MD; Tara Sebastian, MD; Clare Deveau, LMSW; Chad Fessenden, LMSW; Allison Close, MD
Author Institutions: Helen DeVos Childrens Hospital
Format: Oral Presentation
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction: Patients presenting to an outpatient Pediatric Hematology and Oncology (PHO) clinic are often treated for illnesses that are associated with significant and emotional distress. Adolescent and young adult (AYA) patients, specifically, are at an important stage of psychological development, and when receiving a diagnosis of chronic illness or experiencing a life-threatening event, these patients are expected to have increased levels of uncertainty and mental distress.

Methods: A mental health screening process with PHQ and GAD questionnaires was implemented in an outpatient PHO clinic. Data was compiled on questionnaire scores, diagnosis category, and if patient is on active treatment for 316 participants. Diagnoses from clinic were separated into five categories: coagulation, benign hematology, brain tumors, solid tumors, and leukemia/lymphoma.

Results: A Kruskal-Wallis test resulted in a p-value of 0.024 for diagnosis category versus PHQ2, indicating median PHQ2 scores differ for at least one diagnosis category. A Dwass, Steel, Critchlow-Flinger multiple comparisons method was applied for the post-hoc pairwise multiple comparisons. With a corresponding p-value of 0.0362, there is sufficient evidence that the PHQ2 score differs between coagulation and leukemia/lymphoma, with higher averages for coagulation disorders. Another Kruskal-Wallis test resulted in a p-value of 0.453 for diagnosis category versus GAD2, indicating insufficient evidence that median GAD2 scores differ for at least one diagnosis category

Conclusions: Initial screeners used for depression within an AYA PHO population are significantly higher within patients with coagulation disorders. This information may help clinics target mental health resources to at risk groups.

Uremic Pericardial Effusion with Tamponade as Initial Presenting Sign of Transplant Rejection

Abstract: 1459
Author Names: Allison Kowatch; Matthew Flannigan, DO
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

A pericardial effusion is an accumulation of fluid in the pericardial sac and may be due to many etiologies such as malignancy, infection, or uremia. Cardiac tamponade results from a large effusion compressing the heart, resulting in low cardiac output. This carries a high mortality rate, therefore prompt diagnosis and treatment is essential to survival. Prior to the discovery of echocardiography, the diagnosis of pericardial effusion was challenging as other imaging modalities are not as specific or sensitive. The use of emergency department (ED) focused cardiac ultrasound (FOCUS) has been found to be 96% sensitive and 98% specific for the presence of an effusion when compared to a cardiologist interpretation. We present a case of an adult female with a large pericardial effusion that progressed to cardiac tamponade which was diagnosed and managed based on the findings of an ED FOCUS.

Patient Description

The patient is a 23-year-old female with a history of kidney transplant that presented to the ED with shortness of breath, cough, and fever for 3 days. On initial physical exam, she was ill appearing without respiratory distress. Vital Signs: T 38.1, HR 133, RR 20, BP 180/110, SpO2 100% on room air. Chest x-ray revealed cardiomegaly and bilateral hazy opacities. FOCUS showed a large pericardial effusion, dilated inferior vena cava (IVC), and right atrium free wall indentation, suggestive of tamponade physiology. Notable laboratory results included: Cr 30.26, BUN 147, WBC 22.09, Troponin 432. About 3 hours later, while waiting for an inpatient bed in the ED, she developed worsening dyspnea and jugular venous distention. Repeat vital signs: HR 144, RR 41, SpO2 89% on 6L nasal cannula, BP 196/119. An emergency physician preformed a repeat FOCUS that was concerning for worsening tamponade physiology with right ventricular collapse, echocardiographic pulsus paradoxus, and IVC dilation.

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Intervention	The patient was transferred emergently to a tertiary care hospital and underwent pericardiocentesis 10 hours after her initial ED presentation with 1L of yellow tinged fluid removed and had a pericardial drain placed. Fluid analysis, gram stain, and culture demonstrated no evidence of malignancy or infection, therefore, confirmed the source for the effusion was likely secondary to uremia. She was subsequently scheduled for emergent dialysis, which was continued three days a week after discharge. The patient also had an allograft renal biopsy that demonstrated interstitial fibrosis, concerning for acute antibody mediated rejection. There were concerns of non-compliance with her immunosuppressive therapy, which was supported with a Tacrolimus level <2 on admission. She was started on steroids and immunosuppressive therapy. She has not had reoccurrence of the pericardial effusion since and is currently following with a transplant center, awaiting a second kidney transplant.
Conclusions	Echocardiography is the most important tool in the evaluation and management of a pericardial effusion given its high sensitivity, high specificity, and use as a guide during pericardiocentesis. FOCUS is a valuable skill that improves an emergency physician's ability to rapidly evaluate patients who present with undifferentiated dyspnea, as illustrated by this case of a uremic pericardial effusion with tamponade due to transplant rejection from non-compliance with immunosuppression.

Suspected choledocholithiasis: what is the best way to manage?

Poster Number: 35
Abstract: 1461
Author Names: Camille Abutin; J.K. Kelley, MD; Charles Reed; Mary Reiber; Avery Sena; Jake Sypniewski; G.M. Zambito, MD; A.L. Banks-Venegoni, MD; Jeremy Mormol, MD
Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: General Surgery
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction: Endoscopic retrograde cholangiopancreatography (ERCP) has both diagnostic and therapeutic benefit in treating suspected choledocholithiais prior to surgery but has a complication rate of causing pancreatitis up to 15%. Due to this risk there are those that prefer to perform MRCP first to confirm the presence of CBD stones prior to subjecting patients to ERCP risks. The goal of our study is to evaluate the safest, efficient, and most cost-effective way to manage suspected choledocholithiasis. We hypothesized that patients who underwent ERCP first had decreased length of stay and therefore decreased total hospital costs relative to those who did not undergo ERCP first.

Methods: We conducted a retrospective review of patients over the age of 18 years with suspected chole-docholithiasis, based on labs and imaging, at a single institution between 2017 to 2023. Patients were excluded if they had gallstone pancreatitis. Patients were then characterized into one of three groups based on their management pathway: (1) ERCP first, (2) MRCP first, or (3) surgery first with possible intra-operative cholangiogram pending laboratory trend. Our primary outcome was hospital length of stay. Secondary outcomes of interest included complication rates and whether patients admitted to non-surgical services had increased length of stay relative to those admitted to a surgical service.

Results: A total of 132 patients were included, 33 patients (25%) had MRCP first, 60 patients (45%) had ERCP first, and 39 patients (30%) received surgery first. The average age of all patients at time of admission was 50 (SD-20) years. A majority were female (n=84, 64%), Caucasian (n=110, 83%), and non-Hispanic (n=118, 89%). The average BMI was 32 (SD-7) and the average Charl-son Comorbidity Index was 2. The average length of stay for the MRCP, ERCP, and surgery first groups were 3.2, 3.7, and 2.8 days, respectively. On pairwise analysis, there was no statistically significant difference between the three groups (MRCP vs ERCP, p=0.12; MRCP vs. surgery, p=0.26; ERCP vs. surgery, p=0.06). The post-ERCP pancreatitis rate was 3%. Over half of the patients were admitted to a surgical service (n=69, 56%). The average length of stay for those admitted to a surgical service was 2.8 days versus 3.8 days for those admitted to the medicine service (p=0.01).

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Conclusions There was a trend towards significance (p=0.06) when comparing the surgery first groups to ERCP and MRCP, with a clear clinical benefit with one less hospital day.

A Forecast of Embolic Showers: Recurrent Stokes Secondary to Nonbacterial Thrombotic Endocarditis

Abstract: 1462
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Author Institutions: Corewell Health West; Michigan State University
Format: Oral Presentation
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Nonbacterial thrombotic endocarditis (NBTE), also known as Libman-Sacks endocarditis, is a rare condition characterized by the formation of sterile vegetations on cardiac valves, which can lead to embolic events. While infective endocarditis (IE) is more commonly encountered, NBTE poses diagnostic challenges due to its insidious onset and association with various underlying conditions- specifically those that cause hypercoagulable states such as autoimmune diseases and malignancies. Here, we present a case of recurrent strokes attributed to NBTE in a patient with newly diagnosed underlying malignancy.

Patient Description: A 66-year-old female with a medical history significant for multiple strokes presented with recurrent episodes of left-sided weakness and slurred speech. Initial imaging findings were consistent with acute infarcts distributed throughout the distal right MCA territory and cerebellar hemisphere. Transthoracic and transesophageal echocardiography revealed multiple vegetations on the atrial aspect of the mitral valve with a component of mobility, suggestive of both IE and NBTE. Infectious work-up was negative and further evaluation identified stage III lung adenocarcinoma. PET imaging was utilized to help differentiate NBTE from IE.

Intervention: Through multidisciplinary collaboration, the most appropriate management plan for the patient was initiated. Cardiothoracic surgical intervention was deferred given the diagnosis of metastatic lung adenocarcinoma and the patient's poor prognosis. Anticoagulation, anticipated to be indefinite therapy, with warfarin was initiated for the management of NBTE and to continue to be managed by the cardiology team on an outpatient basis. Additionally, a port was placed and the patient continues with outpatient follow-up with the oncology team for chemoradiation therapy as management for her lung adenocarcinoma. Neurology clinic appointments were also made to monitor residual neurologic symptoms from her consecutive strokes. The patient participated in inpatient rehab following discharge as a supportive measure to improve daily functionality. Currently, the patient is undergoing chemoradiation therapy and has not had a recurrent stroke while on anticoagulation since discharge.

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Conclusions

This case underscores the importance of considering NBTE in patients presenting with recurrent strokes, especially in patients with underlying malignancies. Multidisciplinary collaboration between neurology, cardiology, oncology, and palliative care is essential in managing these complex cases. Awareness of NBTE as a potential etiology of embolic events and prompt recognition is crucial in preventing thromboembolic complications and optimizing patient outcomes.

Point of Care Ultrasound Detection of Ascending Aortic Dissection in a Patient with ST Elevation and Hypotension

Abstract: 1463
Author Names: Rachel Armstrong, MS2; Jordan Johnson, MD
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Aortic dissection (AD) is a rare, yet life-threatening condition characterized by an intimal tear in the aorta. AD is associated with an in-hospital mortality of approximately 30%; however, long-term survival is markedly improved with rapid diagnosis and surgical intervention. One such barrier to rapid detection of AD is its variable presentation. Common signs such as hypotension, chest pain, and electrocardiogram (ECG) abnormalities can mimic other acute pathology, delaying diagnosis and treatment of AD. Point-of-care ultrasound (POCUS) has been shown to aid in the diagnosis of AD, especially in cases of ST-segment elevation myocardial infarction (STEMI). We present a hypotensive adult with STEMI on his ECG who was found to have a large pericardial effusion with tamponade on POCUS, altering his disposition to the operating room instead of the cardiac catheterization lab.

Patient Description

A 51-year-old male with a past medical history of hypertension, type II diabetes mellitus, CPAP dependent obstructive sleep apnea, and a right sided rib fracture four days prior was brought to the emergency department (ED) by emergency medical services for sudden-onset chest pain that radiated to his abdomen. In transit to the hospital, an ECG was performed showing lateral ST segment elevations. Upon arrival to the emergency department, the patient was toxic-appearing, diaphoretic, cool to touch, tachycardic with a heart rate of 123 beats per minute, and hypotensive with a blood pressure of 76/39. Repeat ECG demonstrated inferior ST elevations without reciprocal changes. The patient's hypotension in the setting of ST elevation prompted further evaluation prior to transfer to the cardiac catheterization lab.

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Intervention — POCUS performed by the ED physician revealed cardiac tamponade caused by a large pericardial effusion with varying echogenicity, which raised concern for acute AD. Interventional cardiology was consulted and agreed that this patient was not a candidate for emergent pericardiocentesis due to the high likelihood of AD. A cardiac sonographer subsequently performed an emergent transthoracic echocardiogram which showed a dilated aortic root and possible dissection flap in the ascending aorta. The patient's blood pressure did not improve following 2-liter crystalloid bolus, and he was consequently started on a norepinephrine drip resulting in hemodynamic stabilization. A computed tomography (CT) angiogram of the thorax was then obtained which confirmed a Stanford type A AD. The patient was then sent to the operating room with the cardiothoracic surgery team and underwent successful repair of his AD. His post-operative course was relatively uncomplicated. He was discharged home on hospital day 11.

Conclusions — AD should be considered in the differential diagnosis for patients presenting with STEMI and hypotension. While AD has been associated with less than 2% of STEMIs, the high likelihood of mortality associated with AD warrants evaluation with POCUS in appropriate patients. Had POCUS not been performed in this case, the delay in repair of his AD by sending him to the cardiac catheterization lab could have resulted in death. Thus, ED physicians should be comfortable utilizing POCUS to assess patients who present with STEMI and hypotension.

New-Onset Atrial Fibrillation and Identification of Cardiomyopathy in a Young Patient Experiencing Thyrotoxicosis

Abstract: 1464
Author Names: Katie Wilk, MS3; Jordan Johnson, MD
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Atrial fibrillation (a-fib) has a well-documented association with hyperthyroidism. Cardiomyopathy has also been associated with thyrotoxicosis, however, occurs in approximately 6% of patients. Even less common is the presence of dilated cardiomyopathy, occurring in approximately 1% of patients experiencing thyrotoxicosis. It is thought that the thyrotropin receptor antibodies attack the myocardium similarly to the mechanism of Graves ophthalmopathy. This is typically seen in patients middle-aged and beyond, however, in the setting of uncontrolled Graves Disease may become more likely in a younger patient. Dilated cardiomyopathy is typically diagnosed by echocardiography. Point-of-care transthoracic echocardiography (POCTE) performed by an emergency medicine (EM) physician can help expedite this diagnosis and direct subsequent consultation and management.

Patient Description

A 34-year-old male presented to a tertiary care facility for tachycardia and bilateral lower extremity edema which was noted by his new primary care provider during an outpatient visit where he was seen for his chief complaint of unintentional weight loss for one month. Prior to this visit, he had not seen a physician since adolescence. His partner was present at the time and felt his eyes were bulging slightly. He began to report palpitations while in the emergency department (ED). He endorsed tobacco and alcohol use. He denied any past medical history. Physical examination revealed tachycardia (133 BPM) with an irregularly irregular rhythm, bilateral exophthalmos, jaundiced skin, and lower extremity edema. No thyroid nodules or thyromegaly were palpated. ECGrevealed new-onset a-fib with rapid ventricular response. Labs were remarkable for TSH <0.01, free T4 >7.7, total bilirubin 3.1, ALP 248, platelets 89, and pro-BNP of 2,714. Chest X-ray revealed marked cardiomegaly.

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Intervention	He received two intravenous pushes of diltiazem, which improved his HR to 110-130. Labs and imaging led to POCTE performed by an EM physician. This was concerning for dilated cardiomyopathy and reduced left-ventricular ejection fraction (LVEF). He scored 65 on the Burch-Wartofsky point scale for thyrotoxicosis, which is highly suggestive of thyroid storm. Endocrinology was consulted and recommended methimazole 20mg twice daily (BID), propranolol 40mg BID, and hydrocortisone 100mg once, followed by 50mg every 8 hours. He was admitted to a progressive floor where further workup led to a diagnosis of Graves Disease. Comprehensive echocardiogram revealed dilated cardiomyopathy with LVEF 30%, dilated right ventricle, reduced right ventricular systolic function, moderate mitral valve regurgitation, severe tricuspid valve regurgitation, and systolic flow reversal in the hepatic vein. He underwent cardioversion 1 week after admission. He successfully converted to normal sinus rhythm and was discharged home.
Conclusions	Dilated cardiomyopathy is a rare but potentially life-threatening presentation of thyrotoxicosis. While the diagnosis may be surmised by physical exam, laboratory, and x-ray findings, POCTE performed by an EM physician can rapidly confirm the diagnosis. This is an especially important consideration in rural EDs that may not have emergent comprehensive echocardiography and cardiology consultation available. Information obtained from the POCTE can then guide immediate resuscitation and confirm the need for hospital admission or transfer.

Fat Emboli Syndrome

Abstract: 1466
Author Names: Michael Kaminski, BSc; Baylee Miller; Nicholas Watson, MD
Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Trauma
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Fat Emboli Syndrome (FES) is a dissemination of fat molecules that affect the microcirculation of the human body. FES occurs most often following a traumatic injury to the pelvis and/or lower extremities, affecting 1-11% of trauma patients. There are two leading theories to suggest the pathophysiology of FES: The biochemical theory posits that the release of high concentrations of free fatty acids and triglycerides cause inflammatory damage to capillary beds and organs, while the mechanical theory suggests that when fat cells are traumatically released from bone marrow they occlude the microvasculature. Complications typically arise 24-72 hours after trauma occurs, with pulmonary dysfunction arising earliest and cerebral edema contributing to altered mental status (AMS). This case presents the opportunity to consider optimal timing for long bone surgical intervention in symptomatic FES.

Patient Description

A 20-year-old male in a motor vehicle collision sustained multiple fractures including open right tibia and fibula comminuted displaced fractures, open left tibia comminuted displaced fracture, closed left fibula comminuted displaced fracture, and right distal 1/3rd displaced femur fracture. This patient had no significant past medical history or surgical history, no known drug allergies, and denied any prescription or over the counter medications. The patient exhibited symptoms of respiratory failure, AMS, became febrile, and developed a petechial rash on the chest. The patient also developed hemolytic anemia and thrombocytopenia. Chest x-ray demonstrated pneumonitis, and MRI demonstrated numerous scattered small foci at the bilateral cerebrum and questionably at the cerebellum, representing sites of acute and subacute infarction, findings consistent with FES.

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Intervention	Upon arrival, treatment included IV fluid resuscitation, blood transfusions, reduction and splinting of bilateral lower extremities, and traction pin placement in the right femur. On hospital day 1, the patient required 40L of high-flow nasal cannula oxygen due to worsening respiratory function. Delaying operative repair was favored by an interdisciplinary team, concerned about exacerbating FES with long bone manipulation. By day 2, respiratory status improved; oxygen need decreased to 4L. Given the MRI results, the decision was again made to delay operative intervention on the basis of avoiding an exacerbation of FES. On day 3, acute respiratory failure was managed with 12 liters/min oxygen via a venturi mask. With worsening FES symptoms, potentially fueled by ongoing fat release from fractures, operative repair for right femoral and tibial shaft fractures was performed. Day 4 saw improved respiratory status, requiring 3L oxygen, and final surgical repair for the left tibial shaft fracture was conducted.
Conclusions	This case demonstrates classic FES findings and the uncommonly seen MRI findings of FES, and also presents the opportunity to consider optimal timing for long bone surgical intervention in symptomatic FES. In this case, multidisciplinary discussion arrived at the conclusion that unrepaired fractures were likely contributing to ongoing FES, and therefore the decision was made to proceed with operative fixation. While no 'text book' solution exists for navigating this complex scenario, this case exemplifies the benefits of thoughtful medical decision making in FES.

Duodenal GIST with Multiple Liver Metastases that Eventually Underwent Whipple and Liver Resection: A Case Study

Poster Number: 57
Abstract: 1467
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Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Study

Introduction

Gastrointestinal stromal tumors (GISTs) are rare mesenchymal neoplasms that account for about 0.1% to 3% of all gastrointestinal malignancies and 5% to 7% of all sarcomas1. The stomach is the most common site of origin; duodenal GISTs are uncommon, representing only 3% to 5% of all GISTs. Liver metastases occur in 30% to 50% of GIST cases, median survival is less than one year7,8. The role of liver resection for GIST liver metastases is controversial and limited by the high rate of recurrence. However, some studies have suggested that liver resection may improve survival in select patients. We report a rare case of a patient with duodenal GISTs and multiple liver metastases who underwent both a Whipple procedure and liver resection. To our knowledge, this is the first case report describing this combination of surgeries for this condition.

Methods

66-year-old male patient with a past medical history of atrial fibrillation/flutter on Eliquis, diabetes mellitus type two, stage 3 chronic kidney disease, TIA in 2017, old stroke, iron deficiency anemia requiring recent packed red blood cell transfusion (twice in one week), presented to the surgical oncology department with a persistently bleeding duodenal GIST, despite neoadjuvant chemoradiation, and multiple stable liver metastases. He was diagnosed with a duodenal GIST in 2018, which has progressed to stable metastasis to the liver. The persistent bleeding lead to shared-decision making conversation on his moderate risk for a high-risk procedure. The American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQP) Surgical Risk Calculator tool was used in this patient's evaluation to help asses perioperative risk with the goal of improving mortality outcomes, quality of care, and care standardization.

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Results A pancreaticoduodenectomy and exploratory laparotomy were indicated. Intraoperative liver ultrasound confirmed four lesions and multiple gallstones within the gallbladder. The duodenum and its tumor were adhered to the IVC, aorta, ligament of treitz, renal vein, and SMA. Tedious dissection resulted in minimal blood loss, and good hemostasis was achieved. The pringle maneuver was utilized during resection of hepatic lesions for minimal blood loss. Reconstruction followed, use of the standard pancreaticojejunostomy in a modified Blumgart technique and a pancreatic duct to jejunal mucosal anastomosis. 10cm distal to this anastomosis, a single-layer hepaticojejunostomy was performed. A loop of jejunum 70cm distal from the hepaticojejunostomy was brought in an ante colic, retro gastric fashion up to the stomach. An enterotomy and gastotomy were made, and a stapled gastrojejunostomy was performed. The patient tolerated the procedure well and was discharged from the hospital one week later.

Conclusions GISTs are rare mesenchymal neoplasms, with a large percentage of cases leading to liver metastases and median survival of less than a year. For these patients, liver resection is a controversial choice in treatment. Our patient presented with an exceptionally rare duodenal GIST and liver metastases. To our knowledge, this is also the first case in which a Whipple procedure and liver resection were successfully performed for this condition. This case presentation will contribute to the knowledge and practice of surgeons who encounter similar cases in the future.

Responsive Neurostimulation in Pediatric Drug Resistant Epilepsy: A Retrospective Case Series

Poster Number: 51
Abstract: 1468
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Format: Poster
Category: Neurology
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction

Epilepsy, affecting 470,000 children in the United States, presents a substantial healthcare challenge, with 20% experiencing drug-resistant epilepsy (DRE). The consequences of DRE include an elevated risk of premature mortality from seizure-related accidents, status epilepticus, and sudden unexpected death in epilepsy. While deep brain stimulation (DBS) and responsive neurostimulation(RNS) have demonstrated efficacy in the adult epilepsy population, their use in children lacks approval from the Food and Drug Administration(FDA). Preliminary studies with children utilizing DBS and RNS systems have shown promising results, yielding a reduction of 50% or more in seizures and improved life satisfaction. Adult studies involving RNS indicate post-implant improvements in cognitive functions such as working memory, processing speed, reasoning, planning, problem-solving, and memory recognition.

Methods

We performed a retrospective chart review on pediatric DRE patients (n = 31) who were treated with the RNS System at Helen Devos Children's Hospital (Grand Rapids, MI). All patients included in the study were treated for six or more months. Patients' charts were analyzed under IRB-approval. Demographics, patient's epilepsy history, management, and outcomes were retrieved from the patients' charts. Seizure reduction percentages were calculated via comparison of patients' observed seizure frequency at pre-implantation of the RNS system (baseline) and their most recent follow up visit post-implantation. The determination of seizure frequencies at baseline and post-implantation are from patient, parent, and clinical observation histories.

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Results Bilateral RNS systems were placed in 4 patients. The remaining 27 patients had only one RNS system placed. The median age at implantation was 17 years old (range 6-20 yrs). The median age at onset of epilepsy was 8 years old (range birth - 15 yrs old). Median duration of treatment is 422 days (range 133-1571 days). Patients had a wide range of previous interventions such as VNS placement (16%), laser ablations (6%), and lobectomy/resections (13%). Of the 16% of patients who had a VNS placed (n = 5), only 4 have active VNS systems. Of all patients, 77% had a SEEG obtained and 71% had MEG utilized to guide assessment and determine localization of seizures and placement of stimulation leads. Among the 31 patients, 74% experienced a seizure reduction of 50-100% via calculated seizure reduction. Within those patients, 26% were super responders with >90% seizure reduction, with some even experiencing total seizure freedom. This population also had 45% of patients verbalize noticeable improvement in quality of life.

Conclusions Responsive neurostimulation holds promise in improving seizure freedom and life quality. Its efficacy extends to not only focal DRE, per FDA guidelines, but also generalized epilepsy. This study urges tailored follow-ups by neurologists, emphasizing not only seizure reduction but also quality of life status. Acknowledging potential long-term consequences of pediatric epilepsy on brain growth, the study explores RNS as a less invasive and safe surgical technique with dual benefits of seizure freedom and possible superior cognitive outcome when compared to the untreated.

Cannabis-induced Anxiety Disorder in the Emergency Department

Abstract: 1469
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Format: Oral Presentation
Category: Emergency Medicine
Author Status: Other
Presentation Type: Clinical Study

Introduction: In December 2018, Michigan became the 10th state to legalize marijuana for adults. Since this law took effect, increased availability, and use of cannabis in Michigan have led to an increase in emergency department (ED) visits associated with the drug's psychiatric effects. Our objective was to describe the prevalence, clinical features, and disposition of cannabis-induced anxiety disorder in a community-based study.

Methods: This was a retrospective cohort analysis of consecutive patients diagnosed with toxicity related to cannabis use. Patients were seen at seven emergency departments (EDs) over a 24-month study period. Data collected included demographics, clinical features, and treatment outcomes in patients presenting to the ED with a chief complaint of anxiety. This group was then compared to a cohort experiencing other forms of cannabis toxicity. Chi-squared and t-tests were used to compare these two groups across key demographic and outcome variables.

Results: During the study period, 1135 patients were evaluated for cannabis toxicity. A total of 196 patients (17.3%) had a chief complaint of anxiety and 939 (82.7%) experienced other forms of cannabis toxicity, predominantly symptoms of intoxication or cannabis hyperemesis syndrome. Patients with anxiety symptoms had panic attacks (11.7%), aggression or manic behavior (9.2%), and hallucinations (6.1%). Most of these patients (64.8%) also had associated cardiopulmonary complaints, such as chest discomfort, dyspnea, tachycardia, and hypertension. Compared to patients presenting with other forms of cannabis toxicity, those with anxiety were more likely to be younger, ingested edible cannabis, had psychiatric comorbidities, and/or a history of polysubstance abuse. Not surprisingly, more patients in the anxiety group were transferred to a psychiatric hospital (12.2% vs 3.6%, $p<0.001$). The reliability of data collection ($k = 0.89$) showed excellent agreement.

Conclusions: Cannabis-induced anxiety occurred in 17% of ED patients in this community-based study. Because of the growing utilization of cannabis in our society, it is important that physicians and allied health professionals educate and involve our patients in a risk/benefit discussion concerning its use. More evidence-based research on the effects of cannabis use on the mental health and specific anxiety disorders will be needed as legislative momentum leads to continued approval of more lenient drug laws.

Trampoline Safety in Children: Evaluation of the Accuracy and Reliability of YouTube Videos

Abstract: 1470

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Format: Oral Presentation

Category: Emergency Medicine

Author Status: Other

Presentation Type: Clinical Study

Introduction Trampoline injuries in the United States are a significant concern, particularly among children and adolescents. Due to its popularity and frequent usage, social media may help in disseminating evidence-based information regarding trampoline safety as well as recommendations by healthcare authorities. In this study, we aim to assess the utility of social media in providing useful, factual, and timely information regarding trampoline safety in children and adolescents.

Methods This was a retrospective content analysis of videos available through YouTube using specific search terms relating to 'trampoline' and 'safety' or 'precautions'. A standardized data abstraction form was used to collect qualitative and quantitative variables, including the number of views and the accuracy of the information provided. The safety suggestions made by the videos were classified as substantiated or unsubstantiated using opinions of board-certified pediatric emergency physicians as well as policy statements published by the American Academy of Pediatrics. Search results were grouped into three categories: 'Useful', 'Not Useful', and 'Misleading'. The 'Useful' category included evidence-based and/or informative results on trampoline safety. Descriptive statistics (frequency tables, confidence intervals) were used to summarize the data.

Results During the study period (August 2023), a total of 93 YouTube videos relating to trampoline safety met the inclusion criteria. The mean video length was 3.5 + 2.3 minutes (range, 30 sec to 15.1 minutes). The videos were collectively viewed 2,078,119 times with an average of 22,345 views per video. Overall, 39.7% of the videos were classified as useful; 38.1% were not useful; and 22.2% were misleading. All were found to be lacking important safety information, including recommendations on trampoline equipment, appropriate installation or maintenance, the need for adult supervision, adequate safety precautions, dangerous hazards, and when to seek medical care.

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Conclusions	Social media can be a double-edged sword when it comes to trampoline safety in children. While it has the potential to educate and raise awareness about safety measures, its limitations include the spread of misinformation, lack of expert guidance, ignoring safety precautions, conflicting information, and underestimating injury risks.

Assessing the Quality of YouTube Videos on Cannabinoid Hyperemesis Syndrome

Abstract: 1471
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Format: Oral Presentation
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction The most common adverse effect from marijuana is the cannabinoid hyperemesis syndrome (CHS). These individuals frequently undergo costly medical tests, may even require hospitalization for symptom management, and often face significant delays in getting a diagnosis. Video-sharing platforms are a popular means of communication that reaches a wide audience. However, there is limited information available on recognizing and treating CHS in these videos. Many posts lack warnings or precautions related to the condition. The aim of this study is to assess the quality and educational value of YouTube videos addressing CHS.

Methods This was a retrospective content analysis of videos using YouTube's search engine to identify videos relating to CHS over a 6-month study period. A standardized data abstraction form was used to collect qualitative and quantitative variables, including the number of views, and the accuracy of the information provided. The medical claims made by the videos will be classified as substantiated or unsubstantiated using opinions of two board-certified toxicologists. The major study endpoint was the total number of videos that clearly and accurately describe CHS, including risks and complications. Descriptive statistics (frequency tables, confidence intervals) were used to summarize the data.

Results During the study period, a total of 100 YouTube videos relating to CHS met the inclusion criteria. The mean video length was 7.8 +/- 4.1 minutes (range, 1 to 17.3 minutes). These videos were collectively viewed 387,200 times with an average of 3,872 views per video. Educational material was demonstrated by a live individual in 77%; animation in 20% and photographs in 3%. Character videos were typically narrated by Caucasian males (70%) or females (15%). Overall, 35% of the videos were classified as useful; 46% were not useful; and 19% were misleading. Misleading claims were that CHS is a myth, it is only caused by contaminated cannabis, hot showers cure CHS, CHS is rare, only heavy users get CHS, any vomiting with cannabis use is CHS, and that there is a medicine to cure CHS. All the videos were found to be lacking important information, involving diagnosis, treatment, prevention, complications, and when to seek medical care.

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Conclusions Social media videos about CHS can be valuable tools for education, awareness, and support. However, viewers should approach them with a critical eye, verify information from reputable sources, and consult healthcare professionals for any medical concerns. Balanced and evidence-based content is essential to ensure that these videos serve their intended purpose of educating and supporting individuals affected by CHS.

Crisis Averted: Obstetric Aortic Dissection in the Third Trimester - A Multidisciplinary Triumph

Poster Number: 5
Abstract: 1472
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Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Aortic dissection, a life-threatening condition demanding emergent management, presents unique challenges in obstetric patients due to gestational cardiovascular physiological changes. Risk factors include hypertension, atherosclerosis, obesity, preeclampsia, and gestational diabetes.1 Genetic disorders Loeys-Dietz, Marfan and Ehlers-Danlos syndrome further predispose patients.2 As Obstetric aortic dissections constitute 1% of cases in women, there is no standard anesthesia protocol, requiring prompt diagnosis and preoperative assessment.2 Cesarean delivery before aortic repair ensures preservation of placental blood flow. The role of a multidisciplinary team of maternal fetal medicine, cardiothoracic surgery and anesthesiology in determining an optimal approach is critical. Swift, accurate decisions are pivotal in enhancing outcomes, highlighting the gravity of this complex scenario.

Patient Description

A primigravida 35-year-old female at 36 weeks and 4 days gestation, with history of hypertension, asthma, and migraines, presented to a community emergency department. Complaints included chest pain radiating to her back and head, shortness of breath and migraine. Abnormal initial work-up showed low diastolic blood pressure, elevated leukocytes, and critical troponin levels. A CTA revealed a Stanford A aortic dissection from root down to common iliac arteries. Esmolol and nicardipine were administered to prevent worsening dissection. Despite interventions, she decompensated with hypotension, tachycardia, tachypnea, and hypoxia on room air. A 15L non-rebreather mask was initiated. Emergent ground transfer was initiated to a tertiary care center with maternal-fetal medicine, cardiothoracic surgery, cardiac ICU specialties, and ECMO capabilities.

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Intervention	Patient was prepped for cesarean section and cardiothoracic surgery as multidisciplinary briefing ended. Atrial line and large peripheral IV catheters secured. After initiation of general anesthetic, central venous access and transesophageal echo probe were placed. Maternal fetal medicine performed an urgent, uncomplicated cesarean. Then ascending aorta and hemiarch replacement, CABG to RCA, OM, LAD using SVG by cardiothoracic team with bypass and hypothermic circulatory arrest support. Anesthesia used TAP block for post op pain control. She was transferred to CTICU on ECMO with epinephrine infusion. On PPD#1 she returned to OR for washout and bleeding control due to diffuse coagulopathy, transfusion requirement and ongoing bleeding in pleural/mediastinal spaces. Day 2 post op, echo revealed severe RV dilation, 30% EF. Extubated post op day 4 and discharged 18 days after admission in stable condition. The complex interventions and incredible recovery stress the prowess of collaboration of diverse specialties.
Conclusions	The diagnosis of aortic dissection in conjunction with third-trimester pregnancy presents a medically challenging case, offering valuable insights for future management guidance. Utilizing a multidisciplinary approach, this case emphasizes the significance of prompt diagnosis, treatment, transfer, specialist surgeries, and vigilant postoperative care. These elements were pivotal in the survival of both the patient and her baby, averting dual fatality from the aortic dissection.

Aural Search & Rescue: Techniques for Ear Foreign Body Removal in the Emergency Department

Abstract: 1473
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Format: Oral Presentation
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction: Ear foreign bodies (EFB) are a common complaint in the emergency department (ED), especially among children. The aim of this community-based study was to describe our success rate with various techniques and devices for EFB removal in a large cohort of children and adults presenting to the ED in West Michigan.

Methods: This is a retrospective cohort analysis of patients presenting to the EDs of twelve affiliated hospitals in West Michigan with a diagnosis of EFB. Spanning 19 counties in Michigan, affiliated institutions included four rural medical centers, three community hospitals, four university-affiliated hospitals, and a children's tertiary care facility. All eligible cases were seen between December 2011 and December 2021 (120 months). Patient demographics, type of EFB, treatment in the ED, complications, and final disposition were recorded using a standardized abstract form. Main outcome criteria were the first attempt success rate of each technique. Descriptive statistics (mean, SD) and 95% confidence intervals (95% CI) were used to describe key demographic and outcome variables.

Results: During the study period, 1186 patients presented to the ED with a total of 1216 EFBs. The mean age was 24.4 years; 50.8% were children (< 13 years) and 10.7% were elderly (> 64 years). Sixty-five different types of EFBs were identified, typically located in the right ear (56.3%) for a mean duration of 19.0 hours. Overall, 47.5% of the EFBs were not visible without direct instrumentation. Fifteen different extraction techniques were documented during the study period. Overall, 71.5% (95% CI, 68.8 to 74.0%) of EFB were removed on the first attempt; 5.3% (95% CI, 4.1 to 6.7%) on the second attempt; and 3.1% (95% CI, 2.2 to 4.3%) required three or more attempts. Complications occurred in 94 patients (7.9%) and included mild bleeding, abrasions, pain, and displacement of EFB. A total of 248 (20.9%) were referred to otolaryngology. Risk factors that indicated difficult removal were young age, round objects, and EFBs deep within the auditory canal.

Conclusions: Many simple removal techniques and devices are available for EFBs depending on the type of foreign body, location, age of the patient, and degree of obstruction. These methods are not time-consuming and do not require complex equipment. Risk factors that indicate difficult removal should be considered for referral to an otolaryngology specialist.

Assessing the Educational Value of YouTube and TikTok Videos on Home Suture Removal

Abstract: 1474

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Format: Oral Presentation

Category: Emergency Medicine

Author Status: Other

Presentation Type: Clinical Study

Introduction: Many adult patients are willing and capable of removing their own nonabsorbable sutures at home if discharged from the emergency department (ED) with a suture removal kit and simple instructions. YouTube and TikTok are global online video-sharing and social media platforms which offer videos that instruct people on how to remove their sutures at home. If accurate, these videos might greatly assist ED patients with suture removal at home. However, this content is not screened and does not go through an editorial process. The purpose of this study was to evaluate the quality and educational value of these shared videos relating to suture removal at home.

Methods: This was a retrospective content analysis of videos available through YouTube and TikTok using specific search terms relating to suture or stitch removal. A standardized data abstraction form was used to collect qualitative and quantitative variables, including the number of views, sponsors, and suture removal techniques demonstrated. The quality of the instructions provided in the videos was rated using a set of 10 criteria developed by a panel of board-certified emergency physicians and classified as excellent to poor. The major study endpoint was the total number of videos that accurately described home suture removal, including risks and complications. We also identified and described the number of videos that included incorrect or misleading information. The medical claims made by the videos were classified as substantiated or unsubstantiated using opinions of three board-certified emergency physicians.

Results: During the study period (Feb-Mar 2023), a total of 55 YouTube and 6 TikTok videos on how to remove sutures at home were identified. The mean video length was 4.6 + 3.3 minutes (range, 10 sec to 19.03 minutes). The videos were collectively viewed 20,841,940 times with an average of 341,671 views per video. The process of suture removal was demonstrated using a live individual in 62.3% of the videos, models in 26.3%, and photographs in 11.4%. Unfortunately, none of these videos were classified as good to excellent; 21.3% were satisfactory, and 78.7% were rated poor. 23 videos (37.7%) contained incorrect information, primarily about follow-up wound care and suture removal technique. Other problems included: poor narration, inadequate visualization of wound or suture removal technique.

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Conclusions Although there are many popular videos on social media platforms providing instructions for removing sutures, all of them were found to be lacking in important medical information, rendering them insufficient to meet patients' needs. This highlights the need for healthcare professionals to create high-quality, evidence-based self-care content for suture removal on social media platforms. By doing so, they can provide patients with accurate and reliable information that will help them properly care for their wounds and prevent complications.

Assessing Ergonomics During Clinical Procedures in the Pediatric Emergency Department

Abstract: 1475

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Format: Oral Presentation

Category: Emergency Medicine

Author Status: Other

Presentation Type: Clinical Study

Introduction: Although ergonomic analyses are widely used in industry, they have been conspicuously absent in health care. The goal of this pilot study was to assess the prevalence of ergonomic risk factors in pediatric emergency medicine (PEM) clinicians during clinical procedures.

Methods: This was a prospective, blinded, clinical assessment conducted over a 4-month study period. PEM clinicians (faculty, residents, and advanced practice providers) from a children's tertiary care facility were observed during routine clinical procedures. Clinicians were blinded to the purpose of the study. Trained observers completed a Rapid Entire Body Assessment (REBA) checklist to evaluate both upper and lower parts of the musculoskeletal system for biomechanical risks associated with the procedure. REBA scores range in magnitude from 1 to 15, with each successive score representing an increased presence of risk factors. Chi-squared and one-way analysis of variance tests were used to compare ergonomic assessments at each level of postgraduate training.

Results: Forty providers were observed during the study period, performing a total of 44 clinical procedures (e.g., laceration repair, intubation, etc.). Providers included residents (42.5%), advanced practice providers (30.0%) and faculty (27.5%). Most procedures were performed with the clinician standing stationary at the bedside (59.1%) or sitting without back support (38.6%). The REBA score did not differ significantly among the various levels of postgraduate training. Mean scores for faculty, residents, and advanced practice providers were 6.3 (SD 0.9), 6.6 (SD 1.0) and 5.9 (SD 0.8), respectively. Overall, 40.0% of clinicians were scored at high risk for musculoskeletal injuries (REBA score was >8); 42.5% of clinicians scored at medium risk for injury (REBA score 4-7). Causes of postural stress could be divided into four main categories: patient positioning, stretcher height, physician posture, and repetitive movements.

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Conclusions Awkward postures during ED procedures are common regardless of the level of training. In this small study, 40% of clinicians demonstrated ergonomic risk factors which made them highly susceptible to musculoskeletal disorders. The Rapid Entire Body Assessment (REBA) checklist can be used to quickly quantify ergonomic risks associated with clinical procedures and provide information to the PEM clinician regarding the need for change.

The Influence of Social Media on Expectations of Cardiopulmonary Resuscitation Outcomes in the Emergency Department

Abstract: 1476

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Format: Oral Presentation

Category: Emergency Medicine

Author Status: Medical Student

Presentation Type: Clinical Study

Introduction Emergency department (ED) patients and families grapple with the dilemma of choosing whether to proceed with cardiopulmonary resuscitation (CPR) and other medical interventions that could potentially prolong life. The objective of this research was to survey adults to determine their perceptions regarding CPR, specifically its probability of leading to survival. Our research hypothesis posited that the portrayal of CPR in the media causes the general audience to develop an unrealistic viewpoint about the effectiveness and success likelihood of CPR.

Methods Prospective written surveys were distributed at two academic medical centers in West Michigan during 2023. A validated survey was administered by trained researchers to a convenience sample of 1000 non-critically ill patients and/or their families. Information included demographics, TV viewing habits, and 4 anchoring vignettes. The vignettes asked respondents to estimate the chance of recovery (using visual analog scales) following cardiopulmonary arrest in elderly and pediatric patients, in-hospital and out-of-hospital scenarios. Bivariate Pearson's correlations were performed to assess the association between the number of correct answers to the vignettes with age and the frequency of media exposure.

Results Among the 1000 participants, the mean age was 38 years (range 18 to 87 years); 60% were female. Respondents watched an average of 19.8 +/- 11.3 hours of television/week. This included educational medical TV programs (59%) and TV fictional dramas (54%). CPR training was cited most often as a primary source of information concerning CPR (53%), followed by television (41%), friends or family with medical training (18%), personal experience (15%), and social media (14%). In the vignettes, participants consistently overestimated the success rate of CPR (66% predicted postcardiac survival) as well as long-term outcome (64% predicted a complete neurological recovery). There was no correlation between the number of correct responses and age, television viewing patterns, or internet use.

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Conclusions Most people surveyed overestimated the chances of recovery following CPR regardless of media exposure or CPR training. This places an extra burden on the emergency clinician as they must discuss decisions about the end of life with patients and family who will most likely be grossly misinformed about probable outcomes.

Educational Insights from the Screen: Analyzing Pediatric Death Communication in Medical Television Programs

Abstract: 1477

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Format: Oral Presentation

Category: Emergency Medicine

Author Status: Medical Student

Presentation Type: Clinical Study

Introduction: Informing families about death and delivering distressing news in pediatric cases is a challenging responsibility that must be addressed in medical education. Medical television (TV) programs can serve as effective educational tools, demonstrating the ability to influence communication between patients and physicians. This research assessed how television depicts the communication of death or the delivery of bad news, exploring its potential significance in pediatric emergency medical education.

Methods: In this retrospective cross-sectional investigation, trained researchers examined consecutive episodes of ten popular television dramas (e.g., House, Boston Med, ER). Their goal was to identify and analyze instances within these programs that portrayed the communication of death or the delivery of bad news within pediatric hospital settings. The analysis focused on the most recent and complete season of each TV program, totaling 181 episodes. To evaluate the portrayals, a classification scheme based on 16 criteria, as recommended by a panel of emergency department clinicians and educators, was employed. Following coding, each incident was categorized on a scale from exemplary to terrible, depending on the extent to which it met the specified criteria. To ensure data reliability, one investigator conducted a blinded critical review of a randomly selected 10% sample of the TV episodes, utilizing kappa statistics.

Results: A total of 133 incidents that depicted death-telling or delivering bad news were identified. Twenty-one of the incidents (15.8%) involved children as patients. Overall, 23.8% of the incidents were classified as excellent to good; 38.1% were satisfactory; and 38.1% were rated as poor to dreadful. Incidents depicting death-telling or delivering bad news were complicated by ethically questionable departures from standard practice (19.1%) or involved issues of professionalism (14.3%). The reliability of the data collection ($k = 0.83$) showed strong agreement.

Conclusions: Television medical dramas contain many examples of death notification and the delivery of bad news which, in an educational setting, could help to engage students and residents in discussions of the best (and worst) techniques to communicate with children and families.

Pathogens Unleashed: Emerging Infectious Diseases in North America

Abstract: 1478
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation

Category: Emergency Medicine

Author Status: Medical Student

Presentation Type: Systematic Review

Introduction: In 2023 the emergence of novel infectious diseases in the United States became a cause for concern. The rapid and unpredictable spread of these infections posed a significant threat to public health, demanding immediate attention from health authorities. Healthcare professionals at the forefront of patient care play a vital role in detecting and diagnosing these infectious diseases. Awareness of emerging infections enables clinicians to promptly identify unusual symptoms and patterns, leading to faster diagnoses and appropriate treatment. The primary objective of this review is to familiarize healthcare professionals with ten newly identified infectious diseases that emerged in North America during the past year.

Methods: We performed a systematic literature review using three databases to identify published journal articles on emerging infectious diseases (EIDs) published in 2023. Observational studies and case reports were included, and analyzed separately. Data was collected to assess clinical, laboratory, imaging features and outcomes for each EID.

Results: 620 articles were retrieved for the time frame. After screening, 27 articles were selected for full-text assessment, 19 being finally included for qualitative analyses. Additionally, 13 case report articles were included and analyzed separately. Ten EIDs were identified and included leprosy, anaplasmosis, ehrlichiosis, drug-resistant pseudomonas, drug-resistant candidiasis, dengue fever, malaria, amebic encephalitis, Chagas disease and melioidosis. Reasons for the recent increase in EIDs include globalization, population growth and urbanization, inadequate healthcare infrastructure, antimicrobial resistance and poor sanitation and hygiene.

Conclusions: During the past year, we have seen several infectious diseases emerge (or re-emerge). Two of the biggest causes of emerging diseases are social and health inequities. To effectively control the emergence and re-emergence of devastating diseases, it is imperative to address these disparities by improving conditions for vulnerable populations and disadvantaged areas and ensuring access to quality healthcare for those facing the highest disadvantages. Research should be focused on monitoring, prevention, and treatment of these diseases.

Penetrating Oropharyngeal Trauma Resulting in Acute Quadriplegia in a Toddler

Abstract: 1479
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Penetrating trauma of the oropharynx is not an uncommon problem in the pediatric population. Innocuous injuries with minor soft-tissue trauma have been associated with severe neurologic sequelae. We present here a case of a previously healthy toddler who fell off the couch with a chopstick in her mouth causing a penetrating wound to the posterior oropharynx. The patient presented to the ED with decreased consciousness and became acutely quadriplegic 12 hours postinjury because of penetrating trauma to the cervical spinal cord.

Patient Description

A previously 3-year-old female was brought to the emergency department (ED) after falling approximately 3-4 feet off the back of a couch with a chopstick in her mouth. She was found on the ground, minimally responsive, but breathing, with a chopstick sticking out of her mouth. The mother forcefully removed the chopstick and described scant bleeding. Emergency medical services (EMS) were contacted and transported the patient to the ED. Evaluation of the posterior oropharynx demonstrated a small puncture wound superior to the right tonsil with no active bleeding, edema, or evidence of airway compromise. Neurologic evaluation revealed a Glascow Coma Scale (GCS) of 10. The patient was only responsive to noxious stimuli; she did not respond to voice and only moved her extremities secondary to pain. The results of CTA and MRI imaging were significant only for a small amount of hyperdense material in the fourth ventricle likely representing hemorrhage

Intervention

The patient was admitted to the intensive care unit with a primary diagnosis of head injury with possible intracranial hemorrhage. She developed acute quadriplegia over the following 12 hours. Susceptibility weighted imaging (SWI) sequences showed hemosiderin deposition traveling along an oblique vector originating from the posterior oropharynx at the location of the chopstick's puncture wound. There was also swelling and edema with diffusion restriction within the spinal cord around the area of hemorrhage. Five days postinjury she had regained partial motor function in all four extremities. She was discharged 9 days postinjury to an inpatient rehabilitation facility.

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Conclusions Most impalement injuries in the oral cavity in children heal spontaneously or with minimal intervention. However, a small number of injuries may be deeper and more complicated than anticipated, even if the wounds appear innocuous. Physicians need to be more aware of the potentially life-threatening complications, as well as the specific complications related to proximity to specific anatomic structures.

May-Thurner Syndrome: An Uncommon Cause of Lower Extremity Pain

Poster Number: 22
Abstract: 1480
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Format: Poster
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Lower extremity pain is a common presenting concern to the emergency department (ED). The differential diagnosis is broad and includes benign to potentially life-threatening etiologies. These include torn muscle, ruptured Baker's cyst, cellulitis, deep venous thrombosis (DVT), arterial ischemia, and necrotizing fasciitis. Thorough understanding of the pathogenesis, diagnostic tests, and management of these conditions is crucial in the evaluation of these patients. This case highlights a rare etiology of extremity pain and demonstrates the use of venous compression ultrasonography in confirming the diagnosis.

Patient Description

An 18-year-old female presented to the emergency department (ED) for concern of left lower extremity pain and swelling following a 4-hour car ride. The patient had a past medical history of recent pregnancy which was complicated by pre-eclampsia and placental abruption. Her pregnancy resulted in intrauterine fetal demise at 8 months gestation, one month prior to her presentation in the ED. One week following her fetal demise, she began taking oral contraceptive pills (OCPs). Vital signs were remarkable for mild tachycardia. Physical examination was remarkable for significant swelling and tenderness to palpation throughout the entirety of her left lower extremity.

Intervention

Venous compression ultrasonography of the left lower extremity revealed extensive DVT from the left common femoral vein and distally. The patient was taken urgently to the interventional radiology suite for venography, mechanical thrombectomy, and left common iliac vein stenting. Based on imaging findings and clinical correlation, the cause of her extensive occlusive thrombus was secondary to May-Thurner Syndrome (MTS)

Conclusions

MTS is caused by extrinsic venous compression by the arterial system against bony structures in the iliocaval territory. The most common variant is due to compression of the left iliac vein between the overlying right common iliac artery and the fifth lumbar vertebrae. This can lead to extensive DVT in susceptible patients. An extensively swollen and painful left lower extremity in a young female should raise clinical suspicion for MTS and may prompt initial evaluation with venous compression ultrasonography.

Primary Pyomyositis in a Pediatric Patient

Poster Number: 10
Abstract: 1481
Author Names: Amanda P. Dean, DO; Adam Singer, DO; Nate Ladaga, DO
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Pyomyositis is a bacterial infection of the muscle previously rare outside of tropical regions, but becoming more common temperate climates. It is most commonly caused by Staphylococcus aureus but may also be caused by other bacteria, such as Group A Streptococcus. It can be easily missed as a diagnosis as there are many mimics which are also known complications. Worse infection is typically associated with a history of trauma, and the longer the delay in presentation, the worse the prognosis. This report discusses a case of pyomyositis in an adolescent male, associated with underrepresented trauma, which required extensive treatment.

Patient Description

A 13-year-old boy presented after two days of worsening left leg pain, now complaining of fever and shortness of breath. The patient had been trying to use a massage gun at home to help with the pain. It was also noted that he had spent time in his hot tub approximately one week ago and has an abrasion on his left foot. Initial examination revealed his left calf swollen, tender to palpation, and firm but compressible. There was also erythema of the left groin without tenderness appreciated. Laboratory results were significant for a WBC of 22.7, ESR of 21, and CRP of 194.4. Initial CK was normal and later rose to 5,830. MRI was significant for myositis of the soleus, gastrocnemius, plantaris, and posterior tibialis muscles. It also revealed fasciitis and intermuscular abscess between the soleus, gastrocnemius, and popliteus, as well as fasciitis of the pes anserine insertion and anteromedial periosteum of the tibia.

Intervention

The patient was started on vancomycin, cefazolin, and clindamycin. He subsequently developed sepsis and venous thrombosis. Body fluid culture grew out Group A Streptococcus. He required four trips to surgery for incision and drainage, thrombectomy, fasciotomy, and drain placements. Antibiotics were de-escalated to oral medication and continued for a total of 28 days, including outpatient. He was discharged to inpatient rehab on day twelve and was able to be discharged home with a positive outlook four days afterwards.

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Conclusions This is a case of a 13-year-old male with pyomyositis after possible exposure to bacteria, likely worsened by use of a massage gun. This demonstrates the high degree of suspicion clinicians must have in making its diagnosis. It is most commonly caused by Staphylococcus aureus, but can less commonly be caused by several pathogens such as Group A Streptococcus. Abscess formation and multiple complications may arise. Prompt diagnosis and treatment with appropriate antibiotics and drainage increases the chance for a positive patient outcome.

Atypical Presentation of Neisseria Meningitidis

Poster Number: 11
Abstract: 1482
Author Names: Michael Foster, DO; Mariah Barnes, MD; Jason Seamon, DO
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Neisseria meningitidis, a gram-negative diplococcus, is typically an asymptomatic colonizer of the oropharynx and nasopharynx. Passage of N. meningitidis into the bloodstream can cause invasive meningococcal disease, a potentially life-threatening illness with rapid onset that generally presents as meningitis, septicemia or both. Diagnosing Neisseria can be a challenge since there are multiple serogroups all of which can have different presentations.

Patient Description

A 27-year-old previously healthy female visited the emergency department (ED) with chief complaint of a headache, nausea, and abdominal pain for 48 hours. On initial examination, the patient was in respiratory distress and showed signs of shock. Initial vitals included pulse of 193, blood pressure 77/52 and respiratory rate in the 50's with oxygen saturations in the low 70's and patient was diffusely mottled with poor perfusion. The patient's abdomen was diffusely tender. Respiratory status continued to worsen, and she was subsequently intubated. She was started on empiric antibiotic coverage including Zosyn and Vancomycin. Laboratory data resulted showing a white blood cell count of 1.98, creatinine of 2.27, lactic acid of 12.8, CRP of 349.1 and a pro-BNP of 2,227. CT neck soft tissue showed a small retropharyngeal fluid collection and mild lymphadenopathy. While in the ED, she required continued resuscitation and admitted to the ICU.

Intervention

Her hospital course was complicated. She continued to worsen despite being on 5 pressor medications and antibiotics such as cefepime, vancomycin, acyclovir, clindamycin, micafungin. Her blood cultures remained negative. Meanwhile she developed deep venous thrombi and went into disseminated intravascular coagulopathy. As such, they were unable to perform a lumbar puncture, so a Karius test was sent out. Due to the vasopressor medications and DIC, she began to develop multiorgan failure and ischemic limbs. Karius test resulted showing Neisseria Meningitidis, and the antibiotic coverage narrowed to high dose Ceftriaxone. Unfortunately, the patient failed to improve, and subsequently died the next day.

Conclusions

This case highlights several factors that prevented the timely diagnosis of IMD. Physicians need to be aware of atypical presentations (such gastrointestinal symptoms, bacteremic pneumonia or severe upper respiratory tract infection) to allow for recognition and treatment of IMD in a timely manner.

Neonatal Presentation of Alagille Syndrome

Abstract: 1483
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine; Advanced Radiology Services
Format: Oral Presentation
Category: Other
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Alagille syndrome (ALGS) is an autosomal dominant multisystem disorder with a wide spectrum of clinical variability. It is estimated to occur in 1:30,000-1:50,000 live births. Majority of the cases involve mutations in one copy of the JAG1 gene while rarely some patients may have mutations in NOTCH2 gene. Due to variable phenotypic penetrance it is likely that it remains underdiagnosed in some areas. ALGS can have variable involvement of the eyes, face, heart, liver, kidneys, skeleton, and vasculature. We report a case of ALGS which initially presented with feeding difficulties and increasing liver enzymes.

Patient Description

Patient was born at 34 weeks and 2 days gestation via repeat C-section due to severe fetal growth restriction, oligohydramnios, and absent end diastolic flow resulting in transfer to the NICU. Mother received routine prenatal care and was followed by MFM due to severe IUGR with maternal history complicated by use of tobacco and marijuana. She initially required CPAP, due to respiratory difficulties. Given that a murmur was noted at birth and cardiomegaly on chest X-ray, an ECHO was obtained which demonstrated structurally normal heart with normal function with a small PDA. A 24 hour bilirubin was 8.2mg/dL with direct elevated at 1.0mg/dL. Liver enzymes were elevated with AST at 266IU/L and ALT at 181IU/L. Due to persistent hyperbilirubinemia (4.5 mg/d), patient was transferred from outside hospital to HDVCH. Due to the abnormal laboratory values and distinctive facial features (abnormal head shape, low set ears) pediatric gastroenterology and medical genetics were consulted.

Intervention

Due to up trending direct bilirubin at outside facility, patient was trialed on phenobarbital for 5 days with no improvement in direct bilirubin levels. Hence, was started on Ursodiol but stopped to rule out biliary atresia. She had an intraoperative cholangiogram and liver biopsy which showed patent bile ducts with cholestasis and bile plugs without biliary atresia. Due to small size, a chromosomal microarray was sent and showed female profile with 536kB copy number loss of chromosome 16p12.2 and 943Kb copy number gain of genome material from chromosome 17p12p11.2 region. Cholestasis gene panel was sent and identified a likely pathogenic variant in the NOTCH2 gene and a PEX6 variant of uncertain significance. This confirmed the diagnosis of Alagille Syndrome. Ursodiol was restarted, and most recent chart review reveals normal labs with continued follow up at outside facility.

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Conclusions Alagille Syndrome was a challenging diagnosis to make due to multisystem abnormalities; ALGS was considered with the combination of elevated bilirubin, abnormal HIDA, and nephrocalcinosis. Case reviews demonstrate ALGS to show a variety of hepatic abnormalities such as chronic cholestasis, portal hypertension, and cirrhosis, as well as variable renal pathologies such as echogenic kidneys and nephrocalcinosis. Due to the rarity and variability of the disease, a combination of genetic testing, clinical evaluation, and imaging were used to cement the diagnosis.

Frozen Face: Bilateral Facial Nerve Palsy Following a Motorcycle Accident

Poster Number: 12
Abstract: 1484
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Bilateral facial nerve palsy (FNP) is a rare condition, representing less than 2.0% of all facial palsy cases. Many of these patients have underlying medical conditions, ranging from neurologic, infectious, neoplastic, traumatic, or metabolic disorders. The differential diagnosis of its causes is extensive and hence can present as a diagnostic challenge. Emergency clinicians should be aware of these various diagnostic possibilities, some of which are potentially fatal.

Patient Description

A 31-year-old male in previous good health presented to the emergency department (ED) for evaluation of difficulty speaking and difficulty swallowing. Patient had been in a recent motorcycle accident (MCA) and sustained a head injury but did not seek medical care. Approximately 2 weeks after the MCA he developed a viral type illness with fevers, sweats, fatigue, myalgias and cough. The patient had gradual improvement of these symptoms and then developed weakness in his face and described blurry vision that began approximately 36 hours prior to this presentation. He also described shooting pains in bilateral lower face radiating to the jaw. The physical exam was notable for profound bilateral cranial nerve 7 weakness. Patient had difficulty speaking and swallowing due to the severity of this weakness. CT angiography of the head and neck were unremarkable. Lab work showed a leukocytosis to 17.46 and mildly elevated inflammatory markers. Lumbar puncture was sent for infectious studies.

Intervention

A subsequent MRI demonstrated abnormal enhancement involving the facial nerves and cisternal segment of the trigeminal nerves. The results of extensive infectious disease testing subsequently revealed high titers of IgG antibodies for Borrelia burgdorferi in the serum and cerebrospinal fluid consistent with Lyme neuroborreliosis (LNB). He was treated with ceftriaxone in the hospital and doxycycline as an outpatient to complete a total of 21 days of treatment. At follow-up approximately 10 weeks after discharge, the patient reported complete resolution of his bilateral facial palsy.

Conclusions

This case report demonstrates the importance of considering the range of differential diagnosis in all cases presenting with bilateral FNP. These patients warrant admission and prompt laboratory and radiological investigation for evaluation of the underlying cause and specific further management as relevant.

Effect of Hypochlorous Acid Irrigation on Recurrent Capsular Contracture

Abstract: 1485
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Case Study

Introduction: Capsular contracture (CC) continues to be the most common complication occurring after breast augmentation. Despite a multitude of different preoperative, intraoperative and postoperative treatment strategies, the incidence of CC has remained somewhat stable. Numerous variables are involved in attempting to understand CC, and issues such as implant type, surface texture, pocket plane, and pocket irrigation all likely play a role. One well studied theory related to the etiology of CC concerns the formation of a biofilm lining the breast implant pocket. Although the exact mechanisms related to CC and biofilm formation are still being studied, it is postulated that the physiologic reaction to the 'colonization' of the breast pocket with bacteria can result in CC in certain patient

Methods: A cohort of patients with severe capsular contracture after their initial implant procedure or with recurrent capsular contracture was treated with post-operative irrigation of their breast pockets through drains placed at the time of capsulectomy. Treatments were performed on consecutive days after the index procedure and involved a 'washout' of the breast pocket. 40cc of HOCL was instilled into the pocket and removed after 10 minutes. Drains were removed when daily out outputs fell below 30-40 cc. Clinical evaluation of the patients for any evidence of recurrent capsular contracture was performed in person by the senior author at 1 week, 6 weeks, 6 months and one year postoperatively. Capsular contracture was graded according to both the Baker (6) and Hammond (7) grading scale.

Results: 8 patients underwent pocket irrigation following surgical treatment of their capsular contracture which was bilateral in 4 patients and unilateral in the rest (12 breasts in total). Pre-operatively, all patients had Baker III-IV or Hammond grade 2 to 3 capsular contractures. An average of 3.4 irrigations (range 2-6) was performed for each patient between the first to the 14th post-operative day. At a mean follow up of 7.5 months (range 2 to 15 months), 11 breasts were graded as a Baker grade I or a Hammond Grade 0-1, representing an overall success rate of 91.7% with the treatment protocol. In one breast, a mild Baker grade II or Hammond grade 2 capsular contracture was noted.

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Conclusions Pocket irrigation with saline followed by HOCL preformed after capsulotomy or capsulectomy is an effective strategy for treatment of patients who present with recurrent or multiply recurrent CC after implant based breast surgery. Further work examining this strategy in a larger cohort of patients is indicated to determine what role this approach may ultimately have in the treatment of CC.

Micromanagement During Clinical Supervision: Trainees' Perceptions About its Existence and Impact

Abstract: 1486
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Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Educational Study

Introduction

Resident physicians must learn to adapt to a complex working environment while developing their professional skills and knowledge. Therefore, an appropriate level of supervision throughout the training program is imperative to their success. Research studies found that residents tended to prefer less supervision than the amount their supervising attending physician wished to give, indicating that residents wanted more autonomy. If the supervision reaches a high and excessive level, attendings may be known amongst the residents as 'micromanagers'. Micromanagement, defined as a supervisory style of 'hovering' with the need for excess control, has been perceived by residents to impede their confidence and autonomy. There is a dearth of literature on micromanagement in graduate medical education (GME). This study explores the perceptions and potential causes of micromanagement on GME.

Methods

A pilot electronic survey in REDCap was developed using Wetzels' format and revised by methodological experts and clinical research groups in 2022. Residents and fellows at an urban academic medical center participated from June to August 2023. Participation in the study was voluntary. The survey started with the definition of micromanagement, and collected basic demographics, educational settings, perceptions of micromanagement, potential contributing factors, and the impact on the trainees. Some of the outcomes were measured with multiple 7-point Likert scale survey questions. The responses gave participants the option to rate their answers from extremely likely to extremely unlikely. Descriptive statistics were analyzed with the help of SASSASSIST at Corewell Health.

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Results Out of about 300 residents and fellows from postgraduate years (PGY) 1-7 across eight specialties, 109 started the survey, for a 30% response rate. Of the 72 who completed the surveys, 38% had experienced micromanaging behavior in the last six months, and 32% of PGY3s and PGY4s perceived it as being a problem. Patient acuity (93%), patient complexity (89%), bedside procedures (54%), and supervisor behavior (93%) were perceived factors for micromanagement. Trainees vindicated their micromanagers' behavior citing fear of retaliation (33%), patient safety (29%), efficiency of care (25%), and institutional culture (18%). The perceived effects included a decline in autonomy (47%), confidence (40%), motivation (36%), engagement (33%), and strained supervisor-trainee relationships (25%).

Conclusions While a micromanagement style of supervision may benefit early trainees to develop skills and competence, persistent micromanagement disrupts the equilibrium between accountability, trust, and autonomy. The respondents' insights into the motivations behind the micromanagers' behaviors highlight a complex interplay of individual behaviors, external pressures, and institutional expectations influencing micromanagement. Recognizing micromanagement as a problem early in clinical supervision emphasizes the need for intervention at the individual and systemic level.

Detection of primary male breast cancer with PSMA PET scan: a case study

Abstract: 1487
Author Names: Eric Stockall, MD; Jessica Shannon
Author Institutions: Michigan State University
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Case Study

Introduction: Primary male breast cancer with a synchronous second primary neoplasm is rare. Prostate-specific membrane antigen (PSMA) PET scan uses a novel tracer for detection of metastatic prostate cancer. Recent research has shown PSMA is highly expressed in triple negative breast cancer. Here, we report a case of a 75-year-old male with primary prostate cancer and synchronous primary breast cancer which was discovered on prostate-specific membrane antigen (PSMA) scan. To our knowledge, this is the first case showing primary prostate and primary breast cancer in a male with osseous metastasis identified on PSMA scan. This case highlights the importance of PSMA scan interpretation, which may represent not only metastatic prostate cancer but also a second primary cancer.

Methods: Patient is a 75-year-old male presenting with PSA of 180. Transrectal ultrasound guided prostate biopsy was positive for Gleason grade group 4 (4+4= 8) prostate cancer in 11 out of 12 cores with extra-prostatic extension. PSMA scan was obtained, showing increased PSMA expression consistent with widespread nodal and osseous metastatic prostate cancer. In addition, there was increased radiotracer uptake within the left breast soft tissue and enlarged left axillary lymph node, which may represent primary breast neoplasm versus metastatic prostate cancer. A palpable left breast mass in the breast underwent biopsy. Pathology was consistent with invasive ductal carcinoma, grade 1, measuring 11mm in the greater linear extent, ER positive, PR positive, HER2 negative. Prostate specific acid phosphate (PSAP) and NKX3.1 staining was negative, ruling out metastatic prostate cancer in the breast. Overall, the pathology was consistent for a primary male breast cancer.

Results: Patient was discussed at tumor board. He underwent left breast radical mastectomy with axillary contents. Pathology was consistent with invasive moderately differentiated ductal carcinoma 3.6cm (grade 2), adjacent to and arising from encapsulated papillary carcinoma. Margins negative for malignancy. One of fourteen axillary nodes positive for metastasis. pT2pN1a. Tamoxifen 20mg daily for 5 years and Lupron 45mg q6 months was initiated. PSA will be rechecked q6 months. Patient is reluctant to proceed with radiation or IV chemotherapy. Patient also declined oncotype testing, radiation oncology consult, and bone biopsy to differentiate bone vs breast metastasis. Results of BRCA2 genetic testing were not available at the time of publication.

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Conclusions This case is an example of a PSMA scan ordered for evaluation of prostate cancer metastasis incidentally found a primary breast cancer. It is an important case as providers should be aware that uptake in PSMA scans have the potential to be related to a second primary cancer. This case also adds to the small, but growing body of literature suggesting PSMA scans can be used for breast cancer detection.

Assessment of appropriate albumin replacement after large volume paracentesis

Abstract: 1488
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Pharmacy
Author Status: Pharmacy Resident
Presentation Type: Quality Study/Initiatives

Introduction: Ascites, a common complication of decompensated cirrhosis, has a high mortality rate, especially in patients with refractory ascites. Large volume paracentesis (LVP) is the recommended treatment for refractory ascites. However, it can lead to paracentesis-induced circulatory dysfunction (PICD), which is associated with complications and shorter survival. Albumin administration during LVP helps maintain the arterial blood volume and mitigate the risk of PICD. The current recommendation is 6-8 grams of albumin per liter of ascites removed for LVP above 5 liters. To address concerns about albumin replacement after LVP, an orderable was created at the institution to establish adequate dosing. The purpose of this study is to evaluate albumin replacement after LVP to ensure appropriate administration.

Methods: This study includes patients aged 18 years and older who underwent large volume paracentesis (> 5 L) for ascites related to cirrhosis between January 17, 2022 and August 31, 2023. Patients were excluded if the paracentesis was performed outpatient or if the paracentesis was less than 5 liters. Data collection will include baseline characteristics, PICD criteria, procedural records, ICU transfer, and renal replacement therapy initiation. The primary endpoint is to determine if there is a difference in appropriate albumin administration before and after implementation of the orderable. Secondary endpoints include differences in length of stay and PICD incidence pre- and post- orderable, as well as appropriate vs non-appropriate albumin replacement within each major group.

Results: Data collection is completed. Analysis is currently being conducted, and results will be presented at a later date.

Conclusions: N/A

Advocating for an Ultrasound-First Approach to Renal Colic in the Emergency Department

Abstract: 1489
Author Names: Disha Bhargava, MS3; Clarice Callahan, MS4; Rebecca Loney, MD; Matthew Flannigan, DO.
Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction There are conflicting opinions and evidence regarding the optimal imaging choice in patients with suspected renal colic. The diagnostic choice for renal colic has been debated for many years. In recent years there has been an urge in the literature to use an ultrasound first approach to minimize CT radiation in patients presenting with renal colic. The aim of this study was to investigate the degree of consensus between providers for their diagnostic approach; identify perceived barriers to implementation of an ultrasound (US) first approach, and to create and implement a clinical guideline that endorses ultrasound first approach.

Methods In 2021, an initial retrospective study was done to determine ED physician diagnostic choice in patients with renal colic. Sites included 2 regional and 1 tertiary center. Data collected included demographics, clinical features, diagnostic tools, and treatment outcomes. This was followed by a prospective survey of ED clinicians. Recipients were sent a link to a survey using a FORMS spreadsheet which included demographics, barriers to US first approach, and 9 clinical scenarios with a choice for the most appropriate 1st imaging modality. Afterwards, a multidisciplinary group of physicians including urology, radiology, and ED representation, created a clinical guideline advocating for an ultrasound first approach. This guideline was implemented at the same sites of the initial study. Finally, a second retrospective study was done from December 2022 to March 2023 to reevaluate the diagnostic approach and the effectiveness of the clinical algorithm.

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Results Initial Study: A total of 377 patients presented to the ED with renal colic; 177 patients were excluded based on exclusion criteria and weight. Of these 177 patients, 110 (62%) had a final diagnosis of kidney stone. Overall, 54% (95/177) had a history of stones. Imaging modalities included: 19% had US, 75% had CT scan without contrast and 5% had a CT with contrast. No serious alternative diagnoses were diagnosed by CT scan. 13% (23) were admitted to hospital; 16% (28) had required a urological intervention. Survey: Of the surveyed clinicians who responded (112/250) - 88% of providers either never or rarely use POCUS to investigate renal colic. Overall, 59% of respondents perceived significant barriers to performing US first approach including: inconsistent reimbursement, lack of a local multidisciplinary approach, time to perform US examinations, and lack of US training. Of the 9 clinical scenarios there was poor consensus regarding the first modality of choice for imaging. Second Study: Results are pending.

Conclusions Despite a national consensus recommending an US first approach for renal colic, most ED patients continue to undergo CT imaging. The physician survey offered insight into the overuse of CT imaging in renal colic by ED physicians. This suggested there is a lack of understanding of where an ultrasound-first approach would fit in the diagnostic work-up. We hope that the implementation of the multidisciplinary ultrasound first approach algorithm improves patient care by reducing CT radiation and healthcare costs.

The Wolf in Wolff-Parkinson-White Syndrome

Poster Number: 74
Abstract: 1490
Author Names: Robert Muterspaugh, MD; Carlos Tavera, MD; Anacleto Diaz, MD
Author Institutions: Corewell Health West; Michigan State University
Format: Poster
Category: Other
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Wolff-Parkinson-White Syndrome (WPWS) is a congenital defect of the cardiac conduction system characterized by intermittent tachyarrhythmias arising from an accessory pathway known as the Bundle of Kent. The characteristic electrocardiogram (ECG) findings in WPWS are short PR interval (< 120 ms), prolonged QRS (> 120 ms), and slurring of the initial portion of the QRS complex (delta wave.) Typically, this condition is easily identified and treated without significant morbidity or mortality. However, rare cases of sudden cardiac death (SCD) as the initial manifestation of WPWS have been reported. The incidence of SCD in patients with WPWS has been estimated to be as low as 0.13% per year. We present a case of cardiac arrest from WPWS managed with cardiac ablation and an implantable cardiac defibrillator (ICD.)

Patient Description

A 39-year-old man with no known past medical history presented to the emergency department post-cardiac arrest. He was watching television when he developed sudden onset shortness of breath. Patient stood up, walked to the bathroom, and suddenly collapsed. Patient's wife called EMS. Upon arrival, EMS performed chest compressions and cardiac defibrillation with successful return of spontaneous circulation. Patient was then transported to the emergency department (ED) where he was intubated. Initial workup for etiology of the patient's cardiac arrest was unrevealing. ECG done in the ED showed sinus tachycardia and ST segment depressions. Coronary angiography did not reveal coronary artery occlusions. Transthoracic echocardiography showed cardiomyopathy with an EF of 40% without evidence of hypertrophic cardiomyopathy. Patient was then transferred to the ICU for further management. Patient's condition continued to stabilize, and he was extubated after several days in the ICU.

Intervention

Patient underwent ablation of the accessory pathway with ICD placement. Patient tolerated the procedure well and later discharged in stable condition.

Conclusions

Sudden cardiac death could be the first manifestation of Wolff-Parkinson-White Syndrome. In such patients, the diagnosis of WPWS is complicated because classic ECG findings are not easily identified during tachyarrhythmia episodes. While the incidence of SCD resulting from WPWS is thought to be quite low, many cases may have gone undiagnosed because of these challenges.

Severe Amlodipine Toxicity treated with Veno-Arterial Extracorporeal Membrane Oxygenation

Poster Number: 13
Abstract: 1491
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Amlodipine is a dihydropyridine calcium-channel blocker most often used in the treatment of essential hypertension. Amlodipine toxicity primarily causes cardiovascular effects through L-type calcium channel blockade both in the vasculature and myocardium. A 22-year-old male presented with severe amlodipine toxicity after ingesting 595 mg of amlodipine. This case was refractory to multiple medical therapies. Venoarterial extracorporeal membrane oxygenation (VA-ECMO) and continuous renal replacement therapy (CRRT) were successfully used in this patient to restore oxygen perfusion and allow intrinsic drug metabolism and elimination.

Patient Description

A 22-year-old man (75 kg) with a history of hypertension and human immunodeficiency virus presented to a rural emergency department following an intentional ingestion of 119 tablets of Amlodipine, dosed at 5 mg per tablet, for a total of approximately 8 mg/kg at 595mg. The patient was initially hemodynamically stable with a Glasgow Coma Scale score of 15, but subsequently developed shock requiring norepinephrine, vasopressin, and dobutamine. Calcium chloride infusion was initiated, and insulin was provided per euglycemic protocol. An electrocardiogram showed normal sinus rhythm with a first-degree heart block. The patient's creatinine and lactic acid levels began to rise. With progressing vasodilatory shock, he was transferred to the ICU of a tertiary care center.

Intervention

Despite resuscitation attempts with multiple medical therapies, the patient continued to decompensate with lactic acid of 17.0 mmol/L and bicarbonate of 5.8 mmol/L approximately 28 hours after ingestion. Continuous renal replacement therapy was initiated for management of refractory metabolic acidosis. Because of worsening acidosis and refractory vasodilatory shock, the patient was placed on VA-ECMO. With VA-ECMO the patient's hemodynamic parameters improved. The patient was decannulated from VA-ECMO on hospital day 4, with vasopressors weaned off completely by hospital day 5. On hospital day 6, the patient was extubated and weaned to room air. His hospital stay was prolonged due to the development of pneumonia caused by Serratia marcescens. On hospital day 22, the patient had a normal mental status and was discharged to a medical psychiatric facility.

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Conclusions This case underscores the importance and efficacy of quickly providing aggressive therapies for patients with life-threatening amlodipine toxicity. VA-ECMO should be considered early in cases of severe amlodipine toxicity, particularly with refractory vasoplegia despite prompt medical resuscitation.

Acute Refractory Hypocalcemia Following 1, 1-difluoroethane Inhalation: A Case Report

Poster Number: 14
Abstract: 1492
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Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Inhalants, colloquially known as 'whippets', are a heterogeneous group of substances that, as the name implies, are readily and most often inhaled recreationally for their desired euphoric effects. There are numerous preparations, though this paper will focus on the use of volatile solvents, such as 1,1- difluorethane (DFE) found in 'Dust-Off'. Volatile solvents may lead to several deleterious effects on the body including arrhythmias, hypocalcemia, and multi-system organ failure. This report describes a case of refractory hypocalcemia in the setting of DFE abuse. Fluorinated ethanes have been shown to cause severe hypocalcemia by accumulation of the metabolite fluorocitrate in tissues.

Patient Description

A 34-year-old male with a history of chronic inhalant and alcohol abuse presented to the emergency department (ED) with general malaise, paresthesias, and dyspnea after inhaling seven cans of Dust-Off in the preceding 36 hours. He arrived in extremis, tachycardic at a rate of 163, febrile to 38.2o, tachypneic, with blood pressure of 89/74 mmHg. The physical exam showed no focal findings or symptoms of hypocalcemia. White blood cell count was 22.09x 103/uL, estimated creatinine clearance 59 mL/min, anion gap 30, lactic acid 14.9 mmol/L, bicarbonate 15 mmol/L, magnesium 0.9 mg/dL, ionized calcium 1.00 mmol/L, and serum pH 7.13. Despite receiving a total of 5 grams of intravenous 10% calcium chloride, the calcium only briefly increased. His ECG demonstrated sinus tachycardia (ST) with normal QTc. His rhythm then degenerated into polymorphic ventricular tachycardia that briefly responded to electrical cardioversion and initiation of IV amiodarone.

Intervention

The patient was transferred by helicopter to a tertiary care center, with ventricular fibrillation while en route that responded to defibrillation. Shortly after arrival at the tertiary care center, his rhythm degenerated into refractory polymorphic ventricular tachycardia then ventricular fibrillation that was unresponsive to DCCV or defibrillation, leading to venous-arterial extracorporeal membrane oxygenation (VA ECMO) cannulation and intra-aortic balloon pump. There was concurrent use of inotropes and vasopressors. Despite these interventions, the patient progressed from ventricular fibrillation into asystole without discernible cardiac activity by transesophageal echocardiogram and ultimately cessation of resuscitation efforts.

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Conclusions This case report demonstrates pathologic in vivo hypocalcemia in the setting of 'whippet' (DFE) use and the profound cardiac collapse that followed. Patients presenting with hypocalcemia and tachyarrhythmias in the setting of inhaled solvents should receive electrolyte replacement and aggressive supportive care. Given the rise in the popularity and ease of availability of this type of compound as a recreational drug, combined with the possibly fatal consequences of its abuse, providers should be cognizant of drugs of abuse as a potential cause of hypocalcemia.

Paroxysmal Severe Mitral Regurgitation: An Extremely Rare Cause of Flash Pulmonary Edema

Poster Number: 15
Abstract: 1493
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Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Transient severe mitral regurgitation (MR) in patients with only mild MR at rest, a normal left ventricle (LV), and no significant coronary artery disease (CAD) has been recently identified as a rare cause of heart failure (HF). Patients typically present with recurrent unexplained episodes of acute pulmonary edema that were previously attributed to diastolic dysfunction. Although there have been only a few reported cases to date, it is unclear how many cases have been missed. The underlying pathophysiology and optimal treatment for the condition are currently unknown. We present a case of an elderly female with paroxysmal severe mitral regurgitation to highlight the clinical presentation, pathophysiology, and subsequent treatment.

Patient Description

A 79-year-old female with a past medical history of hypertension presented to the emergency department (ED) with chest pain. Blood pressure was 162/81, heart rate 77 bpm, temperature 36.4 degrees Celsius, and respirations at 16 with saturations at 95%. She was well appearing, not diaphoretic, normal rate and rhythm, normal pulses, no murmurs appreciated, lungs were clear to auscultation. Chest X-ray showed a small amount of bibasilar atelectasis. EKG showed a left bundle branch block, new T wave inversions in I, aVL, and V6. She had a normal coronary angiography with an ejection fraction was 65-70%. A Transesophageal echo showed normal right ventricular size and function. Structurally normal mitral valve with mild mitral regurgitation. Cardiac MRI showed mild to moderate mitral regurgitation with mildly thickened and preserved leaflet mobility with regurgitant fraction of 19%. She was discharged home with isosorbide, furosemide, and metoprolol.

Intervention

Over the next week she experienced recurrent episodes of acute pulmonary edema requiring multiple hospitalizations. During the last hospitalization, she had a repeat echocardiogram in Trendelenburg in which she was found to have severe mitral insufficiency with poor mitral valve leaflet coaptation, along with systolic flow in the right superior pulmonary vein. An ejection fraction of 58% was seen. Her mitral valve was surgically replaced, and she was discharged to cardiac rehab in stable condition and since then has had a full recovery.

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Conclusions Paroxysmal severe MR is a rare cause of HF among patients with normal LV function. Although the pathophysiology of this uncommon condition is largely unknown, several distinct mechanisms can lead to changes in the MV apparatus and cause this dynamic process. The optimal treatment for paroxysmal severe MR is unknown because some patients improve with medical therapy while others require surgical valve replacement.

Impact of a Common Interpretation Platform on Pediatric Imaging

Abstract: 1494
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Author Institutions: Corewell Health West; Michigan State University
Format: Oral Presentation
Category: Other
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction: Historically, access to subspecialty radiologist interpretations has demonstrated a rural-urban divide which has been even more pronounced in pediatric radiology. A dramatic rise in teleradiology access accelerated by the Covid-19 pandemic has shifted this paradigm. Although access has improved, notable barriers to access to subspecialty radiology interpretation remain.

Methods: We present a retrospective study of pediatric radiology examinations at a large private multi-specialty practice servicing several hospital systems in Michigan. Studies for patients under 18 years of age were identified by billing audit. Interventional and mammographic codes were excluded. Studies were divided into 3 timeframes: before, during, and after transition to a common integrated EMR-PACS platform. The percentage of total studies interpreted by pediatric subspecialty radiologists and average turn-around time (time from upload of the study to signing of the report) were calculated for these timeframes.

Results: A total of 288,287 examinations met inclusion criteria. At the children's hospital, 84.4% of studies were interpreted by pediatric radiologists during the baseline timeframe compared to 91.2% after the transition was complete. At the other covered hospitals, 38.9% of studies were interpreted by pediatric radiologists during the baseline timeframe compared to 73.8% after the transition was complete. These increased percentages correlated with a 375% increase in the absolute number of studies read by pediatric radiologists and an improved turn-around time for study interpretation by 03:24:36 during the same timeframes. In summation, implementation of a common imaging interpretation platform resulted in significantly improved access to pediatric radiology subspecialty interpretation of pediatric studies and improved turn-around time for those interpretations.

Conclusions: Our study demonstrates that implementation of a common interpretation platform provides scalable opportunity for improvements in access and turn-around time for specialized pediatric radiology coverage. Transitioning to a such a platform would be expected to result in improvements in the same metrics in other radiological subspecialties as well.

USE OF POINT-OF-CARE ULTRASOUND FOR PROLONGED CIRCULATORY SURVIVAL IN ORGAN DONORS

Abstract: 1496
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Format: Oral Presentation
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Bedside point-of-care ultrasound is an effective screening modality for the diagnosis of both thoracic and abdominal injuries by emergency department physicians, which is critical in patients showing signs of hemodynamic instability. However, even in cases where the patient's sustained injuries are fatal, prolonged circulatory survival can prove beneficial for organ donation during end-of-life care. Previous studies on kidney transplantation show that donation after circulatory death was more likely to result in acute renal failure and risk of kidney rejection than donation after brain death. Point-of-care ultrasound can prove to be a useful technique to quickly identify life-threatening injuries, and to preserve circulation in the setting of brain death. This increase in the circulatory survival time of patients can improve outcomes for future donor recipients.

Patient Description

A previously healthy 18-year-old male presented to a Level I trauma center via helicopter after sustaining blunt body trauma from a 45 mph head-on motor vehicle collision. The patient was non-responsive at the scene with a GCS of 3, miotic pupils, and deviated gaze. One unit of whole blood was given during transport. An Extended Focused Assessment with Sonography in Trauma (E-FAST) exam was done and showed absent lung sliding on the right chest, left upper quadrant free fluid, and pericardial effusion. Full body imaging revealed extensive injuries including many fractures (left iliac wing, fibula, femur, sphenoid, base of the skull, etc.), subarachnoid hemorrhage/intraventricular hemorrhage, right pneumothorax, bilateral pulmonary contusions, traumatic pneumatocele, pericardial effusion with tamponade, hemoperitoneum, small bowel injury, zone 3 retroperitoneal hematoma, and a Morel-Lavallee skin lesion in left lower quadrant of the abdomen.

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Intervention	A right femoral arterial line and chest tube were placed. The patient underwent an emergent thoracotomy for evacuation of 400 ccs of blood in the pericardial sac. Initial blood pressures were 50s over 20s. Relieving the tamponade and initiating transfusion protocol resulted in a systolic blood pressure increase from 55 to 110 mmHg. After identification of free fluid on the E-FAST exam, the patient underwent exploratory laparotomy. A central line was placed. The patient underwent bowel resection and was left in discontinuity secondary to acidemia and overall instability. The patient was transferred to the surgical ICU in critical condition. Opening intracranial pressures were exceedingly high and remained so despite aggressive reduction efforts. Neurology deemed the severe neurologic injury non-survivable due to catastrophic brain injury with anoxia. The family was interested in organ donation. Two days after initial presentation, the patient underwent surgical procurement of the liver, pancreas, and kidneys.
Conclusions	It is likely that if this patient waited for CT imaging, his hemodynamic status would have continued to collapse. However, with point-of-care ultrasound, this patient was able to undergo thoracotomy which allowed for circulatory stabilization and eventual organ procurement. The extension of circulatory survival in potential organ donor patients can allow families more time to spend with their loved ones in the last phase of life and can allow preservation of circulation in the event of brain death, resulting in better outcomes for the recipients of the organ donation.

Educating Primary Care Providers on Early Introduction of Solid Foods and Food Allergy Prevention

Abstract: 1497
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Format: Oral Presentation
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction: Food allergies are often a life-long diagnosis that can result in medical emergencies. Unfortunately there has been an increase in the prevalence of food allergies over the past twenty years, possibly due to the misconception that delayed introduction of allergens will decrease the risk of developing a food allergy. In fact, this was the official recommendation of the American Academy of Pediatrics (AAP) in 2000. Recent clinical trials have shown a decrease in food allergies through early introduction of allergenic foods. The AAP subsequently released new guidelines recommending early introduction of allergenic foods. This project aims to educate providers on the basics of food allergies and benefits of early introduction of allergenic foods. We hope that this will improve providers' knowledge and confidence regarding counseling families on the early introduction of allergenic foods.

Methods: Pediatric residents were offered a 1 hour presentation reviewing food allergy basics, introduction of solid foods to infants, and how to discuss early introduction of allergenic foods with families of pediatric patients. Prior to and following the presentation, providers completed a survey gauging their level of understanding and confidence on the topics reviewed. The course was offered to residents in the years 2019-2023. Survey data was collected and reviewed to assess providers' gain in knowledge and confidence.

Results: Survey results showed an increase in correct responses to questions testing general knowledge of food allergies pre and post-presentation. Percentage of questions correct in the pre-survey was 86.6%, while the post-survey percentage was 97.0%. Survey results demonstrated an increase in average confidence ratings, with an average confidence level of 3.05 pre-presentation and 4.04 post-presentation (using a scale of 1-5, 1-not confident at all to 5-very confident).

Conclusions: A course directed at pediatric providers reviewing the basics of allergies, allergenic foods, and solid food introduction can help providers gain knowledge and confidence regarding early introduction of allergenic foods. Potentially, this could lead to providers educating patients' families on the benefits of early introduction of allergenic foods, which would ultimately lead to a decrease in the prevalence of food allergies. Further studies would need to evaluate this.

Symptomatic Myocarditis in Mixed Connective Tissue Disease: A Case Report

Poster Number: 46
Abstract: 1498
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital
Format: Poster
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Mixed connective tissue disease (MCTD) is an autoimmune connective tissue disorder characterized by high titers of a unique autoantibody called anti-U1 ribonucleoprotein and overlapping features of systemic lupus erythematosus, systemic sclerosis, and polymyositis/dermatomyositis. Cardiac involvement in MCTD, most commonly pericarditis, is frequently present and is one of the leading causes of death in these patients; however, it is often asymptomatic, thus presenting a diagnostic dilemma. In addition, it is unclear when in the clinical course of MCTD cardiac involvement tends to develop.

Patient Description: Here, we describe the case of a 60-year-old female who presented with a history of bilateral hand pain and lower extremity swelling as well as myalgias, dysphagia, and Raynaud's phenomenon. Additionally, she reported angina and dyspnea on exertion. Physical examination was remarkable for sclerodactyly of bilateral hands, synovitis without joint deformity, nonpitting edema of bilateral hands and feet, dermatitis of bilateral dorsal thumbs, and tenderness to palpation of all muscle bellies. Her initial workup was remarkable for atraumatic rhabdomyolysis, transaminitis, and elevated high sensitivity troponin. Autoimmune workup revealed an elevated anti-U1 ribonucleoprotein antibody titer, consistent with MCTD. Cardiac magnetic resonance imaging (CMR) demonstrated diffuse myocardial edema and fibrosis leading to a diagnosis of acute myocarditis.

Intervention: Rheumatology was consulted, and the patient was started on a course of oral glucocorticoids with subjective improvement in her myalgias and malaise. Discussions regarding long-term steroid management and consideration of steroid-sparing therapy were in progress at the time of discharge; however, the patient subsequently moved out of state and was lost to follow up.

Conclusions: This patient's case was unique in that she had symptomatic cardiac involvement at the time of her MCTD diagnosis. In addition, she was diagnosed with myocarditis, whereas pericarditis tends to be a more common manifestation of cardiac involvement in MCTD. Furthermore, this case underscores the potential utility of CMR as a diagnostic, and possibly even a screening tool, for the evaluation of cardiac involvement in MCTD.

Distribution of Pediatric Rib Fractures in Nonaccidental Trauma

Poster Number: 67
Abstract: 1499
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Format: Poster
Category: Pediatrics
Author Status: Medical Student
Presentation Type: Basic Research Study

Introduction

The correlation between pediatric rib fractures and child abuse has been well-established. Literature as early as the mid-20th century identified rib fractures in the pediatric population as a sign of child abuse with a high level of sensitivity. Some studies posit the positive predictive value of rib fracture as an indicator of non-accidental trauma as high as 95%. While earlier works focused on the correlation between rib fractures and child abuse, more recent research has placed a specific focus on the particular patterns and constellations of fractures that signal abuse. Several key rib fracture patterns associated with child abuse have emerged, particularly with regards to the number of fractures, locations of fractures, fracture types, and the specific ribs injured. Notably, multiple rib fractures , posterior rib fractures , metaphyseal rib fractures , and fractures in ribs 5

Methods

We gathered region of interest (ROI) data on rib fractures by first uploading DICOM files of our dataset onto a privately hosted web server with annotation capabilities using the free software Orthanc. All images are in the Anterior-Posterior (AP) view. We enlisted the help of seven board-certified pediatric radiologists each with between 5 and 30 years of post-residency experience to hand-label rib fractures in each image. The data were split into groups of 50 that were sent to the radiologists, each batch containing custom URLs linking directly to the patient image inside the Orthanc server. Each image was inspected by only one radiologist. We then used a custom Python script to extract the pixel-level bounding box information for each fracture in each image into separate JSON files. These annotations were then collated into a single csv containing all bounding boxes across all images for processing.

Results

Previous work in the study of non-accidental rib fractures has generally been conducted in sample sizes of 50 or fewer patients. Our study includes a data set of over 1,000 total patients, and among these patients, 607 unique patients were identified with at least one rib fracture. In all, 2,770 rib fractures were identified. Given the relative increase in power of our study when compared to previous ones, we aimed to expand upon previously known patterns as well as posit novel ones. In particular, our study identified patterns within patient age groups, the number of fractures on each individual, distribution of fractures within the rib cage, and specific locations of fractures on individual ribs.

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Conclusions Broadly speaking, our results generally support previous findings that suggest a preponderance of non accidental rib trauma occurring in the age range of less than one year, primarily in ribs 5-8. Thanks to the increased size of our sample set, we were able to establish further nuance regarding the age distribution, number of fractures on each individual, distribution of fractures within the rib cage, and specific locations of fractures on individual ribs.

Examining Factors That Delay Surgical Care by > 60 Days from the Diagnosis of Breast Cancer in the Post-Pandemic Era

Abstract:	1500
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Format:	Oral Presentation
Category:	Oncology
Author Status:	Medical Student
Presentation Type:	Clinical Study

Introduction In 2022, the Commission on Cancer National Cancer Database (CoC-NCDB) announced a quality metric that the first therapeutic breast surgery in a non-neoadjuvant setting should be performed within 60-days of diagnosis in patients with Stage I-III breast cancer. While factors impacting surgical treatment delays have been previously reported, various time cutoffs have been used. Additionally, the 2019 COVID pandemic has impacted delivery of care models and may have lasting impact on how efficiently patients reach definitive surgery. Our aim is to elucidate factors that result in delays in surgical care outside of this quality measure in a contemporary cohort.

Methods A single center, retrospective review of a prospective breast cancer registry of patients who underwent surgical treatment of stage I-III breast cancer from July 2020 - June 2023. A univariate analysis of demographic, clinical, and surgical factors is completed between groups based on whether or not surgery was rendered within 60 days of diagnosis. A multivariate model is constructed of factors with a $p < 0.2$ on univariate analysis to implicate independent risk factors for surgical delay.

Results During the study period, 1379 breast cancer patients underwent surgical resection. Most (92.5%) had surgery within 60 days of diagnosis. Surgery within 60 days correlated with older age (median 65.7 vs. 60.6, $p = 0.004$) and post-menopausal status (93.6% vs. 87.4%, $p < 0.001$). No significant differences were observed in BMI, race/ethnicity, or Charlson co-morbidity index. Univariate associations with delay included genetic testing (9.2% vs. 5.6%, $p = 0.012$), preoperative MRI (13.4% vs. 4.9%, $p < 0.001$), multi-focal disease (11.3% vs. 6.9%, $p = 0.31$), plastic surgery referral (24.8% vs. 5.5%, $p < 0.001$), mastectomy (19.3% vs. 3.9%, $p < 0.001$), and immediate breast reconstruction (30.5% vs. 14.0%, $p < 0.001$). In a multivariate model, independent risk factors for surgical delay included plastic surgery involvement (OR: 3.7, 95% CI: 2.2 - 6.3), mastectomy (OR: 2.8, 95% CI: 1.7 - 4.7), preoperative MRI (OR: 2.0, 95% CI: 1.3 - 3.2), and surgeon-only visits (OR: 1.8, 95% CI: 1.2 - 2.8).

Conclusions Surgical delays beyond 60 days for breast cancer are multifactorial in the post-pandemic era. Mitigation of delays may be achieved through multidisciplinary engagement and expediting patients who require additional studies or consultation prior to definitive surgical care.

Case of two primary malignancies in a pregnant female: superficial leiomyosarcoma of the gluteal region and B-cell lymphoma

Abstract: 1501
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Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: OB/GYN
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Multiple primary malignancies (MPMs) are an uncommon diagnosis and are exceedingly rare in pregnant individuals. We present a unique finding of two primary malignancies in a young, otherwise healthy, pregnant female. The purpose of this case report is to discuss MPM as a diagnosis of increasing incidence worldwide and discuss the necessary evaluations, diagnostics, and treatments involved in the setting of pregnant patients.

Patient Description: A 27-year-old pregnant female G3P2012 presented as a transfer of care to her 35 week prenatal visit with a rapidly enlarging mass on her left gluteal region. At this time, the patient expressed concern about a mass that began as a mole one year prior. Punch biopsy was performed and results were concerning for leiomyosarcoma. Repeat cesarean delivery with placental examination was planned during 37 weeks of gestation to ensure adequate development of the fetus and allow for initiation of cancer treatment. MRI of the pelvis revealed a large mass confined to the subcutaneous tissue without extension into the gluteus muscle. Placenta pathology did not indicate placental spread of the cancer. CT imaging revealed a grade III 7.3 cm leiomyosarcoma in the left gluteal region with incidental finding of a pulmonary nodule.

Intervention: Radical resection of the gluteal mass was performed by surgical oncology successfully. Fine needle aspiration of the pulmonary nodule revealed low-grade B-cell lymphoma consistent with MALT lymphoma. The patient continued treatment with radiation to buttock and chest for concurrent malignancies, with close follow-up and surveillance for recurrence.

Conclusions: Prompt examination of patient-reported areas of concern and utilization of the placenta for diagnostic evaluation of malignancy in the newborn fetus are crucial for the diagnosis and treatment of MPM. This case report can be used by researchers and clinicians to aid in the understanding of MPM and help guide physicians in MPM management of pregnant patients.

Comparison of weight management medications in patients without diabetes

Abstract: 1502
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Format: Oral Presentation
Category: Pharmacy
Author Status: Pharmacy Resident
Presentation Type: Basic Research Study

Introduction: There are various medications approved for weight management by the Food and Drug Administration (FDA) such as phentermine/topiramate, naltrexone/bupropion, and glucagon-like peptide-1 (GLP-1) agonists including liraglutide and semaglutide. With newer evidence displaying high efficacy of GLP-1 agonists for weight management, there have been many shortages and insurance issues that have prevented access to these medications. This has prompted many clinicians to consider other weight management options and determine if their efficacy is comparable to GLP-1 agonists. While many studies have been done to show the efficacy of each individual treatment, there is a lack of evidence that compares different classes of weight management medications to each other. The primary objective of this study is to compare the efficacy of GLP-agonists to other classes of weight management medications.

Methods: This retrospective chart review will include patients who have been prescribed a weight management medication by a pharmacist within a Corewell Health primary care site between 6/1/22 and 6/1/23. Patients will be assigned to 1) GLP-1 agonists (liraglutide or semaglutide) or 2) Non GLP-1 agonist combinations (naltrexone/bupropion, naltrexone/bupropion and phentermine, phentermine/topiramate, topiramate, or phentermine). The primary objective is the percentage of participants that reached at least 5% weight loss at the end of the treatment course. The secondary objectives include percentage of participants that reached at least 10% weight loss and at least 15% weight loss at the end of the treatment course, and average change in body mass index (BMI) at the end of treatment course. The primary outcome will be tested with a Chi-Square test or Fisher's exact test.

Results: There are 212 participants identified that meet inclusion criteria in the study. Data collection is ongoing and further results will be shown in the spring of 2024.

Conclusions: Conclusion will be determined based on results of data collection.

Balancing DOAC Use in Premenopausal Women: The Impact of prescribing DOACs for VTE in women of childbearing years

Abstract: 1503
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Pharmacy
Author Status: Pharmacy Resident
Presentation Type: Basic Research Study

Introduction: The potential for abnormal uterine bleeding (AUB) increases for women taking anticoagulant medications for any indication. It is speculated that as uterine bleeding becomes abnormal, there is a hindrance to normal daily activities which may lead patients to stop taking their prescribed medication resulting in worsening outcomes. We predict that premenopausal women under the age of 50 taking rivaroxaban for venous thromboembolism (VTE) treatment will have increased abnormal uterine bleeding compared with those taking apixaban decreasing adherence rates.

Methods: A retrospective chart review identified 137 women ages 18 - 50 years diagnosed with a VTE requiring treatment at Corewell Health West from 01/01/2022 to 12/31/2022 . The primary outcome aimed to identify a difference in complications when comparing rivaroxaban to apixaban. Additionally, we plan to analyze increased utilization of care for those meeting inclusion criteria and compare documented medication safety concerns for rivaroxaban and apixaban.

Results: A prep to research was performed to reveal 137 patients having met a majority of inclusion/exclusion criteria; not all criteria were able to be identified by the initial data pull. Since minimal research prior to this review has been completed on the primary outcome and we were not able to pull an accurate sample size to minimize bias, all 137 patient charts were reviewed for inclusion into the study. Of the 137 patients, 78 fully met inclusion and exclusion criteria, their data was retrieved, and the data analysis is in progress.

Conclusions: At this time, the current data is insufficient to draw conclusions.

A rare case of tension pneumopericardium secondary to an esophagopericardial fistula.

Poster Number:	71
Abstract:	1505
Author Names:	Sarah Seaba, MS3; Kristopher Janevski, MS3; M. Samy Behairy, MD
Author Institutions:	Corewell Health West; Michigan State University College of Human Medicine; Advanced Radiology Services
Format:	Poster
Category:	Other
Author Status:	Medical Student
Presentation Type:	Case Report (< 3 patients)

Introduction

Esophagopericardial fistulas are a rare and deadly condition causing pneumopericardium. It is a surgical emergency requiring pericardial drainage, defect repair, endoscopic stenting, and broad-spectrum antibiotics. Symptoms are nonspecific and may include chest pain, fever, dysphagia and SOB. Complications of pneumopericardium are tension pneumopericardium and pneumopericarditis resulting in cardiac tamponade and ST segment elevations. Esophagopericardial fistulas commonly result from complications of GI procedures such as Nissen fundoplication and esophageal myotomy. Less commonly, esophageal cancer, caustic ingestion, ablation procedures for atrial fibrillation, and migrating esophageal stent placement. Our case involves a patient who presented with tension pneumopericardium via esophagopericardial fistula secondary to Boerhaave's Syndrome, a rarely documented risk factor.

Patient Description

A 46-year-old female with a PMH of bipolar disorder, schizoaffective disorder, anxiety, a previous suicide attempt (organophosphate poisoning), alcohol and drug abuse presents with several weeks of back pain, chest pain, hematemesis, and progressive dyspnea. The patient reports she experiencing heavy vomiting every time she ingests something. She denies previous ingestion of caustic solutions or chemicals. Current medications include Haldol, Narco, Zanaflex, and Trazodone. She uses cocaine (last used 1 month prior), marijuana daily, and had her last drink the evening prior to arrival. On physical exam, she is ill appearing with pallor, abdominal tenderness, and slow to respond to questions. She presents to the ED with tachycardia, hypotension, and tachypnea with an initial Hgb of 4. An esophagram revealed perforation of the distal esophagus into the pericardial space. An Echo revealed hydropneumopericardium with evidence of tamponade.

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Intervention	Patient was resuscitated and emergently taken to the OR. EGD showed a 4cm long full thickness longitudinal tear at the distal left lateral wall of the esophagus with 2cm fistulation adjacent to pericardium. The middle and proximal esophagus with no abnormalities. The location of the tear, hematemesis, and a PMH of alcohol abuse indicates a diagnosis of Boerhaave's Syndrome. She underwent a left thoracotomy, pericardial window, mediastinal debridement, reduction and repair of hiatal hernia, repair of distal thoracic esophageal perforation with an intercostal muscle flap. Post op esophagram showed an ongoing esophageal leak into the pericardial window with no further options for surgical repair. Two months post op, the patient was admitted to the ICU for septic shock with a slow and steady recovery. Course was also complicated by bilateral segmental PE, bilateral pleural effusions and diarrhea. She is currently admitted to inpatient rehab with a plan to allow time for the fistula heal with conservative treatment
Conclusions	Evidenced from the patient's experience, recovery from an esophageal-pericardial fistula is challenging. Early diagnosis and prompt intervention can lead to better outcomes. CT with oral and IV contract remains the gold standard in diagnosis; however, bedside ECHO and high clinical suspicion are paramount in early diagnosis which is the true lifesaving measure. While esophageal-pericardial fistula is commonly a complication from surgery, raising awareness to non-surgical causes could expedite diagnostic and intervention time.

Metformin and Cardiovascular Outcomes in Type 2 Diabetes: A Retrospective Study

Abstract: 1506
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Pharmacy
Author Status: Pharmacy Resident
Presentation Type: Basic Research Study

Introduction: In 2008 the Food and Drug Administration (FDA) released guidance for the pharmaceutical industry to demonstrate that new antidiabetic therapies for type 2 diabetes are not associated with an unacceptable increase in cardiovascular risks. Due to metformin's FDA approval in 1994, a cardiovascular outcome trial to evaluate major adverse cardiovascular events (MACE) was not conducted. Metformin has been a long-standing first line therapy for type 2 diabetes, however, in the 2024 American Diabetes Association guidelines, antidiabetic medications that have proven benefits have become more favorable. This study aims to demonstrate how metformin exposure impacts cardiovascular outcomes in patients with type 2 diabetes by using the 3-point MACE composite, similarly to newer antidiabetic drug trials.

Methods: This retrospective chart review will include patients sampled from 11/5/2017 to 11/5/2018, who were exposed to metformin versus patients not exposed to metformin and received care at Corewell Health West Primary Care clinics. Patients that meet the study's inclusion criteria will be observed over 5 years for the study outcomes. The primary objective is to determine the percentage of patients that experienced the 3-point MACE composite outcome. The secondary objectives include time of inclusion in the study to the first occurrence of the composite 3-point MACE; time of inclusion in the study to the first occurrence of revascularization or unstable angina causing hospitalization (expanded MACE criteria); and time of inclusion in the study to the first occurrence for each individual component of the MACE composites. The primary outcome will be analyzed using a Chi-Squared test or Fisher's exact test. Secondary outcomes will be analyzed using a survival analysis and a Log-rank test.

Results: Data collection is ongoing. There are 10,795 patient charts eligible for inclusion. A random sample of 1,000 patients will be selected from this patient population to include in the study. Data will be collected on all 1,000 patients. Further results will be available in spring of 2024.

Conclusions: Conclusions will be determined based on the results of data collection.

Urban-Rural Differences in Firearm Suicide by Region

Abstract: 1507
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Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Basic Research Study

Introduction: Suicide is a major public health concern in the United States. Each year, suicide is consistently in the top fifteen causes of death, and accounts for 8.1% of all deaths nationwide. Recently in 2022, a meta-analysis of 34 studies concluded that firearms are the most lethal choice of suicide, with 89.7% of attempts ending in mortality. In addition, the rate of total suicides and firearm suicides have risen in a parallel fashion since 2008. It is hypothesized that rural communities are at a significantly higher risk of injury and suicide by firearm, likely due to the increased access to firearms that exists in rural communities. The present study aims to assess differences in overall suicide and firearm-assisted suicide rates across urban and rural counties in the United States and explore variation according to geographic region.

Methods: In this descriptive study, we used the Centers for Disease Control and Prevention's Wide-ranging Online Data for Epidemiologic Research (WONDER) database to abstract county-level suicide rates (overall and firearm-assisted) per 100,000 per year from 2015-2020. Counties with suppressed data due to small sample size (<20 events) were excluded, resulting in analysis of 1,948 counties with information on overall suicide rates, and 1,453 counties with information on firearm-assisted suicide rates. We calculated incidence rate differences (RD) and incidence rate ratios (IRR) across rural and urban counties, defined using USDA's Rural-Urban Continuum Codes (RUCC), overall and across US Census regions (Midwest, Northeast, South, and West).

Results: A total of 274,973 suicides occurred over the period, 49.7% being firearm suicides. Rates of overall and firearm suicides increased with rurality (31.3/100,000 overall and 20.5/100,000 for firearm-assisted suicides in RUCC 9 counties). An additional 4.4 suicides per 100,000 persons per year occurred in rural vs urban counties (20.8/100,000 vs 16.4/100,000, IRR 1.27). Firearm suicides were similarly higher in rural counties, with an additional 4.2 suicides in rural vs urban counties (13.4/100,000 vs 9.2/100,000, IRR 1.44). Across all regions, rural counties had higher overall and firearm suicides than urban counties. However, rural-urban differences varied across regions. Rural-urban differences in suicide rates were largest in the West (RD -9.3, IRR 1.49) and smallest in the South (RD -3.0, IRR 1.18). Firearm suicides rural-urban differences were larger in the West (RD -7.4, IRR 1.73) and Northeast (RD -6.1, IRR 2.13) and smaller in the South (RD-3.1, IRR 1.30) and Midwest (RD -2.9, IRR 1.35).

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Conclusions Results demonstrate persistent rural-urban disparities in suicide and firearm-assisted suicide rates, with variation in magnitude across geographic regions of the US. These findings can inform public health strategies to target suicide prevention inventions to rural populations most in need. Further studies investigating the role of firearm ownership and firearm storage laws in rural-urban disparities in firearm-assisted suicides are warranted.

Cardiac Squeeze: Anesthesia's Tight Spot in Esophageal-Pericardial Fistula-Induced Tamponade

Abstract: 1508
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Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Cardiac tamponade is a medical emergency that occurs due to an accumulation of fluid in the pericardial space, resulting in compression of the heart, decreased preload, and risk of cardiovascular collapse. Uncommonly, tamponade can occur due to hydropneumopericardium- the presence of both fluid and gas in the pericardial sac. An esophageal-pericardial fistula is a rare complication that may occur due to esophageal malignancy, trauma, or spontaneous formation, possibly resulting in hydropneumopericardium and subsequent cardiac tamponade. Tamponade can make anesthetic induction and management tenuous, especially when instituting positive pressure ventilation. Here, we present a rare case of cardiac tamponade due to an esophageal-pericardial fistula highlighting the considerations of anesthetic induction, management, and perioperative strategies in maintaining patient stability.

Patient Description

A 46-year-old female with a past medical history of polysubstance abuse, bipolar disorder, and schizoaffective disorder presented to the emergency department (ED) with a three-day history of chest pain, shortness of breath, dizziness, and weakness. The patient's husband states she has been vomiting after every meal for the past several weeks. Vital signs were significant for a fever of 38.6°C, blood pressure of 82/68, and respiratory rate of 24. Initial laboratory results demonstrate WBC 26,100, Hgb 4.4, Hct 14.3, lactate 4.2. ECG showed regular rate and rhythm and was negative for ST elevation or depression. Initial chest CT showed hydropneumopericardium with peripherally enhancing fluid throughout the pericardium and diffuse thickening of the esophagus with suspected pericardial-esophageal fistula formation. A STAT esophagogram demonstrated distal esophageal perforation (EP) with fistula formation into the pericardial space and echocardiogram showed indication of cardiac tamponade.

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Intervention	In the ED the patient received empiric IV antibiotics and fluid bolus for concern of sepsis. Transfusion of two units of pRBCs was started. Patient was transferred to the cardiothoracic surgery service at Corewell Health Butterworth for treatment. Patient arrived at the OR and was prepped and draped while awake, the surgeon was scrubbed in for immediate pericardial window should the patient suffer cardiovascular collapse with anesthetic induction. The patient was induced with propofol, fentanyl, and rocuronium with subsequent double-lumen ET tube placement. Pericardial window was performed rapidly, resulting in an outflow of frothy, purulent fluid and immediate improvement in hemodynamics. Further interventions included EGD with repair of EP, mediastinal debridement, and total lung decortication. Since the initial encounter three months ago, she has remained inpatient and undergone numerous additional interventions. Current goals include management of persistent EP, electrolyte imbalances, and hypotension.
Conclusions	This case demonstrates a rare presentation of cardiac tamponade due to purulent fluid from an underlying esophageal-pericardial fistula in a patient with polysubstance abuse. Anesthetic management of such patients must include hypervigilance for induction and maintenance and preparedness for rapid surgical intervention and potential cardiovascular collapse. The insights gained from this case aid the refinement of anesthetic strategies and emphasize the critical role of anesthesiologists in perioperative stability and optimizing patient outcomes amid complex scenarios.

Evaluation of alteplase vs. tenecteplase in acute ischemic stroke

Abstract: 1509
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Stroke
Author Status: Pharmacy Resident
Presentation Type: Systematic Review

Introduction: Tenecteplase (TNK) and alteplase (TPA) are both thrombolytic agents used in the treatment of acute ischemic stroke (AIS). Although TPA is the approved treatment of choice for AIS, new data supports the use of TNK in AIS, leading to this agent being incorporated in the 2019 AHA/ASA Acute Ischemic Stroke treatment guidelines. This guideline states that it may be reasonable to choose TNK 0.25 mg/kg over TPA in patients eligible for mechanical thrombectomy. TNK is theorized to be a more favorable fibrinolytic compared to TPA. This is due to a greater fibrin specificity, a prolonged half-life allowing for only one time bolus dosing, and faster plasma clearance than TPA. Studies to date have proven non-inferiority of TNK vs. TPA. Considering this recent literature showing non-inferiority of TNK vs. TPA in clinical outcomes, coupled with the ease of administration and decreased cost of TNK comp

Methods: This study is a retrospective chart review that enrolled patients admitted to the Corewell Health West hospital system. Adults were included if they received alteplase between the timeframe of 4/4/21-4/4/22 or tenecteplase between the timeframe of 4/5/22-4/5/23 for the treatment of acute ischemic stroke. Major exclusion criteria included patients: < 18 years of age, pregnant, received tenecteplase before 4/5/2022, or received alteplase after 4/4/2022. The primary objective is to compare the total number of bleeding events within 24 hours of thrombolytic administration. Secondary outcomes we sought are the rate of reversal agents used, change in NIHSS score pre-stroke to 24 hours after, rate of recanalization for patients undergoing mechanical thrombectomy, and change in functional outcomes. Descriptive statistics will be provided.

Results: In Progress.

Conclusions: Pending Results.

Concomitant Bennett's Fracture-Dislocation with a Trapezium Fracture: A Case Report and Review of the Literature

Abstract: 1512
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Systematic Review

Introduction Fractures of the trapezium are rare and account for only 3% of all carpal fractures. These fractures are often associated with other hand and wrist injuries. Trapezium fractures with associated Bennett's fracture-dislocations are exceedingly rare without a consensus on treatment recommendations.

Methods A review of the Pubmed database for simultaneous cases of Bennett's fractures and trapezium fractures was completed by searching 'Bennett's Fracture' AND 'Trapezium.'

Results The search returned twenty-five articles, but only seven met the inclusion criteria and were written in the English language. There was a total of twelve male patients, between the ages of 18 - 47 with an average age of 28. The average final follow-up time for the cohort was 30 months with a range of 2 - 108 months. Two fractures underwent closed reduction with percutaneous pinning, and the other ten fractures underwent open reduction. While there was a large degree of heterogeneity of outcome reporting methodology, only one case reported substantial decreases in range of motion. Two cases reported quick-Dash disability scores, 3.5 and 3.9. Four cases reported patient satisfaction outcomes which resulted in three patients being very satisfied and one being satisfied. The patient was a 17-year old male who fell on an out-stretched, left hand while riding his bicycle. Plain radiographs revealed a comminuted fracture through the trapezium, a displaced fracture through the ulnar base of the first metacarpal, and

Conclusions Concomitant Bennett's fracture with trapezium fractures are rare with only twelve cases reported in the literature from our search criteria. There appears to be a strong trend towards male predilection. While open reduction is the most popular treatment approach, closed reduction can also be utilized with success. As with our case, patient outcomes appear to be favorable with many returning to normal mobility and strength with low levels of associated disability.

Cerebral Air Embolism Treated with Hyperbaric Oxygen Therapy

Poster Number: 16
Abstract: 1513
Author Names: Mason Gay, MD; Christine Kolacki, MD
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Air embolisms are generally iatrogenic. They are a rare complication following percutaneous procedures with potentially devastating effects. Intravascular entrapment of air can result in occlusion of end arteries and subsequent tissue ischemia and infarction. Cerebrovascular occlusions caused by air embolisms are time-sensitive and an uncommon cause of ischemic stroke, warranting an alternative acute management and reperfusion strategy. This report will describe a case of iatrogenic cerebral air embolism that presented to the emergency department (ED) and was managed with hyperbaric oxygen therapy (HBOT).

Patient Description

A 36-year-old female presented to the ED via EMS as a code stroke activation. The patient received an outpatient injection of sodium tetradecyl sulfate for sclerotherapy of varicose veins via vascular surgery. Within 5 minutes she developed a headache, weakness, and was noted to have slurred speech. On arrival to the ED, patient had dysarthria, left-sided facial weakness, gaze deviation to the right, left arm and left leg near flaccidity, left sided sensory deficits. The temperature was 37oC, HR 85, RR 20, BP 153/109, and spO2 98%. Stroke imaging showed an abnormal hypodensity along the right middle cerebral artery consistent with air embolus. A subsequent perfusion brain showed 27 mL of critical hypoperfusion at the right posterior middle cerebral artery distribution.

Intervention

HBOT was initiated with plans for a 5-hour dive. Approximately halfway through treatment, patient felt a 'pop' and began to regain neurologic function. She had 'near resolution' of neurologic symptoms with only residual tingling of the left hand and foot. Transesophageal echocardiogram was performed which showed large atrial septal defect with bidirectional shunting. Patient was discharged to home neurologically intact.

Conclusions

The literature on outcomes following arterial cerebral air emboli is sparse. The prognosis is assumed related to cause of emboli, the radiological extent of cerebral damage and time to HBOT, where treatment initiated within eight hours is associated with a better prognosis. Clinicians performing percutaneous procedures and healthcare personnel monitoring patients after such a procedure should be vigilant for symptoms congruent with air embolization.

Stress Cardiomyopathy Triggered by Influenza A and Diabetic Ketoacidosis

Poster Number: 17
Abstract: 1514
Author Names: Alexander W. Clegg, MD; Matthew Flannigan, DO; Bryan Judge, MD
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Stress cardiomyopathy is an acute and transient left ventricular systolic and diastolic heart failure that typically presents after emotional or physical stress. It is a form of stress cardiomyopathy that occurs typically within 48 hours of the stressor and resolves in 2-3 weeks. Incidence is approximately 15-30 cases/100,000/year. The most common form of stress cardiomyopathy is Takotsubo Syndrome, which describes a particular anatomic variant with characteristic apical ballooning. Historically, stress cardiomyopathy was thought to be caused by emotional stressors, but newer literature indicates a wide range of physical stressors can also cause the condition. We present a unique case of stress cardiomyopathy triggered by influenza A and diabetic ketoacidosis (DKA).

Patient Description

A 58-year-old female with past medical history of diet-controlled type 2 diabetes, hypertension, and sarcoidosis presented with two days of GERD-like symptoms followed by a presyncopal episode on the day of admission. The patient arrived as a priority case by EMS due to acute hypoxic respiratory failure requiring a non-rebreather. The patient was quickly stabilized on BiPAP with an initial VBG showing an anion gap metabolic acidosis. Initial EKG showed sinus tachycardia without ischemic changes. An echocardiogram demonstrated findings consistent with stress cardiomyopathy in addition to an LV thrombus. Lab work came back demonstrating an elevated lactate, elevated beta hydroxybutyrate, troponin, and BNP. A viral film array was positive for both influenza A and influenza A H1. CT angiogram demonstrated likely multifocal pneumonia, bilateral pleural effusions, and no pulmonary embolism.

Intervention

Initial therapies included a heparin drip, broad-spectrum antibiotics, oseltamivir, insulin, and furosemide. In the intensive care unit, the patient's respiratory status continued to deteriorate requiring intubation. The patient also developed renal failure requiring continuous renal replacement therapy and cardiogenic shock requiring pressor support. The patient underwent bronchoscopy with sputum culture that demonstrated MRSA pneumonia. The patient was briefly considered for ECMO, but positive blood cultures precluded the option. The patient ultimately did not tolerate mechanical ventilation with worsening hypotension. The family eventually elected for comfort care, after which the patient suffered a cardiac arrest and was pronounced dead.

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Conclusions This case emphasizes the growing body of evidence linking Takotsubo syndrome to medical abnormalities beyond emotional stress. Further research is crucial to explore potential treatment strategies for Takotsubo syndrome arising from diverse triggers and improve outcomes in similar complex presentations. Future directions could include investigating specific treatments based on triggers, risk stratification tools to predict and manage complications related to stress cardiomyopathy, and better diagnostic tools for early recognition.

COVID-19 Heartbreak: A Case of Cardiogenic Shock from COVID Myocarditis

Abstract: 1515
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: The COVID-19 virus has had a profound, worldwide impact over the last several years. More is learned about it each day especially with regards to it's extra-pulmonary manifestations. One of the more dangerous and even deadly complications of COVID-19 is myocarditis. Myocarditis is inflammation of the myocardium of the heart. Symptoms of myocarditis include chest pain, shortness of breath, palpitations, and lightheadedness. Occasionally, myocarditis can become severe enough that it significantly impacts heart function leading to cardiogenic shock.

Patient Description: Our patient is an 87-year-old male with past medical history of heart failure preserved ejection fraction, coronary artery disease status post 2-vessel CABG in 2014, and aortic stenosis status post aortic valve replacement who presented with acute onset dyspnea, cough and congestion. Patient was hypoxic with SpO2 of 63% and placed on BiPAP. Lab work was remarkable for VBG pH 7.12, lactate of 8.3 (units) and increasing troponin trends of 384 to 2987 (units). Patient had positive COVID-19 test. Limited echocardiogram showed an EF of 28% (previous baseline 55% from echocardiogram 1 year prior). CT thorax showed diffuse ground glass opacities suggestive of COVID-19. Patient was admitted to the MICU for cardiogenic shock secondary to COVID myocarditis.

Intervention: Patient was treated with continuous titratable infusions of milrinone and nitroprusside to reduce afterload and provide ionotropic support. He was also treated with furosemide for diuresis. Patient was treated with Remdesivir and dexamethasone. Steroids were later transitioned to solu-medrol. Repeat echocardiogram 3 days after later showed mild recovery of EF to 35%. However, the patient was weaned off milrinone and nitroprusside. Patient continued to improve with decreasing oxygen requirements and eventually transitioned to BiPAP.

Conclusions: While COVID-19 myocarditis can be deadly, appropriate support and management with steroids can allow for positive outcomes. Our patient had a particularly devastating case of myocarditis that led him into cardiogenic shock, requiring significant preload and afterload reduction to facilitate resolution of the condition.

Thromboelastography guides anesthetic options in peripartum patient with thrombocytopenia and autoimmune hepatitis

Poster Number: 6
Abstract: 1516
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Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Thromboelastography (TEG) is a bedside measure of global coagulation, including clotting factors, platelet function and fibrinolysis. Data supports the use of TEG in surgical settings to reduce morbidity during transfusion; however, less is known about potential uses of TEG in other fields, including obstetrics. Conditions such as thrombocytopenia and autoimmune hepatitis increase patients' risk for hemorrhage and thrombosis, respectively, and can cause complications during pregnancy including increased risk of spinal epidural hematoma during neuraxial anesthesia. Documented benefits promote the use of neuraxial anesthesia in obstetrics patients during cesarean deliveries, making measures to assess risk critical. TEG has the potential to guide neuraxial risk stratification by providing real-time coagulation data - protecting patients by enabling safe and timely anesthetic decisions.

Patient Description

A 33 year-old female presented with pregnancy complicated with autoimmune hepatitis, cryptogenic cirrhosis, thrombocytopenia, echogenic fetal bowel and placenta, and gestational diabetes controlled by diet and exercise. She was medicated with prednisone and carvedilol. She was undergoing serial endoscopy for variceal screening with surgical eradication and banding with 2 bands. Her pregnancy was uneventful until 35 weeks and 3 days when the patient presented with preterm premature rupture of membranes to the Maternal Fetal Medicine Department.

Intervention

TEG was ordered to evaluate the patient's coagulation status and determine the safety of neuraxial anesthesia for labor or cesarean section. The patient's platelet count was stable at 75 × 10-9/L and TEG was determined to be within acceptable limits despite the thrombocytopenia at arrival to the hospital. Plans for epidural analgesia and vaginal labor were subverted by late decelerations of fetal heart tones. The patient had an emergency primary low transverse cesarean section under spinal anesthesia placed via a 27g Whitacre needle with no acute complications. Both the patient and her baby were in good health and were discharged home two days later.

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Conclusions TEG has been shown to improve patient outcomes in surgical subspecialties, but its utility in other fields, including obstetrics, remains largely unknown. This is particularly useful in complicated cases such as this. TEG was used to support the safety of neuraxial anesthesia despite thrombocytopenia and liver disease, leading to positive maternal and neonatal outcomes. TEG may be useful in assessing coagulation status and guiding anesthesiologists in the management and treatment of complex obstetrics cases.

Mucositis and Macrocytosis: A Subtle Presentation of Chronic Myelomonocytic Leukemia (CMML)

Abstract: 1517
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: CMML is a rare form of leukemia that has features of myelodysplastic and myeloproliferative disorders. It can present with mucosal/cutaneous lesions, cytopenias, and hepatosplenomegaly along with peripheral blood monocytosis. In comparison with other chronic leukemias, it is associated with severe cytopenias and up to 25% lifetime progression to AML. Once CMML is diagnosed, the Mayo Molecular Model or CPSS-Mol are used to risk-stratify patients. High risk patients are evaluated for allogeneic HCT while older or lower risk patients are treated with hypomethylating agents. Conventional cytotoxic drug regiments such as cytarabine/anthracycline tend to have low response rates. The aggressiveness, rarity and complex presentation of CMML can present a diagnostic dilemma for clinicians, particularly early in the disease course.

Patient Description: Patient is a 71-year-old male who presented with 2 months of recurrent aphthous ulcers and new-onset macrocytosis without anemia. He was initially evaluated by ENT and treated for mucositis. A workup for macrocytosis was negative for nutritional deficiencies (B12, folate, Cu, Zn), thyroid abnormalities, or chronic hemolysis. Mild, daily alcohol use was noted. A peripheral blood smear demonstrated hypogranular neutrophils with increased macrocytes, and a subsequent bone marrow biopsy showed dyspoiesis of erythroid/megakaryocytic lineages without increased blasts. Genetic testing was positive for TET2 mutation. Pt was diagnosed with MD-CMML-1 per WHO5 criteria, which includes persistent peripheral blood monocytosis, exclusion of BCR-ABL or other neoplasms, blast count <20%, and typical karyotype/molecular sequencing studies such as positive TET2, SRSF2, and ASXL1 mutations.

Intervention: The patient had a CPSS-Mol risk score of 0 based on low risk cytogenetics/mutations, blast count <5%, WBC <13, and lack of transfusions, placing him in the low risk category. He was also evaluated for autoimmune conditions due to high rates (up to 20%) of systemic inflammatory and autoimmune disease (SIAD) in CMML, which was ultimately negative. Ultimately, he had symptomatic improvement with short courses of prednisone alone and, after discussion, elected not to pursue aggressive treatment. He is now undergoing regular monitoring for disease progression.

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Conclusions Isolated macrocytosis and oral ulcers are common outpatient problems with a broad, often benign differential. However, they can also be early signs of underlying systemic illness. In this case, the sudden onset of both mucositis and macrocytosis raised concern for underlying pathology. CMML is often diagnosed during workup of cytopenias, but subtler presentations should not be overlooked. The potential toxicity of hypomethylation agents also highlights the importance of risk-stratification tools to weigh the risk/benefits of initiating treatment vs monitoring.

Impact of early oral pain medications in acute pancreatitis on hospital length of stay

Abstract: 1518
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Pharmacy
Author Status: Pharmacy Resident
Presentation Type: Clinical Study

Introduction: Acute pancreatitis is a common inflammatory condition of the pancreas. Adequate pain management is one barrier to earlier discharge, but there is little guidance on a standardized approach. Due to food and oral medications overstimulating an already inflamed pancreas by secreting digestive enzymes and insulin, patients are often placed on NPO (nothing by mouth) diet orders and intravenous pain medications. Recent evidence shows that introducing enteral nutrition earlier in the admission is associated with pain reduction and reduced length of stay. This study aims to determine if introducing oral pain medications early in the hospital admission impacts the overall length of stay in patients with acute pancreatitis.

Methods: This study is a retrospective chart review of eligible patients between January 2021 to September 2023. Adult patients with a primary inpatient diagnosis of acute pancreatitis without infection or necrosis were screened for inclusion. The control group included patients who remained on intravenous pain medications past 72 hours of admission, and the intervention group included patients that started oral pain medications within 72 hours of admission. Propensity score matching between the groups will be conducted. The primary endpoint is the total inpatient length of stay (LOS). Secondary endpoints include 90-day hospital readmission rates, variables impacting length of stay, reduction in opioid usage post-discharge, and outcomes of 48-hour IV to oral pain medication transition. A t-test will be performed for the primary endpoint, and a Chi-Square or Fischer's exact test will be used as appropriate to evaluate 90-day readmission rates. Linear regression will be performed to estimate the

Results: 316 patients met inclusion criteria, and 144 patients were excluded due to the exclusion criteria. 172 patients were included in the statistical analysis. 137 patients were in the intervention group and 35 patients were in the control group. Statistical analysis is pending completion.

Conclusions: This study will provide additional data in a minimally researched area of pain control in acute pancreatitis. Final conclusions are pending study results.

How to help the ethical dilemma of caring for undocumented immigrants requiring aggressive outpatient medical interventions

Poster Number: 62
Abstract: 1520
Author Names: Maria Gallardo-Rios, MD; Scott Hawkins, LMSW; Bradd Hemker, MD
Author Institutions: Helen DeVos Childrens Hospital
Format: Poster
Category: Pediatrics
Author Status: Clinical/Research Fellow
Presentation Type: Case Report (< 3 patients)

Introduction

Undocumented immigrants (UIs) often present to Emergency Departments in the US seeking medical care that may involve long term care resources. The Emergency Medical Treatment and Active Labor Act (EMTALA) is a federal mandate that requires all Medicare-participating hospitals that offer emergency services to care for patients regardless of patient's ability to pay or immigration status. This mandate includes hospital admission to stabilize the emergent medical condition. Some states individually manage federal Medicaid funds or use other payment tools such Global Payment Pool, Disproportional Share Hospital designation to offer outpatient coverage for long term conditions in UIs. In states where outpatient services are not covered under emergency Medicaid, medical providers face ethical conundrums when they are unable to provide optimal care due to a patient's immigration status.

Patient Description

Patient is a 4-year-old male with unclear past medical history secondary to recent immigration from Guatemala. He presented with severe malnutrition, failure to thrive and respiratory distress due to viral infection in 2023. On evaluation, he was noted to have developmental delay, microcephaly, spastic cerebral palsy, soft palate collapse, and position-dependent chronic upper airway obstruction. Neurologic exam was concerning for severe HIE vs. structural brain abnormalities vs. Genetic etiology. Multiple subspecialists were consulted including Pediatric Pulmonology, ENT, Neurology, Genetics and Palliative Care. There were initial recommendations for gastrostomy tube placement due to concerns about his ability to maintain adequate nutrition and for tracheostomy placement due to his severe airway abnormalities.

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Intervention	While etiology of this condition remained unclear, brain MRI showed significant structural abnormalities which correlated with his severe neurologic impairment. Sleep study did not reveal significant obstruction, but bedside laryngoscopy showed pharyngomalacia and glossoptosis. Bilateral adenoidectomy was performed for improved air passage in the oropharynx which was small secondary to his retrognathia. Genetic workup was inconclusive. Medical teams recommended tracheostomy and g-tube placement which the family agreed to for the comfort of the patient. Family was provided with an estimate of monthly out-of-pocket costs for his care, should they proceed with these interventions without Medicaid. Due to this significant financial burden, family differed tracheostomy. The team struggled with balancing the standard of care for patient's airway issues and safest discharge plan with the restrictions presented by family's insurance. Before discharge, G-tube was placed to help with his dysphagia.
Conclusions	This case highlights the challenges at the intersection of US health care payment systems and immigration policies. This challenge is magnified in pediatric patients who are a particularly vulnerable population. Recommendations for improving our care of these patients include drafting new policies addressing follow up care for UIs, seeking funding both from state and federal sources and learning from states where mechanisms for outpatient emergency Medicaid coverage exist.

Quality Improvement Project: Implementing routine postpartum glucose screening in women with a history of gestational diabetes by proposing to utilize the Best Practice Advisory feature in Epic.

Abstract:	1521
Author Names:	Jessica P. Ramirez Gonzalez, DO
Author Institutions:	Corewell Health West; Michigan State University College of Human Medicine
Format:	Oral Presentation
Category:	OB/GYN
Author Status:	Resident Physician
Presentation Type:	Quality Study/Initiatives

Introduction

Gestational diabetes is the most common obstetrical metabolic disorder that affects 3-14% of pregnant women in the United States. GDM has been implicated in the increased lifetime risk of T2DM and metabolic syndrome. The incidence of metabolic syndrome within 5 years postpartum is 25% and a 70% chance of progression to T2DM within 10 years postpartum. It is of great interest to increase postpartum glucose screening for the benefit of long-term health. Postpartum glucose screening compliance is suboptimal with a screening rate of only 16-22.5%. This study evaluates the screening rate of postpartum glucose testing in women with a history of GDM at Corewell Health West. It is hypothesized the screening rates will be low, thus proposing the development of a Best Practice advisory in EPIC to alert healthcare providers to screen for diabetes in women with a history of GDM.

Methods

This is a retrospective cohort study of women who received prenatal care at Corewell Health West from January 1, 2018 to January 1, 2024. The cohort includes women who are 18 years and older, >= 24 weeks gestation with a diagnosis of gestational diabetes. Gestational diabetes is screened with the 1-hour 50-g glucose challenge test. Women with a result of >= 135 undergo a 3-hour 100-g glucose tolerance test. Gestational diabetes is diagnosed with two or more values meeting or exceeding the threshold glucose concentration of 95, 180, 155, and 140 at fasting, 1 hour, 2 hours, and 3 hours, respectively. The frequency of postpartum glucose screening was evaluated after 6 weeks postpartum to a year with the use of the 2-hour 75-g oral glucose tolerance test.

Results

Pending

Conclusions

The Negative Side of Necrotizing Soft Tissue Infections: A Case Report

Poster Number: 42
Abstract: 1522
Author Names: Kyle Rau, DO; Katherine Lomeo, MD; Anastasia Bury, MD; Asaf Harris, MD
Author Institutions: Corewell Health West; Michigan State University
Format: Poster
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Necrotizing fasciitis (NF) is a painful, rapidly developing condition, typically afflicting soft tissue of the fascial plane following cutaneous disruption1. Estimates of incidence vary and though it is suspected NF is underreported, current statistics recognize up to 1 in 100,000 cases worldwide annually with the most at-risk populations including patients with diabetes and those with alcohol use disorder - particularly if cirrhosis is present2,3. Studies show an exceptionally wide range of 30-90% mortality; delays in diagnosis/treatment, patient comorbidity, and identity of causative infectious organism(s) are among the strongest predicters of outcome1,2,4. Classic NF infections are polymicrobial and include mixed aerobic/anaerobic bacteria, most often featuring a Gram-positive cocci component1,5. Here we present an unusual case of isolated Gram-negative bacilli necrotizing fasciitis.

Patient Description

62-year-old male with pertinent medical history of chronic right lower extremity (RLE) wounds, insulin-dependent type 2 diabetes, chronic kidney disease secondary to mixed diabetic/IgA nephropathy on chronic low-dose steroids, who presented with chills, wound drainage, and RLE pain with crepitus. One month prior to presentation, the patient was treated for RLE cellulitis. On arrival, the patient was afebrile and normotensive, with RLE erythema, edema, and sanguinous wound output. Labs showed elevated CRP and ESR. Imaging of RLE revealed gas within deep soft tissue extending from leg to thigh. Given concern for necrotizing soft tissue infection, Orthopedic Surgery performed an emergent right leg/thigh fasciotomy. He was started on broad-spectrum antibiotics until cultures identified pan-susceptible Escherichia coli (E. Coli). Despite interventions, patient had increasing inflammatory markers and wound output. He subsequently underwent guillotine amputation of the RLE for source control.

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Intervention	Following amputation of the RLE, his clinical status vastly improved, and antibiotic therapy was stopped. Although our patient's presentation was classic for NF, his culture data was atypical. The majority of reported cases of NF caused by a single microbe gram negative organism have been due to E.Coli.6,7 Generally, patients with E. Coli NF required ICU level care and outcomes were poor with high mortality rates.6,7 It has also been documented that patients with 'oncologic diseases, liver cirrhosis, renal diseases or otherwise immunocompromised patients' are at highest risk for Gram-negative NF infections.7 Indeed, our patient certainly had risk factors not only for NF, but also for this rare etiology. Patient had a history of poor wound healing and diabetes in addition to chronic renal disease and long-term steroid use indicating an immunocompromised state. What varies from the literature is the stability of our patient during hospitalization and the quick improvement following infection source control.
Conclusions	Necrotizing soft tissue infections are rapidly progressing, high mortality infections that require prompt treatment. Our case of a single Gram-negative bacteria causing NF requiring limb altering surgery can increase awareness for clinicians of possible atypical infectious organisms. Not all NF infections are caused by Gram-positive organisms and broad antimicrobial coverage is warranted when treating this disease.

Incarcerated Diaphragmatic Hernia as a Cause of Mechanical Bowel Obstruction

Poster Number: 18
Abstract: 1523
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Acute abdominal pain is one of the most common chief complaints of patients presenting to the emergency department. Of the many potential etiologies, mechanical bowel obstruction remains a common cause, typically the result of abdominal adhesions in patients who have undergone previous abdominal surgery. However, rarer causes exist and present a diagnostic challenge to the clinician due to the similarity of presenting symptoms. In this report, we present a case of bowel obstruction caused by a non-traumatic, strangulated diaphragmatic hernia.

Patient Description

A 58-year-old female presented to the emergency department with acute, severe right upper abdominal pain with associated shortness of breath and nausea and vomiting. She reported three days of constipation and was awakened the morning of her presentation with severe abdominal pain. She had a surgical history of appendectomy, tubal ligation, and bladder sling and otherwise had medical history consisting of hypertension, and type 2 diabetes mellitus,. On arrival, the patient was found to be tachycardic in the 110s but was afebrile with otherwise reassuring vital signs. Her exam was limited secondary to significant pain, but she had reproducible right upper quadrant tenderness. Chest x-ray was concerning for an elevated right hemidiaphragm and associated free air. CT imaging revealed a right diaphragmatic hernia with an incarcerated cecum in the right chest cavity and a mildly dilated ileum, suggestive of a low-grade partial small bowel obstruction.

Intervention

The patient was subsequently taken for exploratory laparotomy and received broad-spectrum antibiotics. On surgical entry into her abdomen, the surgical team encountered purulent fluid and an incarcerated, necrotic colon in the right chest. The patient underwent further hernia reduction, ileocecectomy, chest washout, and placement of two right-sided chest tubes and two abdominal JP drains. Post-operatively, the patient did well. She did develop a further loculated right-sided pleural effusion which required an interventional radiology-placed pleural drain; however, she was ultimately discharged on post-operative day eight.

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Conclusions Mechanical bowel obstruction can have rare, complex causes. Obtaining a focused clinical history can aid the clinician in raising diagnostic suspicion. Plain film imaging can provide radiographic evidence in severe cases, though CT imaging is paramount in cases where x-ray imaging is inconclusive or the clinician has high clinical suspicion and is essential to assist with characterization of the defect. Early diagnosis and medical and surgical intervention are critical to minimize morbidity and mortality.

Delays and Interruptions in Nutrition Support in Pediatric Patients (N=64) on Extracorporeal Membrane Oxygenation from 2018 to 2022

Abstract: 1526
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Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Pediatrics
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction: Extracorporeal membrane oxygenation (ECMO) is a potentially life-saving cardiopulmonary support system reserved for critically ill patients who fail conventional therapies. The Extracorporeal Life Support Organization (ELSO) Registry Report from 2022 demonstrated that the use of ECMO continues to steadily increase, and subsequently poses challenges to routine inpatient care. Nutrition in the intensive care unit can impact many outcomes, including mortality, and is dependent on many dynamic variables. The purpose of this case series was to delve into specific patient characteristics related to delays and interruptions in nutrition support and to investigate gaps in care associated with morbidity and mortality in this vulnerable population.

Methods: A retrospective chart review of patients (N=64) requiring ECMO at Helen DeVos Children's Hospital between 2018 and 2022 was evaluated for demographics, daily enteral and parenteral nutrition data, laboratory values, ECMO complications, and outcome data to assess for the presence of delays in initiation of nutritional intake (>48 hours), the reason for delay, and the presence of interruptions in nutrition support. Extent of delay was defined by 48-60 hours, 60-72 hours, and >72 hours after ECMO initiation. The reasons for delay were categorized as clinical status, procedures, no access, or mechanical complications, and planned extubation. Interruptions were defined as cessation of feeds noted within chart review and total number of interruptions during ECMO was listed. Data was then analyzed using Chi-Square and Fishers exact tests.

Results: Approximately 30% of patients experienced a delay in the initiation of nutrition support. Of these individuals, 52.6% had a delay of 48-60 hours past the time of ECMO initiation, with 26.3% experiencing a 72+ hour delay. The most common reason for delay was the patient's clinical status (e.g.: fluid restriction, maximum vasopressor support, etc.), with procedures and access issues reported less commonly. After feed initiation, approximately 19% of patients experienced an interruption in their nutrition support, and 92% of those patients only experienced one interruption. Patients with a cardiac ECMO indication had a higher proportion of delayed nutrition support compared to those with non-cardiac (45.2% vs. 17.9%, p=0.0250). There were no statistically significant differences amongst patients who experienced interruptions in nutrition support.

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Conclusions The differences in nutrition support amongst cardiac versus respiratory ECMO patients could be secondary to worse presenting clinical status, including worsening hemodynamics with concern for poor gut perfusion and necessity for fluid restriction. This data serves as an impetus for further research regarding optimization of nutrition for patients receiving cardiac ECMO to improve individual morbidity and mortality.

Retrospective Analysis of Clinical Characteristics and Outcomes After Mitral Clip Procedure in Those with Heart Failure with Reduced Ejection Fraction

Poster Number: 43
Abstract: 1527
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Author Institutions: Corewell Health West
Format: Poster
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Basic Research Study

Introduction: Transcatheter edge-to-edge repair (TEER) of the mitral valve in patients with heart failure and reduced ejection fraction (HfrEF), has demonstrated improved survival. However, the recent 5-year outcome report demonstrated that, although improved, these patients had a mortality higher than 50%. These patients may have benefited from earlier identification and advanced HF therapies. The objective of our study was to evaluate the long-term outcomes of patients with HFrEF.

Methods: Patients with HfrEF (<40%) who underwent TEER between 1/1/2016 and 8/1/2023, at our institution were included. Epidemiologic, clinical, laboratory, echocardiographic, and hemodynamic data were obtained. Recorded outcomes included: death, heart transplantation, left ventricular assist device implantation, and Kaplan-Meier analysis was performed.

Results: A total of 59 patients were included. Of these, 24 died (40.7%), 4 received an LVAD (6.8%) and 1 (1.7%) HT. Only 5 (8.5%) patients were monitored with CardioMems. The non-survivor group compared to the survival group was more likely to have hospitalizations (3.7% vs 1.2%; p=0.005) with shorter time until hospitalization (4.7 months vs 18.1 months; p=0.001). The median survival free of LVAD or HT was 3.4 years.

Conclusions: Patients with HFrEF who undergo TEER for severe MR are at a high risk for mortality or need of advanced HF therapies. Close management by an advanced HF team post-procedure and increased utilization of remote monitoring hemodynamics with CardioMems would be beneficial.

Efficacy of emergency department-based HIV screening in regions of low HIV prevalence

Poster Number: 20
Abstract: 1528
Author Names: Jacob Baker, MD, PhD; Rebecca Emery; MD, James Polega, MD; Josh Donkin, MD; April Hight, BSN, MPH; Mary Carmody, BSN, MPH; Nirali Bora, MD, MPH; Nicholas Kuhl, MD; Jorgie DeSanctis, MD
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Format: Poster
Category: Emergency Medicine
Author Status: Clinical/Research Fellow
Presentation Type: Quality Study/Initiatives

Introduction

Emergency department (ED)-based Human Immunodeficiency Virus (HIV) screening has been utilized to increase rates of HIV screening among high-risk populations. Prior reported ED-based HIV screening has occurred in areas with high HIV prevalence, but the utility of such an approach within areas of relatively lower HIV prevalence has not been well studied. West Michigan is one such area of lower HIV prevalence, but an above average rate of late-stage HIV diagnosis, suggesting that the current level of HIV screening is inadequate to identify persons living with HIV early after infection. To increase the effectiveness of West Michigan HIV screening, collaborators from Emergency Medicine, Infectious Diseases, and the Kent County Health Department implemented an ED-based HIV screening pathway and evaluated its efficacy in identifying HIV-positive patients in an area of low HIV prevalence.

Methods

A pathway for HIV screening and result follow-up was developed for all Corewell Health West emergency departments. In this pathway, following appropriate provider education on HIV screening, ED providers were encouraged to offer HIV screening to all patients presenting to the ED for gonorrhea and chlamydia screening. Positive HIV screening results were forwarded to an in-basket managed by the Corewell Health Infectious Disease fellows who counselled patients on their screening results and connected them with the Kent County Health Department for HIV care coordination. The efficacy of this screening intervention was measured by comparing the rate of HIV screening during encounters for gonorrhea and chlamydia screening before and after implementation of the pathway. Descriptive statistics were also performed to help measure the ability of ED-based HIV screening to identify a subpopulation with increased HIV prevalence.

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Results In the year following the HIV screening pathway implementation, HIV screening was performed in 1,755 of 5,570 ED encounters for gonorrhea and chlamydia testing (31% of encounters) versus 134 of 4,301 encounters in the prior 10 months (3% of encounters). During the intervention, 5 new HIV diagnoses were made (0.3% test positivity rate) compared to 2 new HIV diagnoses in the prior 10 months (1.2% test positivity rate). The test positivity rate was highest among patients presenting to the ED with no prior HIV test performed (0.4% of tests), and lowest among patients who had undergone testing within the previous year (0% of tests). Within the population of patients that underwent ED-based HIV testing, HIV prevalence was 10-fold higher than the estimated prevalence of undiagnosed HIV in Kent County, suggesting that patients presenting to the ED for gonorrhea and chlamydia testing represent a population at elevated risk for HIV.

Conclusions ED-based HIV screening is a useful tool to increase new HIV diagnosis even in a geographic area of low HIV prevalence. Further prioritization of the target screening population would increase efficacy of ED-based HIV screening efforts and may be a useful strategy to decrease late-stage HIV diagnosis.

Anesthesiologists' Perspectives on GLP-1 Receptor Agonists in Elective Surgeries: A Qualitative Survey Analysis

Abstract: 1529
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Author Institutions: Corewell Health West; Michigan State University; Anesthesia Practice Consultants
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Quality Study/Initiatives

Introduction Glucagon Like Peptide 1 Receptor Agonists (GLP-1 RAs) are a novel class of drugs that have recently gained popularity for their ability to effectively manage type 2 diabetes mellitus and promote weight loss by delaying gastric emptying. Because delayed gastric emptying increases the risk of pulmonary aspiration during anesthesia, standard preoperative fasting guidelines may be unsuitable for patients taking GLP-1 RAs. The American Society of Anesthesiologists published consensus-based guidance in 2023 for the preoperative management of patients taking GLP-1 RAs. Currently, the literature to support best practice is sparse. Therefore, the purpose of this study is to gather and analyze the perspectives of currently practicing anesthesiologists regarding their experiences providing care for patients taking GLP-1 RAs and their thoughts concerning the ASA's 2023 guidance.

Methods This survey study was assigned exempt status by Michigan State University IRB. A focus group of six practicing anesthesiologists provided free-text statements describing their thoughts and experience with GLP-1 RAs, from which common themes and preferred professional language were identified and used to develop survey items. An iterative process was used whereby the focus group provided feedback on draft survey items, items were edited accordingly, and the focus group re-reviewed the items. This process was repeated until all survey items were deemed relevant and accurate. The final survey will be hosted in Qualtrics software and survey invitations will be emailed to several anesthesiologist organizations (anticipated n>200). We expect to send survey invitations in February 2024. Once completed, the survey will be analyzed through MSU CSTAT for internal validity and study conclusions.

Results Survey responses will be compiled and analyzed for common themes and relationships between questions. The response number will be known but the response rate will be incalculable because the denominator is untrackable when a survey link is propagated person-to-person. Survey questions regarding years of practice, current knowledge of GLP-1 RAs, the frequency of GLP-1 RA seen in practice, the efficacy of the ASA's 2023 guidance, reasons for canceling cases, barriers to canceling cases, theoretical symptoms leading to canceling cases, gastric point-of-care ultrasound, and a free-text response will be compared to each other for analysis.

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Conclusions With the results of this survey, we will have a better understanding of the perspectives and practice patterns of currently practicing anesthesiologists regarding the rise of GLP-1 RAs in surgical patients. We will be able to conclude if anesthesiologists believe that the ASA's 2023 guidance regarding GLP-1 RAs in elective cases is practical and preserves patient safety. The conclusions of this study will help provide the framework for additional studies or institutional policies to improve the quality of patient care in this population.

Ocular Complications of Tussok Moth Cocoon Associated Injury

Abstract: 1531
Author Names: Henry Zou; Brooke Geddie, DO
Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Intraocular foreign bodies (IOFBs) are a significant cause of ocular trauma-induced visual impairment, particularly among young men. Pars plana vitrectomy (PPV) and foreign body removal is the main treatment, but the visual prognosis remains poor for many patients even after surgical repair. We present a unique case of a vitreous hemorrhage and retinal detachment induced by a Tussock moth cocoon fiber and repaired via PPV and IOFB removal.

Patient Description: A 12-year-old male suffered a left eye injury induced by Tussock moth cocoon fibers, which induced vitreous hemorrhage and tractional retinal detachment. He underwent PPV with removal of nonmetallic intraocular foreign body, endolaser, fluid-air exchange, injection of 14% C3F8 gas. The patient subsequently developed a visually significant cataract resulting in lensectomy and intraocular lens implantation of the left eye.

Intervention: He underwent PPV with removal of nonmetallic intraocular foreign body, endolaser, fluid-air exchange, injection of 14% C3F8 gas.

Conclusions: This case demonstrates a rare occurrence of intraocular penetration of insect fibers with resulting severe ocular complications. We review other reported ocular insect injuries for comparison.

Roux-en-Y Hepaticojejunostomy for Congenital Biliary Obstruction

Abstract: 1532
Author Names: Kristen Hawes, MD; Aryana Sharrak, MD; Eric Groh, MD
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Neonatal cholestasis necessitates a broad differential diagnosis. Potential etiologies may be obstructive, infectious, metabolic, genetic, or toxic in nature. Obstructive causes include biliary atresia and choledochal cysts. Briefly, biliary atresia is a progressive, obliterative disease affecting the extrahepatic biliary tree. This is commonly treated with a Kasai procedure, also known as hepatoportoenterostomy. Biliary cysts are a less common cause of obstructive neonatal cholestasis. They are seen with several different morphologies, each with type-specific treatment guidelines though most require surgical resection. Other obstructive causes of neonatal cholestasis include, but are not limited to, gallstones and/or biliary sludge and tumors. In some cases, a clear etiology may not be evident despite extensive workup.

Patient Description

Here, we present the case of a six-week-old female infant born at 37 weeks 4 days gestational age with a history notable for gastroschisis who presented with direct hyperbilirubinemia since birth. During her initial neonatal intensive care unit stay, the patient's work-up was largely unremarkable. She underwent two liver ultrasounds which both demonstrated sludge in the gallbladder, cystic duct, and presumed common hepatic duct. Additional findings included intra-hepatic biliary dilation and ill-defined areas consistent with prior hepatic insult. She was eventually cleared by gastroenterology for discharge with planned outpatient follow-up, and ursodiol was initiated. She ultimately underwent liver biopsy a few weeks later which demonstrated non-specific cholestasis with findings concerning for biliary obstruction. Subsequent MRCP demonstrated atretic or absent common bile duct with dilation of the gallbladder, cystic duct, common hepatic duct, and right and left intrahepatic ducts.

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Intervention	She underwent intraoperative cholangiogram, lysis of adhesions, resection of common hepatic duct with Roux-en-Y hepaticojejunostomy, cholecystectomy and appendectomy. Intraoperative cholangiogram demonstrated no passage of contrast into the common bile duct or duodenum. The liver appeared cholestatic, however no visible evidence of cirrhosis was present. Furthermore, dissection of the extra-hepatic biliary tree demonstrated a transition from dilated to narrow hepatic duct, necessitating resection of the narrowed portion with reconstruction as previously described. Her post-operative course was uncomplicated and she was discharged home on post-operative day six. Ultimately, the etiology of her presentation was thought to be possible type 1b choledochal cyst versus common bile duct obstruction from stones and/or sludge. The patient is currently progressing well in the outpatient setting.
Conclusions	In summary, this unique case highlights surgical management of neonatal cholestasis of uncertain etiology. This case required multidisciplinary input from surgery, neonatal intensive care, gastroenterology, and radiology to ascertain an etiology for this patient's presentation and develop a plan of care. This, in combination with extensive pre-operative work-up and intra-operative problem-solving, ultimately led to a successful patient outcome.

Recurrent Renal Cell Carcinoma Presenting as Metastasis to the Gallbladder

Poster Number: 30
Abstract: 1533
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

In the United States, roughly 82,000 cases of renal cell carcinoma (RCC) are diagnosed each year. Mortality for these patients has greatly improved over the past several decades. Now, the incidence of RCC is over threefold higher than the mortality rate. As survivorship grows, patients who have undergone curative treatment are surveilled according to the American Urologic Association (AUA) or National Comprehensive Cancer Network (NCCN) guidelines. The most common sites of RCC metastases following curative treatment include lung, bone, liver, and locoregional recurrences. On rare occasions, RCC has been reported to metastasize to the gallbladder.

Patient Description

Here, we present the case of a healthy 63-year-old female who presented with a suspicious gallbladder polyp ten years after initial treatment of clear cell RCC. The patient underwent left nephrectomy with adjuvant sunitinib in 2013 after which routine surveillance was initiated. She was treated for brain metastases in both 2014 and 2021, however no evidence of disease had been noted on subsequent imaging. In 2023, a 9 mm potential polyp or stone was noted within her gallbladder on surveillance computed tomography. She underwent a right upper quadrant ultrasound shortly thereafter, which demonstrated an 11 x 7 x 9 mm polyp in the gallbladder lumen. Given the polyp's size and patient's oncologic history, she was scheduled for surgery.

Intervention

Later, the patient underwent laparoscopic cholecystectomy with intra-operative ultrasound of the liver in 2023, with plans for possible radical cholecystectomy pending intra-operative frozen section. Intra-operatively, no evidence of intra-hepatic involvement of the polyp or signs of metastatic disease were present and the gallbladder was removed without spillage. Preliminary pathology of the polyp indicted a benign mucosal lesion or possible metastatic renal cell disease. With either result, there was no indication for radical cholecystectomy and the operation was concluded without complication. Her final pathology report demonstrated metastatic clear cell RCC with a benign reactive lymph node. Adjuvant therapy with pembrolizumab was subsequently discussed with the patient, however she opted to continue with surveillance after seeking input from multiple medical oncologists. Follow up imaging has since been negative for evidence of metastases.

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Conclusions This case highlights a rare occurrence of RCC metastasizing to the gallbladder in a patient ten years from initial diagnosis. This serves as a reminder to maintain a high index of suspicion for metastases as the cause of atypical gallbladder findings on surveillance imaging, even years after treatment of most recent disease recurrence. While some prior case reports have described this pattern of metastasis, more data is needed to determine the true incidence of gallbladder metastases of RCC as a synchronous or metachronous finding. Ultimately, a good outcome was achiev

Thinking Outside the Chest: Unveiling Amyotrophic Lateral Sclerosis (ALS) in Acute Respiratory Failure

Abstract: 1534
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Amyotrophic Lateral Sclerosis (ALS) is a rare condition that most often presents with central weakness in the upper or lower extremities that progresses to eventual upper motor neuron involvement, respiratory failure, and ultimately death. Diagnosis is primarily clinical and is confirmed by EMG testing which shows findings of acute on chronic denervation in cervical, thoracic, and lumbar muscle groups. Most diagnoses are made prior to onset of respiratory symptoms.

Patient Description: A 65-year-old male with a history of HFpEF, HTN, HLD, and COPD presented to the ICU intubated secondary to acute hypoxic respiratory failure complicated by peri-intubation cardiac arrest. Physical exam was notable for bilateral basilar rales, pitting bilateral lower extremity edema, cool, dry skin, and delayed capillary refill longer than three seconds.

Intervention: The etiology of the patient's respiratory failure was felt to be related to exacerbation of congestive heart failure and pneumonia. No specific organism was identified. His cardiac function was not diminished from baseline on echocardiogram. With diuresis and broad-spectrum antibiotics, he was able to be placed on minimal ventilator settings. However, despite this, the patient had persistent tachypnea and low tidal volumes on spontaneous breathing trials. Physical exam was concerning for weakness and fasciculations. Further history obtained from his family revealed that he had been progressively non-ambulatory at home and was chair-bound leading up to his admission. There was also a notable first-degree family history of ALS. The differential diagnosis included critical illness myopathy, polyneuropathy, or a combined presentation. Neurology was consulted, and bedside EMG showed evidence of an active demyelinating disorder affecting the craniobulbar, cervical, and lumbosacral segments, leading to a confirmed

Conclusions: Respiratory failure is rarely the presenting symptom at ALS diagnosis. While some patients with ALS develop progressive respiratory failure solely due to weakness, an acute deterioration may also occur in the setting of another insult such as pneumonia. Earlier diagnosis in the outpatient setting may have led to earlier identification of respiratory weakness and recommendation for home non-invasive positive pressure ventilation, as well as earlier goals of care discussions. Confirming the diagnosis of ALS ultimately helped the patient and his family make decisions abo

Impact of cholecalciferol on rate of acute kidney injury in adults receiving vancomycin

Abstract: 1535
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Pharmacy
Author Status: Pharmacy Resident
Presentation Type: Basic Research Study

Introduction: Vancomycin is a glycopeptide antibiotic that is widely used as empiric coverage for and cornerstone treatment for methicillin-resistant Staphylococcus aureus (MRSA) and other Gram-Positive infections. With its widespread use, reported rates of acute kidney injury (AKI) in patients receiving vancomycin therapy range from 5 to 35% depending on the presence of other nephrotoxicity risk factors. Preclinical studies have demonstrated potential nephroprotective effects of cholecalciferol through regulation of the renin-angiotensin system, enhancing insulin sensitivity, and improving endothelial function. Evaluations in animal models have found cholecalciferol can reduce renal injury in the presence of vancomycin; however, this has not been evaluated in humans. The purpose of this study is to assess the nephroprotective effect of cholecalciferol supplementation in patients receiving vancomycin.

Methods: This retrospective chart review included adults who received at least 72 hours of vancomycin while admitted to medical-surgical units at Corewell Health Butterworth and Blodgett Hospitals between August 1st, 2018, and August 30th, 2023. Patients were excluded if they had ESRD at baseline, developed an AKI prior to vancomycin initiation, history of kidney transplant, quadriplegic, paraplegic, pregnant, incarcerated, received less than 24 hours of vancomycin prior to intensive care unit admission, or repeat admissions. Upon inclusion, patients were grouped based on whether they received vancomycin alone or vancomycin plus concomitant cholecalciferol. The primary outcome to be evaluated is the rate of AKI per KDIGO classification compared between the two groups. Secondary outcomes to be evaluated will include stage of AKI, change in creatinine clearance during therapy, need for renal replacement therapy, and in-hospital mortality. Assuming an AKI rate of 20%, it was determined that 200 pa

Results: In total, approximately 400 patients (200 vancomycin alone; 200 with concomitant cholecalciferol) will be included for evaluation. If appropriate to align groups for final analysis, propensity matching will be completed using a logistic regression model and a 1:1 matching algorithm.

Conclusions: Data collection is ongoing with anticipated completion in March 2024. Conclusions will be developed following data analysis.

Investigation of Psychiatric Impact of Gender Affirming Care

Abstract: 1536
Author Names: Alexis Hansen; Justin Royer; Freddie Hildreth II, MPH; Leo Fawaz, MD; Lisa Lowery, MD MPH
Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital
Format: Oral Presentation
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Educational Study

Introduction Despite increased academic discourse, advocacy, and public awareness regarding the marginalization experienced by transgender and gender diverse (TGD) populations within the United States and other Western countries, significant health disparities and discrimination still remain heavily prevalent within this population in the United States. Although many studies have confirmed health disparities in TGD patients, fewer have operationalized the benefit of gender affirming care (GAC) in pediatric, adolescent, and young adult populations. There is robust evidence that provision of gender affirming care is associated with improved psychiatric outcomes within the TGD population. Our study's goal is to determine the association between provision and type of gender affirming treatment with several psychiatric measures.

Methods This study is a retrospective chart review trending longitudinal PHQ-9 scores, GAD-7 scores, number of ED visits, and number of psychiatric visits (planned vs unplanned) prior to initiation of gender affirming care (e.g., social transition including name and pronoun change in EMR, gender affirming hormone therapy, puberty blockers, and gender affirming surgical procedures) and at specified time intervals following treatment initiation (0, 1, 3, 6, 9, 12, 18, and 24 months). Patients were included in the study if the inclusion criteria were met, which included an identity of gender diverse, received gender affirming care between the study time period of 01/01/2017 and 01/01/2023, and between the ages of 13-24 years old.

Results We hypothesize that total scores on the PHQ-9 and GAD-7 screening questionnaires, frequency of 'yes' responses to PHQ-9 item 9, emergency department visits, and number of psychiatric visits will decrease after gender affirming care has been provided by healthcare providers. Our sample size included 193 patients who met the diagnostic criteria for gender diverse and received gender affirming procedures or medications. In addition, 235 patients met the diagnostic criteria for gender diverse, but did not receive any gender affirming procedures or medications.

Conclusions Data collection for this study is currently ongoing, but should be completed prior to May, 2024.

Implementing Routine ACE Screening in Family Medicine: Quality Initiative

Abstract: 1537
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Family Medicine
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction Many factors contribute to longitudinal health and well-being including lifestyle, diet, exercise, and genetics; however, childhood adversity can also play a significant role in long term health. Over the past 25 years, research has emerged detailing Adverse Childhood Events, or ACEs, and their contributions to both physical and mental health (Felitti et al., 1998; Hughes et al., 2017) More recently, new research is outlining Positive Childhood Experiences and the protective effects these can have on children with a high ACE score (Crandall et al., 2019). Despite an abundance of research linking higher ACE scores with long term adverse health outcomes, ACE screening is not routinely performed in the primary care setting. This project seeks to implement routine pediatric ACE screening in a primary care setting and assess perceived barriers to implementing screening.

Methods Adverse Childhood Event screening was implemented utilizing the Center for Youth Wellness ACE screening form at two family medicine clinics in Greenville, MI, which is a rural clinic, and Grand Rapids, MI, which is an urban clinic. Screening was performed at well child appointments for children aged >=1 year between the ages 1-19. For patients aged 1 through 12, patient guardians received the ACE screening form. For patients aged 13 and above, patients received a self-reporting ACE screening form and guardians received an ACE screening form. Following one month of screening implementation, providers and office staff were surveyed to assess barriers to screening. The overall endpoints of the project were to successfully meet the benchmarks of 80% documentation for ACE screening for the well child visits and at least 90% documentation of those that have an elevated ACE score >4 to be referred to social worker services to assist them with community resources.

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Results In the Grand Rapids clinic, 131 patients were screened out of a total of 482 well-child visits during the selected timeframe. Out of these, 92 scored < 4, 18 scored > 4, and 21 were invalid (due to lack of signature or an incomplete form). Of those that scored > 4, 2 were referred to social work for further resources. The greatest perceived barriers at this clinic included lack of resources to give to families with positive screening and too much paperwork for patients. In the Greenville clinic, 22 patients were screened out of a total of 962 well-child visits during the selected timeframe. Out of these, 20 scored <4, 1 scored >4, and 1 was invalid. Of those that scored > 4, 0 were referred to social work for further resources. The greatest barrier at this clinic was lack of training/knowledge for office staff. Our last PDSA cycles prior to presentation will be focused on improving current percentages for screening implementation and increasing the number of patients who are given or referred to resources.

Conclusions After the first PDSA cycle, we had low percentages of ACE screening implementation. Barriers to routine screening were identified. As we complete our QI project in the next two cycles, we hope to overcome such barriers to better address ACEs in our patient population with the hopes of mitigating their impact. Adverse childhood experiences play a significant role in long term physical and mental health. Early implementation of ACE screening in primary care is the next step to determining the impact of ACEs on patients and to ascertain the benefits of early intervention.

Testicles Before And After Detorsion, Diagnosis By Point Of Care Ultrasound

Poster Number: 19
Abstract: 1538
Author Names: Nina Lund ,MD, Phd; Andrew Wechsler, MD; Matthew Flannigan, DO
Author Institutions: Corewell Health West; Michigan State University
Format: Poster
Category: Emergency Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Testicular torsion is a relatively uncommon diagnosis but one that requires swift and decisive action to avoid potential infertility. Torsion is caused by twisting of the spermatic cord resulting in obstruction of venous blood flow causing testicular ischemia. Diagnosis is confirmed by either surgical exploration or doppler ultrasonography. Emergency physicians can make this diagnosis with point of care ultrasound. Early diagnosis is essential to definitive treatment and is potentially a fertility saving procedure. We present a case of a 13-year-old male with of progressively worsening testicular pain at a regional emergency department without 24-hour radiology performed ultrasonography. Point of care ultrasound was utilized by the emergency physician to diagnose and detorse the affected testicle with subsequent ultrasound demonstrating return of blood flow. The patient was able to follo

Patient Description: A 13-year-old male with no medical history presented for evaluation of progressively worsening testicular pain ongoing for around 10 hours. The patient reported sudden onset of pain starting at 7:00 am that began at 2/10 and progressively worsened to 7/10 by time of arrival. The patient had been taking over the counter pain medication without relief and reported that he had never had pain like this previously. On exam, his left testicle had a horizontal lie in comparison to the right, left testicle was exquisitely tender to palpation and he had a negative cremasteric reflex on the affected side.

Intervention: Initial concern for testicular torsion was high and at that time, the ultrasound tech was called in from home. Due to the time-sensitive nature of this complaint, the emergency physician brought the ultrasound cart to bedside. Utilizing the high-frequency linear transducer, the scrotum and testicles were evaluated in sagittal and transverse planes. There was normal echogenicity in the affected

Conclusions: Testicular torsion is a disease process affecting 1 in 4,000 males under the age of 25. This is a fertility threatening diagnosis as testicular ischemia, if left untreated, can result in subsequent loss of a testicle. There are two diagnostic modalities, surgical exploration and doppler ultrasonography. While surgical exploration is not in the skillset of an emergency physician, point of care ultrasound is a skill utilized every shift. Many emergency departments do not have access to radiology performed ultrasounds 24 hours per day and as such the adept emergency physi

Navigating Neglect: Surgical Restoration of Triceps Function in Delayed Pediatric Olecranon Fracture

Abstract: 1540
Author Names: Seraj Farhat, MS-2; Philip Nowicki, MD
Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Orthopedics
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Olecranon fractures are common in pediatric orthopedic patients and if displaced, are stabilized promptly to avoid function loss. Cases of delayed presentation pose unique challenges. We present a case of a 14-year-old male with a delayed olecranon fracture resulting in triceps dysfunction, necessitating surgical intervention. The gap in knowledge lies in optimal management strategies for such rare cases, particularly in the pediatric population. Despite the clinical significance, there is a noticeable lack of research focusing on the surgical nuances and outcomes in this population. This case underscores the need for targeted research efforts to inform surgical approaches and improve outcomes for pediatric patients with delayed olecranon fractures.

Patient Description: Upon initial presentation, the patient reported persistent functional limitations of the right arm following a fall he had the year prior. Physical examination revealed a significant gap between the olecranon process and the native ulna, evident through obvious dimpling at the right posterior elbow region. Palpation confirmed joint surfaces under the skin without associated swelling. Range of motion (ROM) assessment indicated functional weakness in flexion and extension. The proximal olecranon fragment appeared immobile, suggesting a fracture nonunion. Elbow radiographs revealed a right olecranon fracture nonunion with intraarticular extension, significant gap formation between fragments, and dysmorphic proximal fracture segment. This imaging corroborated the physical examination findings, highlighting the severity of the deformity and the need for surgical intervention to return both triceps overall arm function.

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Intervention A curvilinear incision was made around the olecranon process, extending to the mid-forearm and proximal third of the ulna. Close dissection facilitated access to the fracture site, characterized by significant scarring and adhesions, addressed with full posterior capsule release and triceps elevation off the humerus. Despite challenges in reduction due to misaligned and gapped fracture fragments, reconstruction was achieved using an interposing fibular strut graft and locking olecranon plate. A long V-Y plasty of the triceps tendon was performed after fracture fixation to restore elbow motion, specifically flexion. Patient did very well following intervention, fully healing the nonunion with subsequent hardware removal at 15 months post-op to alleviate discomfort associated with prominent hardware. Postoperative management facilitated gradual improvement in elbow range of motion and function, culminating in restored elbow function and alleviation of symptoms including return of triceps strength.

Conclusions This case emphasizes the importance of thoughtful pre-operative planning and tailored surgical approaches in addressing neglected olecranon fractures. By highlighting successful restoration of elbow function and symptom alleviation, our case emphasizes the significant impact of individualized care. Moving forward, further research is needed to refine management strategies and optimize outcomes. Through collaborative efforts, we can enhance patient care and satisfaction in similar cases of delayed olecranon fractures.

Bellows Leak During Cesarean Section: A Case of Potential Light-Induced Equipment Degradation

Poster Number: 7
Abstract: 1541
Author Names: Alex Driessche, MSE; Dalton King, BS; Adam Martin, MD
Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

In a recent incident during a cesarean section (C/S), a critical bellows leak was encountered. This event is hypothesized to be linked to degradation caused by Kenall Indigo-Clean lighting installed in several operating rooms (ORs). Indigo-Clean lighting is a disinfection system using 405nm light boasting the safe killing of many pathogens commonly found in an OR setting. While there is no direct evidence linking Indigo-Clean lighting to the degradation of medical equipment, the role of environmental factors in equipment wear-and-tear is undeniable. Indigo-Clean lighting, noted for its germicidal properties, poses an intriguing variable within the operating room setting. The question of whether prolonged exposure to this type of lighting, or indeed other environmental factors, could adversely affect the materials used in medical equipment deserves thorough investigation.

Patient Description

A 33-year-old G1P0 at-term female with a BMI of 37.12 and extensive psychiatric history presents for urgent C/S under general endotracheal anesthetic due to failed neuraxial block. The OR being used for this case was equipped with Indigo-Clean lighting. Shortly after placing the patient on the ventilator, a large leak was noted by collapse of the bellows. Inspection of the patient and circuit failed to demonstrate an obvious source. An increase of fresh gas flow to 6-8 L/min allowed the bellows to remain inflated for the remainder of the case, and the C/S proceeded uneventfully thereafter. Once the case had finished, the anesthesia machine was fully retested twice and passed both times.

Intervention

In the presented case, once a leak was identified somewhere in the anesthesia machine circuit, an increase in fresh gas from 1-2 L/min to 6-8 L/min was sufficient for the case to proceed without further issue. However, the simplicity of this solution is overshadowed by the potential insidious nature of the problem. Leaks in the bellows of anesthesia machines represent rare yet critical safety concerns for patients, underscored by the limited number of case reports addressing this issue. Despite their infrequency, the potential impact of such failures cannot be underestimated. Furthermore, there is evidence of various types of anesthesia machines failing to identify leaks during routine testing. The most ideal intervention, in this case, would have been the prevention of potential premature equipment failure beforehand.

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Conclusions This case highlights a rare but significant equipment failure potentially linked to environmental factors within the OR. Disinfection lights employing certain wavelengths of light may alter the material properties of medical equipment to the point of accelerated deterioration of critical components- such as in the bellows of an anesthesia machine. It is imperative for future studies to delve into these possible effects, aiming to elucidate the extent to which indigo lighting and other environmental conditions affect the reliability and safety of medical devices.

Patient Retention in Pediatric Weight Management Treatment: Telehealth versus In-Person Visits Before and During the COVID-19 Pandemic

Abstract: 1542
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Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Pediatrics
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction: In response to the COVID-19 pandemic, the delivery of healthcare has markedly changed, as reflected in the increase of availability and utilization of telehealth services. Helen Devos Children's Hospital Health Optimization Services (HOS) made telehealth opportunities available to their patients to provide greater accessibility to consistent, quality care. This study investigates markers of retention for patients seeking telehealth versus traditional in-person treatment to better understand if the availability of a telehealth option leads to greater continuity of care.

Methods: This study included a retrospective chart review of pediatric patients who participated in HOS between 2018 and 2021. Patient demographics were collected, including age, sex, race, ethnicity and insurance status. Retention was assessed as the average number of patient visits and the frequency of patients with a visit three months and six months following their initial visit. Patients were categorized in the telemedicine group (TM) if they had participated in at least one telemedicine visit, and in the in-person group (IP) if they had only utilized in-person services. These rates were then stratified to compare retention of the in-person versus telemedicine group both before and during the COVID-19 pandemic. Visits were characterized as pre-pandemic if they occurred before 4/1/2020 and during the pandemic if they occurred after 4/1/2020.

Results: During the study period, 771 patients had 2,283 HOS visits (mean ± SD: 3.0 ± 2.6 visits per patient), including 101 patients with >=1 telemedicine visit. Patients were 50% female, 51% white, 25% Hispanic/Latino, 15% Black/African American, 55% had private insurance and 43% had public insurance such as Medicaid. Mean treatment length spanned 130.8 ± 195.4 days, with 40.9% of patients (n=315) attending a visit after 3 months of treatment and 25.4% (n=196) with a visit after 6 months of treatment. During the pandemic, patients had fewer visits than pre-pandemic patients (2.1 vs. 3.2; $p<0.001$) and were less likely to remain in treatment after 3 months (28.1% vs. 45.1%; $p<0.001$) and 6 months (30.1% vs. 11.5%; $p<0.001$). During the pandemic, TM patients had more visits than IP patients(2.5 vs. 1.9; $p=0.039$), and were more likely to attend a visit after 3 months (39.2% vs. 20.4%; $p=0.004$).

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Conclusions HOS patients had fewer visits and shorter treatment durations during the pandemic when compared to pre-pandemic. However, during the pandemic, patients who attended one or more telemedicine appointments had more total visits and were more likely to stay in treatment through 3 months, compared to their in-person counterparts. These results suggest telemedicine visits may provide additional flexibility to patients and families and reduce the burden of in-person visits, thereby fostering increased treatment engagement.

Partial Rescue from Spinal Cord Ischemia by Fenestration of an Aortic Dissection Flap following Total Arch Replacement with a Frozen Elephant Trunk

Abstract: 1543
Author Names: Dar Chung, MD; Andrew Kimball, MD
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Other
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Acute type A aortic dissection has conventionally been treated with emergent open surgical repair replacing the ascending aorta and/or a portion of the aortic arch. More recently, a hybrid surgical approach with total arch replacement and frozen elephant trunk has been favored to promote aortic remodeling. This novel technique, while advantageous for aortic remodeling, has been associated with the well-recognized and devastating risk of spinal cord injury.

Patient Description: We present a 49-year-old male with a history of a type B aortic dissection previously repaired with TEVAR who was lost to follow-up and re-presented several years later with acute onset chest pain. CTA demonstrated evidence of a retrograde type A dissection in his ascending aorta for which he was emergently taken for repair. He developed spinal cord ischemia (SCI) in the early post-operative phase with complete loss of motor and sensory function of his bilateral lower extremities secondary to slow flow in the false lumen of his chronic dissection.

Intervention: In this case report, we describe the intra-operative technique and partial rescue from devastating spinal cord ischemia by fenestration of an aortic dissection flap to improve flow into the false lumen and reperfuse the spinal cord. Surveillance imaging at 1-month demonstrates patent TEVAR with evidence of a thoracoabdominal aortic aneurysm measuring 57mm at the proximal descending thoracic aorta. The patient fully recovered his motor and sensory function of his left lower extremity and partial recovery of his right lower extremity. Further follow-up information was unable to be obtained as the patient had moved to a different state.

Conclusions: Spinal cord ischemia is a well-known complication of type A aortic dissection repairs. Standard management for SCI has been non-surgical with placement of lumbar drains and maintaining mean arterial pressure goals > 80mmHg to improve perfusion. We demonstrate that there is opportunity for partial rescue from spinal cord ischemia by fenestration of an aortic dissection flap following total arch replacement and frozen elephant trunk for a retrograde type A dissection.

Family Medicine Physicians Views on Physician Assisted Suicide and Willingness to Provide This Care

Poster Number: 26
Abstract: 1544
Author Names: Nicolle Clements, MD; Harland Holman, MD
Author Institutions: Corewell Health West
Format: Poster
Category: Family Medicine
Author Status: Resident Physician
Presentation Type: Basic Research Study

Introduction

The AMA code of ethics defined physician assisted suicide (PAS) as 'when a physician facilitates a patient's death by providing the necessary means and/or information to enable the patient to perform the life-ending act.' In contrast, euthanasia is the administration of lethal medications with the goal of ending a patient's suffering. The subject of PAS/euthanasia has been a long debated and highly contentious topic within the medical community. Family Medicine physicians are involved throughout the lifespan of a patient. Given the close nature of this physician-patient relationship, it is not surprising that patients may broach the subject of PAS. Several studies have investigated physician's thoughts and willingness to provide PAS. The purpose of this study was to investigate the opinions specifically of Family Medicine Physicians, given the duration and brevity with patients.

Methods

A previously established statewide Family Medicine Residency Network annual survey was utilized to administer questions regarding physician assisted suicide to both residents and faculty. This survey is administered to ten MSU affiliated Family Medicine programs and was approved through the MUS IRB. Participation in the survey was voluntary. Demographic data was obtained including age, sex, and role in residency program. This study was descriptive, incorporating three questions to garner opinions regarding current laws, willingness to provide PAS, and deterring factors. Analysis will be used to compare differences between residents and faculty.

Results

A total of 58 responses were submitted to the MSU Network annual survey. Of those 58 responses, 40% (n=23) were from faculty members, 53% (n=31) from residents and 7% (n=4) from other program staff. Gender distribution of responses was 36% (n=21) male, 64% (n=37) female. At the time of submission much further analysis is pending.

Conclusions

As noted above the results of the survey will shed light on the current opinion of family medicine physicians regarding the legality of PAS and willingness to provide this type of care. Further, it will be interesting to see how these opinions compare to the current state of legislation regarding PAS.

Rural vs Urban Clinician's Attitudes Toward the Implementation of the Reach Out and Read Program

Abstract: 1545
Author Names: Chelsea Goodman, DO
Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Family Medicine
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction: The Reach Out and Read (ROR) program is an evidence-based primary care program that focuses on promoting early childhood literacy, school readiness, and providing anticipatory guidance through books at annual well-child visits. Implementation has already been shown to improve early childhood literacy. The hypothesis of the study was that it also improves aspects of the clinician's work environment despite geographic setting. The survey will provide insight on urban vs rural clinician attitudes which has not been previously studied and will allow for a new perspective.

Methods: This is a cross-sectional online-based questionnaire survey of primary care providers and residents in Grand Rapids and Greenville Family Medicine Residency Clinic. Comparisons were made for differences in clinic morale and attitudes towards early childhood literacy. Descriptive statistics was applied to describe questionnaire answers. While limited by sample size, bivariate analyses was applied where appropriate to compare survey responses with provider characteristics. For numeric responses, including Likert-scale items, Mann-Whitney U or Kruskal-Wallis tests were utilized depending on the number of levels within the survey item. For categorical responses, Chi-square or Fisher's Exact tests were utilized depending on the expected cell counts. All data analyses were performed using appropriate statistical software and evaluated at the 0.05 level, unless multiple comparisons were made at which point the appropriate p-value adjustment was applied.

Results: Results have not been obtained yet.

Conclusions: Insight on ROR implementation benefits and drawbacks can provide understanding for future clinics that wish to participate and help to expand the program into further clinics. It will also provide a new perspective, which has not been previously studied, on urban vs rural clinician attitudes.

Endovascular Salvage of an Aortoiliac Endarterectomy

Abstract: 1546
Author Names: Jake Nicholson, DO; Andrew Kimball, MD
Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Heart and Vascular
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Aortobifemoral bypass is considered the gold standard treatment for aortoiliac occlusive disease. Aortic endarterectomy is another option, that is often overlooked, which has demonstrated excellent patency rates in appropriate patients and preserves the native collateral circulation network. Here, we present a case where aortic endarterectomy was performed and resulted in a complication of a left iliac artery occlusion but the patient suffered no ill effects due to a preserved collateral network.

Patient Description: A 67-year-old female presented to the vascular surgery clinic with chief complaint of bilateral lower extremity life-limiting claudication. At that time, she was noted to have an ABI of .64 and .53 on the right and left respectively. A CT scan was obtained which demonstrated severe distal aortic and bilateral iliac calcific atherosclerotic stenoses/occlusion.

Intervention: An aortic endarterectomy with bifid bovine patch angioplasty was performed. However, on post-operative check she no longer had palpable pulses in her left lower extremity but did have doppler signals present. She did not complain of neurovascular changes or new onset rest pain in the left lower extremity and she actually had improved symptoms from pre-op therefore no intervention was performed. Despite her leg overall feeling better she did have persistent claudication at ~ 2 blocks and therefore angiogram was offered. A successful left iliac angiogram with stenting of the left common/external iliac artery was done on post-operative day # 30, as an outpatient procedure. She was seen in the office for post-operative check with repeat ABI's measuring 1.04 and 1.09 on the right and left respectively.

Conclusions: This case demonstrates both a complication and benefit of an aortic endarterectomy. By performing the endarterectomy, we preserved most of the collateral network of the native aorta, allowing for filling beyond the thrombosed iliac. This was fortunate for the patient, as she did not require a repeat urgent surgery. Furthermore, the endarterectomy made the endovascular repair easier, as there was no residual atherosclerotic disease within the aorta and common iliac arteries. Aortic endarterectomy should be considered for patients with short aortoiliac disease.

Atypical presentation of midgut volvulus

Poster Number: 36
Abstract: 1547
Author Names: Nadiya Sharif, BS; Aryana Sharrak, MD; Jess Spradling, MD
Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: General Surgery
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: The prevalence of intestinal malrotation is predominantly in pediatric populations and is often surgically resolved in infancy. Among adults, the prevalence is estimated to be approximately 0.17%. Midgut volvulus typically presents in 88% of adults as a chronic condition with a majority of patients presenting with intermittent abdominal pain. However, the remaining 12%, such as in this case, are acute. This case report describes an atypical presentation of midgut volvulus in a 43-year-old male with no symptoms prior to presentation in the emergency department.

Patient Description: Patient was admitted for fall and received multiple CTs to investigate for injuries. CT of abdomen incidentally revealed mesentery with bowel twisted around it, some moderately dilated fluid-filled loops of bowel in the lower abdomen, and the transverse colon appeared to be situated between the SMV and aorta. Initial physical exam in the ED indicated all systems were within normal limits. However, after the patient had tried oral intake in the ED, he developed tachycardia, nausea, vomiting, abdominal pain, and a diffusely tender and distended abdomen. Concurrently, repeat lactic acid at the time of patient's acute episode, increased from 4.1, which was drawn at his initial ED admission, to 5.2. Patient's abnormal CT findings, along with his symptoms, and increased lactic acid indicated a surgical abdomen.

Intervention: Patient's presentation indicated immediate surgical intervention consisting of an exploratory laparotomy and a Ladd procedure. During surgery patient was found to have a congenital appearing malrotation with cecum in the left upper abdominal quadrant. Patient was able to progress to tolerating an oral diet and having bowel movements within 3 days post-operation.

Conclusions: Goal of this case report was to discuss the atypical presentation of midgut volvulus as acute cases are far more rare than chronic ones. Additionally, it highlights that midgut volvulus can be an incidental finding on CT, and those without symptoms may not require intervention. However, lab markers such as lactic acid and CT findings can be used to signal need for intervention. Similarly, to chronic cases of volvulus in adults, acute presentations can also be treated with a Ladd band procedure.

Bilateral Pheochromocytoma with Atypical Pulmonary Metastatic Disease Mimic: A Case Study

Poster Number: 73
Abstract: 1548
Author Names: Humza Bhatti; Dylan Goldsmith M.D.
Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Pheochromocytomas are catecholamine-producing neuroendocrine tumors arising from the adrenal medulla known to be associated with mutations in the Neurofibromatosis type 1 (NF1) tumor suppressor gene, with an incidence of roughly 2-8 cases for every million people 1,2. Early diagnosis and treatment is important due to risk of metastases - occurring in up to 40% of patients with specific familial syndromes including NF1 and von Hippel-Lindau syndrome 3. Interventional Radiologists play a key role in the diagnosis and management of pheochromocytomas. Adrenal vein sampling is an angiographic procedure that is reliably used to determine whether catecholamine production is unilateral or bilateral. Moreover, the presence of metastatic lesions can be confirmed with CT-guided core needle biopsy 4.

Patient Description: A 52-year-old female with a past medical history of neurofibromatosis type 1 presented with two years of tremors, palpitations, and 'feeling hot'. A 24-hour urine collection demonstrated elevated total metanephrines. CT of the chest, abdomen, and pelvis demonstrated bilateral adrenal masses and a 1cm soft tissue spiculated mass in the left upper lobe of the lung. A consult was placed to Interventional Radiology for Adrenal Vein Sampling and CT-Guided lung lesion biopsy. Adrenal vein sampling was suggestive of bilateral Pheochromocytoma and biopsy revealed Pulmonary Nodular Elastosis. The patient was scheduled for staged bilateral adrenalectomy, one week apart.

Intervention: The purpose of this presentation is to present a case from a radiology perspective. The patient in question was recommended to receive a bilateral adrenalectomy which is outside of the scope of this presentation. Please refer to the attached document for any questions related to the abstract.

Conclusions: In adult patients, pheochromocytoma's normally metastasize to bones, lymph nodes, liver, and lungs respectively 1. A 'spiculated' appearance is atypical for pheochromocytoma pulmonary metastases, as they typically have a characteristic spherical shape with well-defined edges 6. However, given this patient's NF1 status, there was high clinical suspicion of metastatic disease. Biopsy of the pulmonary lesion resulted in Pulmonary Nodular Elastosis, a degenerative benign intraparenchymatous process that results in mass formation 7.

Knotless Versus Knotted Suture Anchor Labral Repair with Femoroacetabular Impingement: A Systematic Review & Meta-Analysis.

Abstract:	1550
Author Names:	Christian Peterson, MD; Spencer Jessop, MS3; Steve Goodin, MD; Ryan Sanii, MS4; Travis Menge, MD.
Author Institutions:	Corewell Health West; Michigan State University College of Human Medicine
Format:	Oral Presentation
Category:	Orthopedics
Author Status:	Medical Student
Presentation Type:	Systematic Review

Introduction: The hip joint, crucial for mobility and stability, is prone to various conditions affecting its functionality. Femoroacetabular impingement (FAI) is a common hip pathology characterized by abnormal contact between the femur and acetabulum, leading to eventual labral damage and joint deterioration. Hip Arthroscopy (HA) is the definitive treatment for this impingement and subsequent labral tears. Labral repair (LR) is currently the preferred method to address symptomatic labral injury. Both knotted (KT) and knotless (KL) suture anchors are currently utilized in LR. To our knowledge, there are currently no meta-analyses examining patient reported outcomes (PROs) between the two surgical labral repair techniques. The objective of this study is to evaluate clinical outcomes between arthroscopic KT and KL suture anchor labral repair in the setting of FAI with minimum 2-year follow up.

Methods: In accordance with preferred reporting items for systematic reviews and meta-analyses guidelines, a literature search of PubMed, Cochrane, Embase, and Scopus online databases was performed. Articles listing patient reported outcomes on arthroscopic labral repairs in the setting of FAI with minimum 2-year follow up were included. Exclusion criteria included hip dysplasia (Lateral Center Edge Angle <20), Tonnis Grade >2, concomitant abductor repair, history of ipsilateral hip surgery, revision hip arthroscopy, and inadequate detail of surgical technique or clinical outcomes. Data collection included basic patient demographics, patient reported outcomes, surgical techniques, and secondary operations. A metafor package in R statistical programming software was utilized for statistical analysis, with both random effects and meta regression models to assess differences in clinical outcomes and moderator effects.

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Results Seven studies met inclusion criteria, consisting of 4 knotted cohorts (n=749) and 3 knotless cohorts (n=505), totaling 1254 hips. Mean age was 30.5 +/- 10.5 yrs, 36.6 +/- 13.8 yrs for KT and KL cohorts, respectively. Mean follow-up was 58.36 mos in the KT cohort, 37.44 mos in the KL cohort. Weighted improvement in modified Harris Hip Score (mHHS) following labral repair was 23.44 (95% CI, 17.56-29.32) and 25.11 (95% CI, 22.16-28.06) in the KT and KL groups, respectively, with no statistical difference ($p = 0.23$). Moderator analysis demonstrated no significant interaction between mHHS and age ($p = 0.72$), follow up ($p = 0.85$), or proportion of male/female ($p= 0.34$). Revisions rates were 7.6% (95% CI, 1.2%-35%) in the KT group, 7.95% (95% CI, 5.7%-10.9%) in the KL group, with no statistical difference noted ($p= 0.96$). Conversion to Total Hip Arthroplasty (THA) in the KT and KL cohorts were 2.12% (95%, 0.7%-6.2%) and 4.9% (2.1%-11.2%), respectively, with no notable differences between the two ($p=0.23$).

Conclusions In the setting of FAI, neither Knotless or Knotted labral repair offer superior results in patient reported outcomes, revision rates, or conversion to THA.

Cecal volvulus in developmentally delayed pediatric patients: an under-recognized association

Poster Number: 63
Abstract: 1551
Author Names: Kristina Byers-Spencer, MD
Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine
Format: Poster
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Cecal volvulus is an uncommon diagnosis in pediatric populations. Known risk factors for cecal volvulus include congenital and acquired causes of increased cecal mobility such as intraperitoneal adhesions, chronic constipation, and Hirschprung's disease. According to a few case reports, an additional association exists between developmental delay/neurocognitive defects and cecal volvulus, especially in the pediatric population. However, the rarity of cecal volvulus and thus scarcity of case reports leaves us with little more than a correlative relationship. The reason for the association between developmental delay and cecal volvulus in the pediatric population is not known. But, it is an important association to recognize in order to hasten the diagnosis of this high morbidity condition.

Patient Description

Here we present two cases. The first is a 7 year old boy with history of cerebral palsy, Chiari malformation, shunted hydrocephalus, and global developmental delay who presented in septic shock with 1 day of altered mental status, fever, abdominal distension and vomiting of feculent material. A CT scan demonstrated extremely dilated cecum in the left upper quadrant with dilated loops of small bowel. The second case involves a 16 year old girl with Prader-Wili syndrome, cognitive impairment, chronic constipation who presented with several days of progressive abdominal pain. A CT scan demonstrated dilated cecal volvulus.

Intervention

Both patients were taken emergently for surgical intervention. The 7 year old boy was found to have ischemic and necrotic bowel. He had a right colectomy with end-ileostomy creation. His presentation necessitated externalization of his VP shunt. He required pressors and PICU stay for septic shock, but was eventually stabilized and discharged. At his follow up appointment, he was doing well with his ostomy. The 16 year old girl was found to have no perforation or necrosis with healthy bowel distal to the site of volvulus. She had an ileocecectomy with primary anastomosis. However, her course was complicated by anastomotic leak requiring return to OR with anastomosis take down and end-ileostomy creation. She had numerous intra-abdominal abscesses. Months later, she was able to return to OR for ostomy take down and ultimately had return of bowel function.

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Conclusions Diagnosis of uncommon conditions in a specific population will always pose a challenge. Moreover, a limited communication ability that is not uncommon in children with developmental delays can further cloud an already complication presentation. But, by being cognizant of the association that exists between developmental delay and cecal volvulus we can transform this rare, high-morbidity condition into a ’can’t miss’ diagnosis.

Project LIGHT: Learning & Implementing Guidelines for Hyperbilirubinemia Treatment

Abstract: 1552
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital
Format: Oral Presentation
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction

Upwards of 60% of full-term infants and 80% of premature infants develop visible jaundice within the first week of life (1). Typically, hyperbilirubinemia is self-limited, but can result in bilirubin encephalopathy and kernicterus resulting in cerebral palsy, gaze paralysis, sensorineural hearing loss, and neurodevelopmental abnormalities (2). In 2022, the American Academy of Pediatrics published updates to advise practitioners on management of indirect hyperbilirubinemia while considering the potential harm of phototherapy including later development of seizures (3,4,5). The goal of this study was to identify rates of four specific outcomes at HDVCH including initiation of subthreshold phototherapy, appropriate acquisition of direct antibody testing, rebound testing, and IV fluid use to improve compliance with the updated AAP published guidelines.

Methods

We utilized chart review to look at these four specific measurements (subthreshold initiation of phototherapy, rebound testing, obtaining DAT, and unnecessary IV fluid use) starting in February 2022, prior to the 2022 Clinical Practice Guideline release and after, through March 2023. Inclusion criteria included birth hospitalizations at HDVCH newborn nursery and readmissions to the pediatric hospitalist group for phototherapy. Exclusion criteria included infants initiated on phototherapy in the NICU, infants born at community hospitals, and infants below 35 weeks gestational age. Specific information that we gathered included demographic information, delivery information, DAT status, details regarding initiation of phototherapy, and subsequent care of the infant.

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Results Prior to the release of the new guidelines from February-July 2022, 31 infants at HDVCH were admitted with a diagnosis of neonatal hyperbilirubinemia. Twenty-three of the 31 infants were inappropriately started on phototherapy for subthreshold bilirubin levels. There remained inappropriate initiation of phototherapy following the release of the new guidelines until November 2022 when BiliTool, an online tool designed to assist in the assessment of risks toward development of hyperbilirubinemia in term newborns, was integrated into EPIC. After this only 2 out of 5 infants were started on phototherapy for subthreshold levels showing a 74% to 40% improvement of subtherapeutic initiation of phototherapy after integration of BiliTool into EPIC. Prior to the new guidelines, HDVCH had obtained DAT appropriately 100% of the time, this number remained consistent after the new guidelines. Preliminary data found that there were zero cases of unnecessary rebound testing was obtained before/after guidelines were updated.

Conclusions Based on the preliminary data gleaned from this project, there has been a decrease in the number of infants that were started on phototherapy with subtherapeutic levels. The practices at HDVCH of obtaining appropriate direct antigen testing on infants and measuring rebound bilirubin did not change with the initiation of the new guidelines. These results provide evidence that the new AAP guidelines positively impacted newborn care at HDVCH. We will continue to use this evidence based guideline to standardize care of infants with hyperbilirubinemia.

Anaphylaxis in the Operating Room: A Case Report of Intraoperative Anaphylactic Reaction to Chlorhexidine

Poster Number: 8
Abstract: 1554
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Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Chlorhexidine, an antiseptic and disinfectant ubiquitous throughout the medical setting, is known to be effective against a broad spectrum of bacteria, viruses, and fungi. While allergies to disinfectants such as betadine (povidone-iodine) are well known in the medical community, allergies to chlorhexidine can be undetected due to its hidden presence in medical products. It has been reported that the majority of chlorhexidine allergic reactions have been type IV hypersensitivity reactions and result in contact dermatitis. However, chlorhexidine has also been associated with the more immediate type I hypersensitivity reactions leading to urticaria, anaphylaxis, and death. Despite anaphylaxis being a rare reaction to chlorhexidine, such an allergy can lead to cardiopulmonary arrest and the consequences can be fatal.

Patient Description

An obese, 30-year-old female with Prader-Willi syndrome, Type 2 diabetes mellitus, and hypertension presents for a laparoscopic hysterectomy. Five minutes after the administration of ciprofloxacin, The patient exhibited sudden profound hypotension, tachycardia, and bronchospasm, consistent with systemic anaphylaxis. After initial stabilization, the case proceeded. However, further instability resulted in termination of the procedure. Initial allergy testing confirmed ciprofloxacin allergy. She returned for another attempt at laparoscopic hysterectomy. In this case she developed systemic anaphylaxis soon after trocar insertion, marked by hypotension, severe bronchospasm, hypoxia, a maculopapular rash, facial swelling, and airway edema. Resulting in a second aborted surgery. The patient was taken to the SICU intubated on an epinephrine drip until she could be safely extubated. Further testing noted allergic reactions to chlorhexidine at 1:1000 dilution and rocuronium at 0.05mg/ml.

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Intervention	The patient's history of childhood allergies to antibiotics and the temporal relationship between ciprofloxacin administration and symptom onset suggested ciprofloxacin as the initial cause. Following the second encounter, a more extensive panel of allergy testing for NMBA, midazolam, and chlorhexidine was performed. Based on the results, recommendations were made, advising against succinylcholine use due to potential cross-reactivity with rocuronium. Chlorhexidine is the likely causative agent for the observed intra-operative anaphylactic reactions in both surgical procedures. Notably, symptoms manifested post-skin incision rather than during the skin cleaning phase. This case highlights the importance of considering less common triggers for intraoperative anaphylaxis, including less common triggers in post-operative testing when unexpected anaphylaxis is encountered.
Conclusions	Chlorhexidine allergies are rarely suspected and the incidence is largely unknown. While most cases of chlorhexidine allergies present as pruritus and contact dermatitis, it is important to consider the possibility of anaphylaxis. The challenge of identifying chlorhexidine as an allergen may be contributed by its hidden forms such as its use in Instillagel, central venous catheter coatings, and sterilized surgical instruments. This case serves as an additional example of the importance of identifying correct allergens to provide better patient care and reduce harm.

Mesenteric Ischemia in the Setting of a Rare Anomaly: The Celiacomesenteric Trunk

Abstract: 1555
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

The Celiacomesenteric Trunk (CMT) is a rare anomaly that forms after failure of the omphalomesenteric trunk to develop into two separate aortic roots: the celiac trunk (CT) and the superior mesenteric artery (SMA). Failure of the appropriate anastomotic connections to disappear during embryogenesis leads to a single vascular root supplying the anatomy that would typically have two separate arterial supplies. In the setting of this anomaly, standard approach in the management of acute mesenteric ischemia can lead to a devastating outcome. Currently, no formal guidelines exist for screening or preventative care in patients with this anomaly, as it is exceedingly rare.

Patient Description

Our patient was a 60-year-old female who presented to a community hospital with abdominal pain, nausea, vomiting, and diarrhea of an unknown etiology. She had a significant history of hypertension, type II diabetes, obesity, and tobacco use. Initial CT imaging was concerning for a small bowel obstruction. After failure to progress non-operatively, additional CT and CTA imaging was concerning for acute thrombotic mesenteric ischemia (ATMI) in the setting of a CMT. There was concern for extensive bowel compromise and the patient was transferred to our tertiary care center to undergo operative exploration with our general and vascular surgery services.

Intervention

During initial exploratory laparotomy, she was found to have patchy areas of ischemic bowel requiring resection with a weak SMA pulse noted. Vascular surgery was consulted intraoperatively and deferred interventions in the setting of a weak SMA pulse and need for bowel resection. After a takeback laparotomy, the patient's abdomen was closed, and she was transferred to ICU. She later developed an anastomotic leak requiring takeback laparotomy once again. At that time, she had an anastomotic leak, ischemia to the entire small bowel and parts of her colon, including necrosis of her duodenum extending to the mesenteric root. The insults to her abdomen were deemed non-survivable. The patient was made comfort cares and expired.

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Conclusions

Our patient suffered a devastating case of ATMI that was exacerbated by her congenital CMT. Our patient presented late in her course; therefore, interventions were limited. For the future, patients found to have a CMT would benefit from aggressive medical therapies to prevent atherosclerotic disease. Furthermore, consideration of early interventions for vasculopathic patients with this anomaly should be considered to prevent the clinical scenario that our patient faced; thereby, improving their prognosis and chances of survival from mesenteric ischemic events.

Clinical Use of Regional Pain Blocks in the Emergency Department for Traumatic Injuries

Poster Number: 23
Abstract: 1556
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Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Over one-third of patients coming into the emergency department complain of injury from a recent fall. One such injury related to falls is fractured ribs, in fact, the leading cause of fractured ribs is an unintentional fall. Complications from broken ribs can be life-threatening and it is crucial to ensure proper analgesia and pulmonary function with such patients. Current guidelines recommend NSAIDs, and opioids, which have been proven to have costly side effects. Regional anesthetics, like ESP blocks and SAP blocks, swiftly provide aggressive pain relief, with limited side effects, and promote optimal pulmonary hygiene to prevent complications linked to fractured ribs. We describe a case of a man who suffered a fall resulting in multiple rib fractures and required an ESP block, which drastically reduced his pain and the duration of his hospital admission.

Patient Description

A 60-year-old male with a past medical history of hypertension presented to a rural emergency department via EMS from a 5-foot fall. During the fall the patient hit the left side of his posterior thorax on a bench. He complained of pleuritic chest pain, left posterior rib pain, and shortness of breath. At the time of arrival, the patient was hypoxic at 87% and required a non-rebreather. On his exam, he had point tenderness localized to his posterior thorax and poor tidal volume breaths with respiratory splinting. A bedside POCUS with a high-frequency linear transducer was performed. While the transducer was placed on the anterior chest there was absent lung sliding on the left down to the T4 dermatome, suggesting a left-sided pneumothorax. Once the patient was stabilized, he was transported to CT which indicated displaced rib fractures of the posterolateral and posterior medial left ribs 6-9. Furthermore, there was a 19mm left-sided pneumothorax with a small pleural effusion.

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Intervention In the EMS the patient received two doses of 50mcg fentanyl, which did not address the pain. In the emergency department, the patient received a third dose of 50mcg fentanyl, 1000 mg Tylenol, .5 mg Dilaudid, and 15 mg Toradol. As well as systemic analgesia, an erector spinae nerve block was performed under ultrasound guidance in the emergency department. 25mL of lidocaine 1% without epinephrine was utilized to block the left-sided thoracic nerve while the patient was in the right-sided decubitus position. The procedure was without any complications. The patient was subsequently admitted to the intensive care unit (ICU) for pain management, respiratory care, and serial chest X-rays. He was removed from the ICU and weaned to 2L nasal cannula on day 2 of admission. His incentive spirometry (IS) volume drastically increased throughout his admission. His chest x-rays showed no signs of residual pneumothorax and indicated better aeration. He was discharged home on day three of admission in stable condition.

Conclusions We describe the clinical value that an ESP block has in the setting of multiple rib fractures. Studies have supported that 72 hours post-block, patients reported decreased pain levels as well as improved IS volume, without changes to hemodynamic stability when compared to before the block. Randomized control trials comparing postoperative usage of opioids after thoracic surgery with ESP block, SAPB, and standard of care showed significantly less opioid usage in both intervention groups. We feel this will translate over well into post-traumatic analgesia in the ED.

A Rare Case of Rhizopus in the Gastrointestinal Tract

Abstract: 1557
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Format: Oral Presentation
Category: Internal Medicine
Author Status: Clinical/Research Fellow
Presentation Type: Case Report (< 3 patients)

Introduction

The group of molds called mucormycetes, sometimes referred to as 'black mold', is a rare cause of infection in humans, especially in an immunocompetent host. Mucormycetes are typically found in the environment, such as decaying wood, compost, or leaves. Infection with these organisms can be devastating in someone who is immunocompromised. The most common sites of infection in humans include rhino-cerebral, pulmonary, and skin, however in severely immunocompromised hosts, it can cause disseminated disease. Gastrointestinal involvement is a rare manifestation that is more commonly seen in children than adults. In this case report, we present a case of an immunocompromised adult male with Ulcerative Colitis, corticosteroid use and recent surgical intervention who developed a rare, but devastating presentation of this already uncommon disease.

Patient Description

Patient is a 75-year-old male with a history of Ulcerative Colitis on corticosteroid therapy, who underwent exploratory laparotomy with small bowel resection after developing a small-bowel obstruction. Post-operatively he was felt to have ongoing inflammation at the anastomotic site and was given corticosteroids to treat this. He presented back to the hospital with worsening abdominal pain and was found to have imaging consistent with a gastric perforation. He subsequently underwent an EGD, his gastric antrum was found to be covered with a thick black eschar. Biopsy was obtained and surgical pathology identified this as a mucor species.

Intervention

Given the diagnosis of gastrointestinal mucormycosis, he started antifungal therapy with Amphotericin B. He then underwent repeat exploratory laparotomy requiring two small bowel resections with anastomosis, lysis of adhesions, partial gastrectomy, splenectomy, omentectomy, and distal pancreatectomy. He had a long-protracted course complicated by development of intra-abdominal abscesses requiring repeated hospitalization with multiple intra-abdominal drain placement and IV antibiotics therapy. He developed progressively worsening nutritional status, that unfortunately progressively worsened. He elected to start Hospice care and expired shortly thereafter.

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Conclusions This case is a good example of an already rare disease that presented as an even rarer presentation within gastric ulcer, and throughout the body of the stomach. Awareness of this rare manifestation for providers such as infectious disease, general surgery, gastroenterology is helpful to assist with future detection and quicker intervention which hopefully can lead to better outcomes.

Improving Time to First Skin to Skin Holding in Very Low Birth Weight NICU Patients: A Quality Improvement Initiative

Poster Number: 64
Abstract: 1558
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Format: Poster
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction

Improved thermal regulation, reduced physiologic stress, and increased rates of exclusive breastfeeding are a few of the well documented benefits of early and frequent skin to skin for premature infants. In 2013, Helen DeVos Children's Hospital implemented a Kangaroo Care/Skin to Skin Policy to remove known barriers, standardize the process and increase skin to skin care. However, 10 years later, barriers to early and frequent skin to skin persist. This QI project aimed to improve the incidence of first STS care time in the first 72 hours in VLBW infants (BW <1500 g) by 25% from 55% to 80% by 12/31/2023. A sub-aim of this project was to improve the incidence of first STS care time in first 72 hours in the subset of babies born <27 weeks gestation by 25% from 19% to 44% by 12/31/2023.

Methods

Barriers to early STS holding were initially assessed with family and staff surveys. A multidisciplinary team used the results to plan interventions. Interventions included: Staff education prior to Kangaroo-a-Thon (KT), KT advocacy week, developing/modifying standard workflow for STS with RN/RT roles, staff skills fair, distributing articles to small baby unit staff, discussion of intervention and importance of STS at the Nursing MDI Board, and parent education via a Parent Education Board. Each intervention was subjected to ongoing data analysis in the PDSA cycle format. Data from all VLBW babies admitted to the HDVCH NICU between 1/22 and 12/23 was analyzed. A Tableau report was created which allowed for data collection/interval measurement during/after each PDSA cycle. Monthly run charts were generated from the Tableau report. Data was analyzed quarterly and yearly to reduce month-to-month variability. Balancing measure was the number of unplanned extubations related to STS.

Results

Baseline for 2022, the rate of STS within the first 72 hours of life for all patients born < 1500 g was 55%. For all of 2023, this rate was up to 70%. Baseline for 2022, the rate of STS within the first 72 hours of life for all patients born < 27 weeks was 19%, improving to 34% for all of 2023. When rates of first STS within 72 hours of birth were compared between the 2022 baseline and each quarter of 2023, rates were incrementally higher by quarter for both all VLBW infants and infants born <27 weeks in 2023. The number of unplanned extubations from 2022 was 6 related to skin to skin, and there were 7 throughout 2023.

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Conclusions Through completion of five PDSA cycles, this QI project improved the incidence of first STS care time in first 72 hours in all VLBW infants (BW <1500 g) and in babies born <27 weeks gestation without a significant increase in unplanned extubations from 2022 to 2023. The intervention associated with the largest increase in STS holding was the hands-on skills fair for staff nurses. The intervention that was least impactful was the education surrounding the Kangaroo-A-Thon. The importance of the timing of large-scale advocacy events such as Kangaroo-A-Thon was learned.

PE lodges through PFO, a rare case of partly contained embolism

Abstract:	1559
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Format:	Oral Presentation
Category:	Other
Author Status:	Medical Student
Presentation Type:	Case Report (< 3 patients)

Introduction

A patent foramen ovale (PFO) is a remnant of fetal development when the foramen ovale fails to close after birth and occurs in up to 25% of the general population.[1] This interatrial communication has been identified as a risk factor for the development of pulmonary embolism (PE) [2] and ischemic events associated with a PFO - also known as paradoxical embolism.[3] Though the degree of PE severity is not associated with presence or absence of PFO, their co-occurrence leads to a 9-fold increase in risk of ischemic stroke and, when the PFO is larger than 4mm, significantly increases the risk of systemic embolism and death.[3,4] Though rare, a thrombus may transit through the patent foramen ovale and become entrapped. This case presents an occurrence of a thrombus lodged in a patent foramen ovale and illustrates a management plan for this unique finding.

Patient Description

A 62-year-old male with no known history presented to the hospital with abrupt onset dyspnea, chest pain radiating to his back, and left sided facial droop and admitted for bilateral PE. The patient was initially hemodynamically stable and admitted to the hospital for medical management. One-day post admission, the patient suffered an acute cerebrovascular accident (CVA) with right M1 occlusion. Following his CVA, the patient was transferred for a thrombectomy to address the occlusion. Four days after initial presentation, the patient received a transesophageal echocardiogram (TEE), which identified a large central PE that appeared to cross a PFO with freely mobile segments bilaterally.

Intervention

Once the thrombus was identified, the patient underwent open embolectomy, pulmonary thrombectomy, and surgical PFO closure. At this time, it was noted that the patient had severe right ventricular dysfunction and required temporary support by a right ventricular assist device with oxygenator. The patient had a tumultuous postoperative recovery including development of a small pericardial effusion, bilateral pleural effusions, hemorrhagic shock, bilateral iliopsoas hematomas, and four (additional) left lower extremity deep vein thromboses. Hematology was consulted and determined the patient was Factor V Leiden heterozygous. After the resolution of his postprocedural bleeding he was initiated and maintained on coumadin prior to discharge from the hospital.

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Conclusions Although the co-occurrence of both a PE and PFO is uncommon and lacks textbook protocol for management, its severity and high mortality rate make this case clinically significant. Management of this presentation seems to vary in related literature depending on the patient's presentation, past medical history, and overall risk of thrombus formation. Above all, prompt diagnosis and appropriate management is vital to improve outcomes and decrease the associated risk of ischemic stroke and death.

Mannitol Induced Hyperkalemia During a Juxtarenal Abdominal Aortic Aneurysm Repair

Abstract: 1560
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine; Anesthesia Practice Consultants
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Mannitol is an osmotic diuretic that is most commonly used for management of intracranial pressure and glaucoma, with occasional use during aortic surgery to reduce the risk of ischemic damage to the kidneys. Administration of mannitol in high doses in patients with pre-existing renal failure is known to cause electrolyte disturbances. However, isolated hyperkalemia from small doses of mannitol has been sparsely identified in case reports.

Patient Description: The patient is a 72 year old man, with a significant history of chronic renal insufficiency, who presented with an unruptured abdominal aortic aneurysm (AAA) for an elective juxtarenal AAA repair with bifurcated prosthesis to the common iliac arteries. The patient had a pre-operative serum potassium of 4.5mmol/L and a creatinine of 1.29mg/dL.

Intervention: Intraoperatively the patient was given 25g of mannitol IV (a relatively small dose). When bilateral renal arteries were clamped, the patient received an additional 12.5 mg of mannitol as part of the renalplegia infusion. After 30 minutes of ischemia time, the kidneys were reperfused and serum potassium was 5.5mmol/L. A second dose of 25g of mannitol IV was administered. Subsequent labs demonstrated a potassium of 5.6mmol/L. Two hours later the patient's potassium was 5.8mmol/L, for which he was given dextrose, insulin, and calcium. The potassium normalized to 4.9mmol/L. Ten hours later the patient's potassium rose again to 6.4mmol/L then slowly normalized. The post-operative creatinine significantly rose to 2.4mg/dL.

Conclusions: The patients hyperkalemia was potentially induced by a relatively small dose of mannitol. Clinicians should be made aware of this risk so that they can exercise caution when administering mannitol.

Seeing Beyond the Surface: Point-of-Care Ultrasound in Placental Abruption Diagnosis

Abstract: 1561
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Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Placental abruption is a potentially life-threatening obstetric complication that occurs when the placenta partially or completely separates from the uterine wall before the baby is born. This separation disrupts the normal exchange of oxygen and nutrients between the mother and fetus, which can have serious complications for both, such as maternal hemorrhage and fetal demise. The diagnosis is traditionally a clinical diagnosis, but abruption is often asymptomatic. On ultrasound, findings of retroplacental hematomas can be misinterpreted as fibroids or homogenous thickening of placenta. Placental abruption is considered a medical emergency and requires prompt intervention.

Patient Description: A 35-year-old G1P0 female at 29 weeks presented to the emergency department (ED) with lower abdominal pain. She did not have any vaginal bleeding or history of gestational risk factors such as pre-eclampsia or substance abuse. Preterm labor was ruled out in OB triage and the patient was sent to the ED to be evaluated for possible appendicitis or kidney stones. The patient had a history of kidney stones, but stated her current symptoms feel different. She was hemodynamically stable except for a blood pressure of 161/101, and upon physical examination there was less pain at McBurney's point and more pain in the right periumbilical area.

Intervention: A transabdominal point-of-care ultrasound was performed by the ED physician which showed a dual echogenicity between the placenta and the uterine wall with a sharp hyperechoic demarcation. She was transferred to Butterworth and admitted to the antepartum unit for monitoring. Subsequent ultrasounds showed a possible retroplacental hematoma that appeared to be decreasing in size. The patient had no vaginal bleeding, stable labs, and reassuring fetal status throughout her admission. She was discharged home after four days.

Conclusions: The utilization of bedside ultrasonography in the ED marks a pivotal advancement in diagnosing serious and time-sensitive obstetric emergencies. This transformative technology has the potential to significantly enhance patient outcomes by expediting time to diagnosis and possible intervention. While the potential of bedside ultrasonography in obstetric emergencies is evident, each case presents a unique set of circumstances, and a deeper analysis of these individual situations can gain a more nuanced understanding of the condition.

Comparative Analysis of Patients Undergoing Ventral Rectopexy for Recurrent Full thickness Rectal Prolapse

Abstract: 1562
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Colon-Rectal Surgery
Author Status: Resident Physician
Presentation Type: Clinical Study

Introduction: Ventral rectopexy is increasingly becoming a first-line approach for full thickness rectal prolapse (FTRP). Rectal prolapse is a morbid condition that primarily impacts women and has a recurrence rate between 0-15% after surgical fixation. The aim of this study was to compare cases of ventral rectopexy performed for recurrent rectal prolapse to those who underwent ventral rectopexy as an index operation.

Methods: Prospectively collected data from a single center and surgeon was retrospectively analyzed over a 10-year period. All adult patients with full thickness rectal prolapse who underwent minimally invasive ventral rectopexy were included.

Results: 93 patients underwent minimally invasive ventral rectopexy for full thickness rectal prolapse. 90 (97%) were females. 27 (29%) of these surgeries were for recurrent rectal prolapses. Of the recurrent cases, the original surgical approach was 16 (17%) transabdominal approach, 8 (9%) perineal approach, and 3 (3%) had both transabdominal and perineal approaches. 10 (11%) patients underwent prior surgery for pelvic floor disorders other than rectal prolapse. 6 (22%) of the recurrence cases were repaired in collaboration with urogynecology; 5 patients had a sacrocolpopexy and 1 a posterior colporrhaphy. All recurrences had mesh placement; 17 (63%) had biologic mesh and 10 (37%) had synthetic mesh. The patients who underwent ventral rectopexy for FTRP recurrence had a statistically significant increased age (58 vs 66, $p = 0.02$). Recurrent patients had a non-statistically significant decreased BMI (26 vs 24, $p = 0.13$), operative time (217 vs 198, $p = 0.27$), estimated blood loss (44 mL vs 39 mL, $p = 0.48$).

Conclusions: Minimally invasive ventral rectopexy is a reasonable approach to recurrent rectal prolapse irrespective of previous operations. Besides an increase in age, there was no significant difference in the cohort of patients undergoing ventral rectopexy for a recurrence vs index operation.

The Impact of Timing of Delayed Autologous Breast Reconstruction following Postmastectomy Radiation Therapy on Postoperative Morbidity

Abstract: 1563
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Author Institutions: Corewell Health West; Michigan State University
Format: Oral Presentation
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Clinical Study

Introduction: The ideal time to perform reconstruction after the completion of postmastectomy radiation therapy (PMRT) in patients with locally advanced breast cancer is currently unknown. We evaluate the association between the timing of delayed autologous breast reconstruction following PMRT and postoperative complications.

Methods: Patients who underwent mastectomy, PMRT, and then delayed autologous breast reconstruction from 2009 to 2016 were identified from the Truven Health MarketScan Research Databases. Timing of reconstruction following PMRT was grouped 0-3, 3-6, 6-12, 12-24, and after 24 months. Multivariable models were used to assess associations between timing of reconstruction following PMRT and key measures of morbidity.

Results: A total of 1,039 patients met inclusion criteria. The rate of any complications for the analytic cohort was 39.4%, including 13.3% of patients who experienced wound complications and 11.3% of patients requiring additional flaps. Unadjusted rates of complications increased from 23.4% between 0 and 3 months to 49.4% between 3 and 6 months and decreased thereafter. Need for additional flaps was highest within 3 to 6 months (14.0%). Multivariate analysis revealed higher rates of any complications when reconstruction was performed between 3 and 6 months (odds ratio [OR]: 3.04, $p < 0.001$), 6 and 12 months (OR: 2.66, $p < 0.001$), or 12 and 24 months (OR: 2.13, $p = 0.001$) after PMRT. No difference in complications were noted in reconstructions performed after 24 months compared with those performed before 3 months ($p > 0.05$). However, rates of wound complications were least likely in reconstructions after 24 months (OR: 0.34, $p = 0.035$).

Conclusions: These findings suggest plastic surgeons may consider performing autologous breast reconstruction early for select patients, before 3 months following PMRT without increasing postoperative morbidity.

Management of Patients with Persistently Elevated PSA following Radical Prostatectomy

Abstract: 1564
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Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction: Background: Patients with persistently elevated PSA after radical prostatectomy (RP) were included in historical 'adjuvant' treatment trials and have been demonstrated to be at high risk for prostate cancer (PC) progression. As such, options for management of PSA persistence include consolidative therapy or close monitoring. Objective: Primary objective is timing and type of management of PSA persistence after RP. Secondary objectives include additional testing performed (PSMA-PET, GC) and risk factors for consolidative treatment and for cancer progression

Methods: Design, setting, and participants: Data on 17,755 patients who underwent RP between 3/2012 through 12/2021 was collected from 46 practices across the state of Michigan. Information on patient's PSA testing and subsequent treatment, if any, was analyzed. Only patients with at least 180 days of follow-up were included; PSA persistence was defined as initial PSA >=0.1 within 90 days and repeat PSA >=0.1within 145 days, or initial PSA >=0.1 at 30-90 days with no repeat PSA within 180 days. Biochemical recurrence is defined as PSA >=0.2 on two occasions, timed to the first occurrence or single PSA >=0.5 or additional treatment when PSA >=0.1.

Results: Results and Limitations: Around 2300Patients (15%) had PSA persistence after RP. Factors associated with PSA persistence included GG4/5, pT3/T4, pN+, PSM, etc... Cancer progression (BCR) occurred in 97.5% of these patients with persistent PSA post RP Treatment 14,463 patients (82%) had a PSA within 90 days of RP, of which, 2,581 (17.8%) had a detectable PSA. 572 patients (37.5%) received additional treatment, with 10.7% receiving external beam radiation therapy (EBRT), 10.3% androgen deprivation therapy (ADT)+EBRT, 15.7% ADT, and 0.1% chemotherapy (Table 2). Rates of practice-level utilization of treatment ranged from 11% to 63% (Figure 1). The limitations of this work include those inherent to retrospective studies.

Conclusions: Conclusions: Persistently elevated PSA after RP is a poor prognostic sign; nonetheless, patients across Michigan often received no increase in monitoring and no additional treatment despite this finding. We have identified significant areas for quality improvement across our collaborative for these high-risk patients, including increasing repeat PSA testing and utilizing salvage treatment for patients with verified persistent disease.

Increasing enrollment in Supplemental Nutrition Program for Women, Infants, and Children (WIC) early in pregnancy

Abstract: 1565
Author Names: Jason Wanamaker, MD; Antonio Lopez, MD; Jeffrey Jones, MD
Author Institutions: Corewell Health West
Format: Oral Presentation
Category: OB/GYN
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction

The Women, Infants, and Children (WIC) program, founded in 1972, has a mission 'to safeguard the health of low-income women, infants, and children up to age 5 by providing nutritious foods, information on healthy eating, and referrals to healthcare'. Multiple studies have shown benefits of WIC's implementation including higher infant birth weights, lower rates of premature birth, and reduction in infant mortality rates. Paradoxically, WIC is one of the most successful federally funded nutrition programs in the US, but also one of the most underutilized. A study in 2016 showed that WIC had the lowest number of participants that year compared to the previous 13. A 2021 report found that only 57% of eligible women in the US participate in WIC. A recent review of interventions in 2022 found that connecting clinics to WIC offices can increase enrollment.

Methods

Patients from the 330 Barclay OBGYN residency clinic presenting for prenatal care, who were on Medicaid and thus automatically eligible for WIC, were encouraged to enroll in WIC at Kent County WIC office either via a verbal encouragement and a WIC brochure during visit, or the intervention of verbal encouragement, a WIC brochure during visit and a follow up phone call from the WIC office. In coordination with the Kent County WIC office, recruitment data of referrals from the Barclay OBGYN clinic to the WIC during May 2022 pre-intervention was compared to the enrollment data through July 31st 2022. Then recruitment data of referrals from the Barclay OBGYN clinic to the WIC during May 2023 pre-intervention was compared to the enrollment data through July 31st 2023. The enrollment data was measured about 8 weeks after the recruitment date to allow mothers referred to WIC ample time to enroll in WIC.

Results

In August 2022 of the 50 mothers in May 2022 referred with brochure-only recruitment by Barclay OBGYN clinic to Kent County WIC office, 38% were either enrolled or had upcoming appointment to enroll in WIC, 36% were previously enrolled in WIC but not for the current pregnancy, or not in Kent County, and 20% were not enrolled in WIC. In August 2023 of the 42 mothers in May 2023 referred with brochure and phone call recruitment by Barclay OBGYN clinic to Kent County WIC office, 38% were either enrolled or had upcoming appointment to enroll in WIC, 29% were previously enrolled in WIC but not for the current pregnancy, or not in Kent County, and 31% were not enrolled in WIC.

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Conclusions Recruitment with a brochure and a phone call did not increase WIC enrollment above recruitment with a brochure alone. Access via telephone to schedule a WIC enrollment appointment does not seem to be a barrier based on this study. More research is needed into effective strategies to increase WIC enrollment.

Anterior Mitral Valve Leaflet Myxoma: A Rare Case with Stroke-Like Presentation and Concurrent Coronary Artery Disease

Poster Number: 9
Abstract: 1567
Author Names: Frass Ahmed, BS; Ken Dada, BS; Mark Wedder, DO
Author Institutions: Michigan State University College of Human Medicine; Anesthesia Practice Consultants
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Cardiac myxoma, deriving from primitive pluripotent mesenchymal cells, primarily localizes in the fossa ovalis or other cardiac areas. Accounting for 25% of cardiac neoplasms with a rare incidence of 0.001% to 0.28%. Anterior MV leaflet myxomas account for 1.5% of all myxomas. Most common in adults, especially females aged 30-60, symptoms vary based on tumor location and morphology, including syncope, weakness, and weight loss. Despite its benign nature, myxomas pose risks like sudden cardiac death due to embolization or MV blockage, mimicking mitral stenosis symptoms. Diagnosis and management can be challenging, especially with rare occurrences like anterior MV leaflet myxomas, as in this case study of a patient with concurrent coronary artery disease. This case underscores the importance of vigilant diagnosis and tailored treatment approaches for such rare cardiac conditions.

Patient Description

Here we discuss a 68-year-old male with a past medical history of mixed dyslipidemia, hypertension, and a recent who initially presented to the ER for transient weakness and slurred speech. In the ER, vital signs were stable and the physical exam was unremarkable. The patient had numerous tests done with CT of the head, CT angiogram head and neck, and MRI did not reveal any acute processes. TEE was then ordered due to the possibility of a mass or a thrombus. The cardiac mass shown on TEE was highly indicative of spherical abnormality attached to the anterior MV leaflet. The patient underwent a Coronary Artery Bypass Graft and surgical removal of the presumed myxoma. Post-procedure TEE confirmed normal heart function along with normal MV function.

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Intervention	Patient presented to the ER with transient weakness and slurred speech, indicative of a potential neurological event. Vital signs were stable, and physical examination was unremarkable. Diagnostic tests including CT of the head, CT angiogram head and neck, and MRI were performed to rule out acute processes. TEE: Due to suspicion of a cardiac mass or thrombus, TEE was ordered. TEE revealed a spherical abnormality attached to the anterior MV leaflet, highly indicative of a cardiac mass. Coronary Artery Bypass Graft and Surgical Removal of Myxoma: Given the findings on TEE and the presence of a presumed myxoma, the patient underwent CABG surgery along with surgical removal of the cardiac mass. Post-procedure TEE confirmed normal heart function, as well as normal MV function. The patient's transient weakness and slurred speech resolved following the surgical intervention. The patient's current status is stable, with no recurrence of neurological symptoms or cardiac issues noted during follow-up examinations
Conclusions	This case report offers the opportunity to dive deeper into a specific subset of the most common neoplasm of the heart. The rare nature of the pathological finding elicits the need for this diagnosis to be considered in patients who present with stroke-like symptoms. The visual features are accompanied by a discussion on the etiology and pathophysiology of anterior leaflet myxomas, the epidemiology of the findings, and clinical considerations.

Decade-Long Retention of IVC Filter Leading to Duodenal Perforation - A Case Report

Poster Number: 38
Abstract: 1568
Author Names: Benjamin Talbot, MD; Andrew Kimball, MD
Author Institutions: Corewell Health West; Michigan State University
Format: Poster
Category: Other
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: In patients unable to undergo anticoagulation for deep vein thrombosis (DVT), Inferior Vena Cava (IVC) filters are often inserted to prevent clot migration to the pulmonary arteries. It is recommended to remove these filters once anticoagulation becomes possible or when they are no longer needed. Unfortunately, a considerable number of IVC filters are not retrieved, and although rare, complications from unretrieved filters can cause significant morbidity. This paper discusses a case in which an IVC filter was implanted approximately ten years prior but never retrieved, and the major complication that resulted.

Patient Description: 52 year-old female with no significant medical comorbidities. The patient was involved in a motor vehicle collision approximately 10 years ago, resulting in major orthopedic polytrauma and DVT. An IVC filter was placed at that time due to active bleeding and contraindication for anticoagulation. After discharge, she was subsequently lost to followup and her IVC filter was never retrieved. The patient presented to the emergency room following 2 weeks of abdominal pain, and onset of bloody stool and hematemesis. CT imaging demonstrated IVC filter in place with one prong penetrating the second portion of the duodenum, another prong penetrating the L3 vertebral body, and a prong entering the peri-aortic tissue. An EGD was able to visualize an IVC prong in the D2 segment.

Intervention: Endovascular retrieval for the IVC filter was considered, but due to concerns about the impact on additional IVC structures, it was deemed unsafe. The patient provided consent for an open laparotomy involving caveotomy, IVC retrieval, and primary duodenal repair. A midline laparotomy and Kocher maneuver were performed for visualization, revealing IVC struts perforating the vena cava, and extending into the retroperitoneum, duodenum, and periaortic tissue. Each strut was carefully divided with wire cutters to minimize trauma during IVC filter removal, considering the hooks on their ends. Circumferential control of the vena cava was established, and a cavotomy on the anterior surface allowed visualization and extraction of the IVC filter. Closure of the cavotomy was performed using a running 4-0 Prolene suture in baseball fashion, while the duodenotomy was transversely closed with interrupted 3-0 Vicryl sutures. An esophagogastroduodenoscopy confirmed satisfactory repair.

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Conclusions	Removing IVC filters is key to preventing complications. Ideally, retrieval should coincide with availability of anticoagulation or when the filter is no longer necessary. Unfortunately, many IVC filters remain in place. Enhancing healthcare provider awareness can be achieved through standardized removal protocols, meticulous documentation, and electronic medical record reminders. By fostering proactive management, institutions can significantly reduce complications from prolonged IVC filter retention.

Case Report: Laparoscopic Exploration and Removal of Abdominal Ectopic Pregnancy

Poster Number: 53
Abstract: 1569
Author Names: Lisa Grove
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: OB/GYN
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Abdominal pregnancy is estimated to account for <= 1% of all ectopic pregnancies. Abdominal and transvaginal ultrasound are the standard of care for locating abdominal pregnancies. Sensitivity of TVUS for diagnosis of ectopic pregnancy is 73% - 93%. When an ectopic pregnancy cannot be located by US, exploratory laparoscopy is indicated. Laparoscopic exploration is also indicated for ectopic pregnancy when hCG > 5,000 mIU/mL. CT and especially MRI are sensitive but nonstandard imaging modalities for assessing ectopic pregnancy. For patients who are hemodynamically stable with elevated hCG and failure of visualization by US, these alternatives may be useful in locating ectopic tissue, determining appropriate treatment, and coordinating prompt surgical removal.

Patient Description

Patient was a 33-yo G1P0010 woman initially evaluated by her OB/Gyn for pregnancy. At that time, hCG was 34,589 mIU/mL. hCG 3 days later was 32,905 mIU/mL. TVUS showed no IUP and normal endometrial stripe. No ectopic pregnancy was visualized. She was counseled on pregnancy of unknown location. She was asymptomatic and clinically stable. The decision was made to proceed with MTX treatment and close follow-up. 5 days after initial hCG, she presented to the ED with right/middle lower abdominal pain and cramping. hCG at that time was 27,096 mIU/mL. Repeat abdominal and TVUS visualized ectopic pregnancy in the right paraovarian region measuring 9 weeks gestation by CRL, no cardiac activity, and thickened endometrium without IUP. She experienced an isolated BP of 70s/40s and felt flushed before improving, adding to concern for rupture and hemodynamic instability. She agreed to laparoscopic removal of ectopic pregnancy, with counseling on the possibility of salpingectomy and oophorectomy.

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Intervention	Exploratory laparoscopy with evacuation of hemoperitoneum was emergently performed. Survey of the pelvis and abdomen showed a normal right ovary and an ovarian cyst on the left ovary. Both ovaries and fallopian tubes appeared intact and hemostatic, despite continued accumulation of blood in the pelvis. A 2.8 x 1.9 x 1.5 cm mass of suspected fetal tissue was identified in the pelvic cul-de-sac along the right-sided peritoneum, not involving the rectal wall. General surgery was immediately consulted and upon evaluation agreed with the finding of ectopic, probable fetal tissue in the pelvis. No other abnormalities were identified. The general surgeon bluntly dissected the fetal tissue from the sidewall and removed it from the peritoneal cavity for pathologic evaluation. Total estimated blood loss was 500 mL. The patient's recovery was uncomplicated. She was determined to be hemodynamically stable the next day and discharged with instructions for outpatient follow-up and serial hCG levels.
Conclusions	This case increases awareness of abdominal pregnancy. It highlights the importance of US in confirming an ectopic pregnancy while acknowledging its limitations in identifying its location. MRI and CT are nonstandard imaging modalities, but if performed early, after an initial elevated hCG and failure to identify ectopic by US, and while the patient is clinically stable, both alternatives could more effectively localize ectopic implantation and optimize care. General surgery could be consulted preoperatively, subjecting the patient to less time on the operating table.

Success with Atrio-Esophageal Fistula Surgical Management

Abstract: 1570
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Author Institutions: Michigan State University
Format: Oral Presentation
Category: Heart and Vascular
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Atrio-esophageal fistula (AEF) formation post atrial radiofrequency ablation is thought to be due to the close proximity of the esophagus to the heart causing thermal energy inadvertently damaging the esophageal tissue leading to the formation of a fistula between the atrium and esophagus. AEF is a rare and life-threatening complication with a poor prognosis. The incidence of AEF is less than 0.25% with mortality reaching as high as 80% 1,2. We report here a complex case of atrio-esophageal fistula post radiofrequency ablation successfully managed through surgical intervention.

Patient Description: A 69-year-old male with a past medical history of hypertension, hyperlipidemia, DM II, CKD III and atrial fibrillation presented to the emergency department one month post atrial radiofrequency ablation with chest tightness and several days of feeling unwell.

Intervention: The patient was taken to the OR emergently for surgical repair where a sternotomy was performed. Upon opening the pericardium, purulent fluid, significant fibrinous and bloody debris, and a complete inflammatory response in both the epicardium and pericardium was observed. Full cardiopulmonary bypass was initiated through cannulation of the right common femoral vein, superior vena cava and ascending aorta. Upon lifting the heart, there was further pus and debris posterior to the atrium. Further dissection toward the superior portion of the left atrium revealed granulation tissue on the posterior left atrium near the left superior pulmonary vein which broke loose leading to bleeding from the left atrium, requiring primary repair. The fistula was then visualized into the esophagus directly through the pericardium. Esophagogastroduodenoscopy confirmed a 4mm diameter esophageal defect. The stomach showed no abnormal pathology and the scope was left in place with the distal esophagus identified at the base of t

Conclusions: Atrio-esophageal fistula following atrial radiofrequency ablation is a rare and life-threatening complication that demands a high index of suspicion for early diagnosis and intervention. While surgical management remains the primary intervention, the optimal operative approach remains elusive. The use of intracardiac repair via sternotomy with full cardiopulmonary bypass coupled with laparotomy for the omental flap proved to be an effective strategy in our patient. Choices between thoracotomy and sternotomy, with or without cardiopulmonary bypass, hinge on patient pre

Missed Diagnosis and Fatal case of Addison's Disease in a 6 year old

Poster Number:	61
Abstract:	1571
Author Names:	Michael Huber, MD; Stephen Cohle, MD
Author Institutions:	Corewell Health West
Format:	Poster
Category:	Other
Author Status:	Resident Physician
Presentation Type:	Case Report (< 3 patients)

Introduction

Primary adrenal insufficiency or Addison's disease occurs due to the destruction or dysfunction of the adrenal cortex leading to reduced mineralocorticoid and glucocorticoid production. It is rare with a prevalence in developed countries of 90-140 per million and even rarer in children. Diagnosis is difficult and often delayed due to presentation with nonspecific symptoms such as nausea, vomiting, fatigue, weight loss, and abdominal pain. If left untreated can lead to adrenal crisis with severe morbidity or mortality.

Patient Description

We present a case of a 6 year old previously healthy child with a family history of Addison's disease who had a two day history of severe nausea and vomiting. She was found unresponsive at home by caretakers and later pronounced dead. Autopsy revealed extreme atrophy of the adrenal glands. Microscopic examination of the adrenal gland sections showed extreme atrophy of the cortex which consisted of large eosinophilic cells as well as extensive lymphocytic infiltration into the cortex. Vitreous sodium concentration revealed hyponatremia.

Intervention

She was found unresponsive at home by caretakers and later pronounced dead. The cause of death was determined to be Addison's disease.

Conclusions

This case stresses the importance of testing patients with family members diagnosed with Addisons disease as delayed diagnosis can be fatal.

Chronic Axillary Nerve Palsy Following COVID-19 Vaccination

Abstract: 1572
Author Names: Tyler Bilden, MD, PharmD; Alex Balboa, MD; Tim Lenters, MD
Author Institutions: Corewell Health West; Michigan State University; Mercy Health, Grand Rapids; Orthopaedic Associates of Michigan
Format: Oral Presentation
Category: Orthopedics
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Intramuscular deltoid injections are administered hundreds of millions of times per year. Furthermore, an all-time high number of patients are receiving injections into the shoulder more than ever before as a result of the COVID-19 pandemic and the SARS-CoV-2 vaccine. Current administration techniques place certain structures of the shoulder at high risk of injury, particularly the axillary nerve. While a majority of vaccinations are given without incident, the absolute risk of potential peripheral nerve injury is substantially amplified given the number annually performed. We present a previously active 69-year-old male who developed an axillary nerve palsy following COVID-19 vaccination that progressively worsened over the course of a year. This is the first report of chronic axillary nerve palsy developed following COVID-19 vaccination to our knowledge.

Patient Description

The patient is a previously active 69-year-old male with a newly developed axillary nerve palsy following COVID-19 vaccination with persistence of greater than one year. We believe this complication was the result of direct traumatic damage to the nerve during intradeltoid administration based on the timing, clinical presentation, and selective axillary nerve damage as demonstrated by electromyography. Specifically, the diagnostic electromyography (EMG) showed a significant drop in axillary nerve amplitude, increased insertional activity, positive sharp waves, fibrillations, and overall decreased recruitment of the deltoid muscle fibers consistent with a low-grade axillary neuropathy. The report noted suspicion for direct injury to the anterior branch of the axillary nerve secondary to injection-related trauma. This complication resulted in significant patient morbidity, expense, and reduced quality of life.

Intervention

Establishing a definitive diagnosis can be challenging given the degree of overlapping symptoms. Electrodiagnostic studies are helpful to differentiate isolated nerve injuries and may be utilized for monitoring over time. Although no clear guideline specifically exists for managing axillary nerve palsy following vaccination, a period of close observation for recovery should be completed. Therapy for range of motion and strengthening is often pursued, with or without anti-inflammatory medications for symptom management. Extremity bracing may be reasonable in certain circumstances to prevent joint contractures. Surgical exploration, nerve repair, grafting, or distal nerve transfer may be considered in patients with lack of recovery.

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Conclusions Axillary nerve injury following COVID-19 vaccination is a rare but potentially devastating, complication of intradeltoid vaccination. The risk of direct nerve injury is a present anatomic danger at this site during vaccine administration. This complication may lead to significant morbidity, expense, and reduced quality of life. Notably, this should not result in vaccine hesitancy. Rather, we advocate for a heightened awareness of the potential for direct injury suggest consideration of alternative intramuscular injection sites.

Beyond the Limbs: Challenges of Balancing Patient Autonomy and Ethics in Treating Patients with Body Integrity Identity Disorder

Poster Number: 47
Abstract: 1573
Author Names: Adam Kapp, BS; Matthew Armstrong, MD
Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Body integrity identity disorder (BIID) is an extremely rare psychiatric condition in which able-bodied individuals experience an intense desire for amputation of one or more healthy limbs or paralysis. Patients often cite an incongruence between their body and self-identity that began early in life which leads to persistent thoughts of amputation or disability. Elective amputation of healthy limbs and spinal cord paralysis performed as an effort to quell a patient's psychological distress and prevent self-harm is a highly contested topic in medical ethics. The biopsychosocial factors underlying BIID remain elusive, complicating the development of interventions and ethical guidelines. Here, we present a rare case of BIID in a patient who engaged in repeated episodes of self-harm requiring multiple amputations to highlight the moral and ethical complexities of care in patients with BIID.

Patient Description

A 44-year-old male with a past medical history of PTSD, borderline personality disorder, and self-harm presented to the emergency department (ED) due to a self-inflicted frostbite injury. The patient submerged his left foot in dry ice for four hours due to compulsive thoughts and sought care after the pain became unbearable. The wound consisted of large hemorrhagic blisters, but pulses were present on Doppler and he was admitted for observation overnight. When presenting to outpatient follow-up several days later he no longer had pulses on Doppler. He was instructed to go to the ED where he underwent CTA which demonstrated no arterial filling distal to the ankle. Two months later the patient presented to the ED after submerging his right leg in dry ice for fifteen hours due to intense urges to amputate his leg. Patient was admitted and evaluated by orthopedics. Patient continued using dry ice to self-harm and presented to several EDs for self-injuries and amputation complications.

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Intervention	The Patient was admitted to the burn and vascular surgery services due to no arterial filling on CTA and underwent left below knee amputation (BKA) which was well tolerated. Subsequent self-injury to his right leg required BKA, which shortly thereafter required revision to above knee amputation (AKA). He continued to express stress and frustration with pervasive thoughts of self-harm that have been present since childhood. Psychiatry made several changes to his medications in an attempt to better control his urges. The patient later required AKA of his left leg due to additional dry ice burns. He reported a quell in his thoughts of self-harm and satisfaction with his bilateral AKAs. The patient was seen in the ED and admitted on numerous additional occasions, primarily for treatment of poor wound care and infections related to bilateral AKAs, as well as for psychiatric treatment. The patient eventually underwent bilateral hip disarticulations due to dry ice injuries and died six months later.
Conclusions	This case underscores the need for a multidisciplinary approach to managing BIID, integrating psychiatric care, ethical considerations, and surgical interventions. The patient's persistent pursuit of self-harm despite multiple amputations and medical interventions underscores the profound impact of BIID on individuals' lives. Collaborative efforts among clinicians and ethicists are imperative to improve outcomes and ensure compassionate care for patients with BIID, and further research is crucial to develop more effective therapeutic strategies and ethical guidelines.

Characterizing Patients Who Screen Positive on PHQ-4 in a Pediatric Plastic Surgery Office

Abstract: 1574
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Clinical Study

Introduction Depression and anxiety are two diseases on the rise among children in the United States. The Patient Health Questionnaire-4 (PHQ-4) is a self-reported screening tool used to determine a patient's symptom burden of anxiety and depression, with a 'positive' screen denoting the need for additional evaluation for anxiety and depression with the PHQ-9 and GAD-7, which stratify patient's symptoms of depression and anxiety, respectively, into mild, moderate, or severe. Pediatric Plastic Surgery commonly addresses conditions with physical manifestations and physical appearance in adolescence is a major influence of emotional well-being. The goal of this study is to gain insight into patient characteristics that lead to higher screening scores in a pediatric plastic surgery office.

Methods All patients between ages 11-25 that had a completed appointment with a pediatric plastic surgery practice and screened positive (3+) on the PHQ-4 in the past 2 years were identified (n=134). A control group (C) of patients seen over the same period and same age distribution with a completed appointment regardless of PHQ status (n=946) was identified. Demographics were recorded including age, gender, and race. T-tests and Chi-squared tests were performed to compare the two groups, with a statistically significant p-value set at 0.05.

Results Fourteen percent of the 11-25 year old patients screened positive on PHQ-4. Those who screened positive on the PHQ-4 group were older than the control group (16.97 years vs. 16.27 years, p=0.01.) The PHQ+ group averaged PHQ-4 scores of 6.37, PHQ-9 scores of 14.4, and GAD-7 scores of 12.96. The PHQ+ group was 66% female vs. 53% in the control group ($p<0.01$). Racial composition between the two groups were similar. The most common presenting diagnoses were non-traumatic skin conditions (melanocytic nevi, congenital vascular lesions, hypertrophic scarring) followed by breast hypertrophy, cleft lip and/or palate, and maxillary hypoplasia. These conditions were present in the PHQ+ group and control group with similar frequency (nonsignificant). Patients presenting with breast hypertrophy were greater represented in the PHQ+ vs. control group (19% vs. 11%, $p<0.01$). Those that had breast hypertrophy in the PHQ+ group were 88% female and 12% male compared to 67% female and 33% male in the control group (p=0.03).

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Conclusions Patients in a pediatric plastic surgery practice who screen positive on the PHQ-4 were older and more likely to be female. Those in the PHQ+ cohort scored on average between moderate to severe depression and moderate anxiety. Breast hypertrophy was the only diagnosis that was greater represented in the PHQ+ group than the control group. Females with breast hypertrophy are more likely than males with breast hypertrophy to screen positive on the PHQ-4.

Factors Predicting Access to Medications for Opioid Use Disorder for Housed and Unhoused Patients: A Machine Learning Approach

Abstract: 1575
Author Names: Aaron Esguerra, BS; Thomas J. Weinandy, PhD
Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Basic Research Study

Introduction: Opioid use disorder (OUD) is a worsening public health crisis, with opioids involved in an overwhelming majority of drug overdose deaths in the United States in recent years. While medications for opioid use disorder (MOUD) effectively reduce overdose mortality, only a minority of patients are able to access MOUD; additionally, those with unstable housing receive MOUD at even lower rates. OBJECTIVE: Because MOUD access is a multifactorial issue, we leverage machine learning techniques to determine the variables most important in predicting whether any individual receives MOUD. We also seek to explain why persons experiencing homelessness have lower MOUD access and identify potential targets for action.

Methods: We utilize a gradient boosted decision tree algorithm (specifically, XGBoost) to train our model on SAMHSA's Treatment Episode Data Set-Admissions, using anonymized demographic and clinical information for over half a million opioid admissions to treatment facilities across the United States. We use Shapley values to quantify and interpret the predictive power and influencing direction of individual features (i.e., variables).

Results: Our model is effective in predicting access to MOUD with an accuracy of 85.55% and area under the ROC curve of 0.9383. Notably, roughly half of the model's predictive power emerges from geographic location (25.34%) and facility type (24.03%); other influential factors include referral source (6.87%), history of prior treatment (4.13%), and frequency of opioid use (3.58%). We also find that unhoused patients go to facilities that overall have lower MOUD treatment rates; furthermore, relative to housed (i.e., independent living) patients at these facilities, unhoused patients receive MOUD at even lower rates. However, we find that if unhoused patients instead went to the facilities that housed patients enter at an equal percent (but still received MOUD at the lower unhoused rates), 89.50% of the disparity in MOUD access would be eliminated.

Conclusions: This study demonstrates the utility of a model that predicts MOUD access and both ranks the influencing variables and compares their individual positive or negative contribution to access. Furthermore, we elucidate the lack of MOUD treatment among persons with unstable housing and consider approaches for improving access.

Using Virtual Reality to Teach Ultrasound-Guided Lumbar Puncture: Superior to Traditional Lecture?

Abstract: 1576

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Format: Oral Presentation

Category: Other

Author Status: Medical Student

Presentation Type: Educational Study

Introduction: This research investigates the effectiveness of virtual reality lectures in enhancing medical students' engagement and enjoyment while learning ultrasound-guided lumbar puncture. Traditional teaching methods like slideshows may be less engaging and enjoyable. The study will assess student satisfaction through surveys and evaluate the impact of virtual reality on performance using a task trainer model. By comparing virtual reality and traditional lectures, we aim to contribute valuable insights into the potential benefits of incorporating virtual reality into medical education.

Methods: Pre-clinical medical students from Michigan State University and the University of Illinois College of Medicine at Peoria were randomly assigned to virtual reality or slideshow lectures. After the lectures, participants complete a survey to gauge engagement and enjoyment. Subsequently, students perform ultrasound-guided lumbar puncture on a task trainer, and their performance is assessed using a rubric. The study includes ethical considerations, informed consent, and a comprehensive statistical plan to analyze data, ensuring rigorous evaluation of the proposed teaching method.

Results: The study is ongoing, and we hypothesize that participants will experience more enjoyment, a higher percentage of checklist completion, and quicker lumbar puncture attempts in the virtual reality group.

Conclusions: Participants utilizing virtual reality to learn and practice procedures stand to enjoy medical education, have more access to practice their techniques, and be more successful compared to traditional slideshow learning. As technological advancements continue, their utilization within medical education should be adopted. More research will need to be conducted to better understand virtual reality's benefits in teaching medical procedures with expansion into the realms of haptics and augmented reality.

Quality Review of Online Resources in the Treatment of Depression

Poster Number: 48
Abstract: 1577
Author Names: Benjamin Kowalske, BS (MS3); Megan Coble, BS (MS3); Zach Priebe, BS (MS2); Lawrence Hall, MD
Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Quality Study/Initiatives

Introduction: Depression is a disease that plagues a high percentage of adults in the United States. Utilization of public online resources as a learning resource for those with depression is a new and upcoming tool. This study examined public online resources which provide information pertaining to the treatment of depression, rating the effectiveness of present resources.

Methods: A YOUTUBE search was conducted to collect videos which could be used as resources to patients diagnosed with depression. Medical students then ranked these videos utilizing the DISCERN criteria, a tool established to determine the quality of patient resources.

Results: The rankings for each video were averaged for a variety of categories. These averages were then utilized to determine the overall quality of publicly available videos and to compare different aspects of the videos. The majority of categories were determined to have average ratings placing videos in the 'partially met criteria' categories. Videos uploaded directly by physicians scored higher than those uploaded by non-physicians. Videos with greater than one million views performed slightly better than those with fewer views.

Conclusions: There are barriers to mental health care for those diagnosed with depression. Public online resources may help to eliminate these barriers. Despite this positive outlook, this study ranked the overall quality of the resources as 'average'. The inconclusive nature of this study calls for further research to be conducted. Barriers may be erased by online resources, but the effectiveness of online resources is not clear. More time must be granted to physicians to counsel their patients about mental health or more standardized online materials must be offered to patients.

The Utilization of Supraclavicular Nerve Block in Elbow Dislocation

Poster Number: 24
Abstract: 1578
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Format: Poster
Category: Emergency Medicine
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Joint reduction following dislocation requires adequate pain control and muscle relaxation. Recent advancements have demonstrated ultrasound guided nerve blocks as an alternative approach in place of procedural sedation, during joint reductions. A supraclavicular nerve block is a novel approach to pain control for elbow reduction and was found to be a safe and effective method in this case presentation below.

Patient Description: Patient is a 33 year old male with no significant past medical history. The patient presented to the emergency department with pain in his right elbow following a 'popping' sensation while pulling on his work boots. The patient was in obvious distress and upon exam there was clear deformity. All distal pulses, sensation, and range of motion at the wrist were intact. An x-ray was performed confirming a posterior elbow dislocation with suspected impaction fracture.

Intervention: Prior to reduction it was concluded that a supraclavicular nerve block would be a sufficient approach to pain control and muscle relaxation. The supraclavicular nerve block was performed with 20 mL of 1% Lidocaine under ultrasound guidance. The clavicle and subclavian artery served as landmarks for the physician. Following landmark determination, ultrasound was utilized to determine nerve location both before and during the performance of the nerve block. The doppler was utilized to determine blood flow and differentiate between vessels and nerves. This imagery resulted in the proper injection of Lidocaine into the tissue surrounding the nerve fibers. Within five minutes of nerve block complete anesthesia was successfully obtained. The elbow was then easily reduced at bed-side by an orthopedic resident. Post-reduction films were performed & the patient was then sent home with a prescription for Norco, Tylenol, and Ibuprofen and asked to follow up with his Orthopedic team.

Conclusions: The use of ultrasound guided supraclavicular nerve block for elbow joint reduction within the ED is a technique that can be utilized effectively. The technique provides adequate pain control reducing procedural time and the need for postoperative opioids. There is clarification required regarding the safest approach, use of long or short-acting anesthesia, as well as training required by ED providers. The advantages of avoiding procedural sedation, improving department efficiency as well as improved patient experience and cost to patient warrant further evaluation.

ENDURANCE–Effectiveness of Evusheld for COVID-19 Pre-exposure Prophylaxis in Immunocompromised Patients

Abstract: 1579
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Other
Author Status: Clinical/Research Fellow
Presentation Type: Clinical Study

Introduction Immunocompromised patients are at risk for severe COVID-19 infection due to inability to produce neutralizing antibodies. Preexposure prophylaxis with monoclonal antibodies (MAB) may be an adequate strategy to prevent infection and improve outcomes in this population. Evusheld, a combination of 2 MAB, tixagevimab and cilbavimab, was approved under EUA for preexposure prophylaxis in immunocompromised patients from December 2021 until January 2023 when EUA was revoked due to Evusheld inefficiency against new variants. Despite EUA revocation, there are important lessons to be learned about the real-world Evusheld efficacy that may be utilized in the future for development and strategic use of new MAB against COVID and other viral infections. In this retrospective study, we reviewed COVID-19-related morbidity and mortality in 459 patients within 360 days following Evusheld administration.

Methods This is a retrospective study of 459 patients who received at least 1 dose of Evusheld at Corewell Health West from January 18, 2022, through January 26, 2023. All patients were classified in 5 tiers based on the level of immunosuppression and tested for COVID antibodies prior to Evusheld administration. As an exploratory analysis, we evaluated patients' demographics, underlying immunosuppression, vaccination and serology status. We evaluated two outcomes: morbidity (COVID positivity rate and COVID related ED, hospital, and intensive care unit utilization) and all-cause mortality within 360 days following Evusheld administration. We compared outcomes within the first 180 days following Evusheld administration when Evusheld was active, with the outcomes within the second 180 days when Evusheld had no activity. We also evaluated outcomes based on vaccination and serology status prior to Evusheld administration.

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Results Comparing the first 180 days with the second 180 days following Evusheld administration, the rate of symptomatic COVID-19 infection was higher (7.63% vs 5.01%, p=0.14) but the rate of COVID-related hospitalizations (26% vs 43.48%, p=0.25), ICU admissions (0% vs 13.04%, p=0.06), or deaths (0 % vs 13.04%, p=0.06) was lower. Prior to receiving Evusheld, 15.9% of patients had COVID and 91.1% were vaccinated. 71.1% of vaccinated patients were seropositive at the time of Evusheld administration. Lowest rate of seroconversion after vaccination was noticed among lung transplant patients (52.94%) and those receiving B-cell depleting therapies (55.29%). Seronegative patients were more likely to contract COVID within the first 180 days (10.71 vs 6.35%, p=0.15) and second 180 days (8.93% vs 4.35%, p=0.09), but there was no difference in the disease severity. There was no difference in COVID positivity rate or severity of the disease among the tiers.

Conclusions Our findings indicate that Evusheld may be effective in preventing severe COVID-19 infection in immunocompromised patients. Implementing preexposure prophylaxis as a key strategy in combating viral diseases including COVID-19 in immunocompromised patients may be crucial. Despite baseline differences, Evusheld demonstrated comparable protective efficacy for both seronegative patients and those with a higher degree of immunosuppression. These significant findings can inform future decision-making processes regarding patient's prioritization for treatment.

Maternal and Perinatal Outcomes After Non-reassuring NST

Abstract: 1580
Author Names: Vyvian Borse-Hatchett, MD; Eryn Hart-Dutta, DO; Nicole Mitchell, MPH
Author Institutions: Corewell Health West
Format: Oral Presentation
Category: OB/GYN
Author Status: Resident Physician
Presentation Type: Basic Research Study

Introduction: One of the most common and dreaded adverse pregnancy outcomes is intrauterine fetal demise (IUFD)1. Antepartum fetal surveillance is aimed to decrease the risk of IUFD2. A nonstress test (NST) is a commonly utilized form of antenatal surveillance indicated for numerous fetal or maternal conditions3. With normal antepartum testing, an Obstetrician Gynecologist can be reassured regarding fetal status as the negative predictive value for an NST is 99.8%, and there is a low incidence of IUFD within one week2. However, it is not clearly defined what course of action is optimal with a non-reassuring NST (nrNST) or an NST with fetal heart tone (FHT) decelerations.

Methods: This is a chart review with data collection from 1/1/22 to 12/1/23. Patient population: pregnant patients at least age 18 with singleton pregnancy without known anomalies presenting to OB Triage at Butterworth for follow up after nrNST. Descriptive statistics will be provided. For continuous variables meeting the normality assumption based on Shapiro-Wilk test, we will report means and standard deviations. We will use T-tests or ANOVA to test difference of means depending on number of groups being compared. For continuous variables not meeting the normality assumption, we will use Kruskal-Wallis test. For categorical variables, we will report n-counts and percentages. We will test differences in distribution using chi-square test or Fisher's exact tests depending on size of the expected cell counts. All tests will use alpha level of 0.05 with Bonferroni-correction used for multiple group comparisons and Benjamini-Hochberg correction used for multiple tests for a single hypothesis.

Results: Analysis is still ongoing. The purpose of this research is to determine if shorter length of 'prolonged monitoring' after a nrNST is associated with poor maternal and/or fetal outcomes. We hypothesize that there is a higher risk of poor maternal and/or neonatal outcomes following nrNST if the follow up monitoring is shorter in duration. Variables will include gestational age at presentation, gestational age at delivery, length of monitoring, 1 and 5 minute APGAR scores, cord gas values, NICU admission, delivery outcome (vaginal vs cesarean section), and if cesarean section, indication for CS is fetal distress.

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Conclusions The decision between early delivery vs expectant management in the setting of nrNST for term and preterm fetuses remains difficult due to a lack of specific recommendations and uncertain outcomes. At our institution, 'prolonged monitoring' is utilized in settings of nrNSTs to better inform management decisions. However, the optimal length of 'prolonged monitoring' is not defined and varies widely across providers. With these results, we hope to provide guidance for providers to make an informed and best possible recommendation for their patient when faced with a nrNST.

Thinking Beyond Ingestion in a Teenager with Altered Mental Status

Abstract: 1581
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Format: Oral Presentation
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Thyroid storm (TS) is a severe manifestation of hyperthyroidism and considered an endocrine emergency due to the risk of fatality. While much of the current knowledge regarding TS is extrapolated from the adult population, reported clinical findings among pediatric literature (limited case reports and series) appears to be similar to adults and the mortality risk is estimated to be between 10-25%. According to a systematic review analyzing data from TS in 45 pediatric patients, the most common clinical features were sinus tachycardia (86.7%), fever (64%), altered mental status (46%), and diarrhea (31%). As there is currently no recognized diagnostic criteria for TS in pediatric populations, it is imperative to recognize common features of unregulated hyperthyroidism and intervene in a timely manner to prevent fatal outcomes.

Patient Description

A 15-year-old female with epilepsy and anxiety presented with altered mental status (AMS). Patient was at a sleepover when her friend called family saying she was 'not making any sense.' She was given her seizure rescue medication and brought to the ED. In the ED she was afebrile and tachycardic, with a GCS of 13. On exam she was confused, PERRL (3mm), skin was dry and flushed, without neuro deficits or clonus. She was initially given a fluid bolus and Ativan, and later required restraints and IM Zyprexa for agitation. Lab work-up (CBC, CMP, Keppra level, Tylenol, and Salicylates) was normal aside from elevated ALT (67). EKG demonstrated sinus tachycardia. Due to persistent symptoms, she was admitted to the hospital. During hospitalization, the patient's AMS improved, but her tachycardia persisted. Toxicology and Neurology could not explain her presentation. Infectious work-up was negative and UDS was unrevealing. Thyroid studies revealed a low TSH (0.01) and elevated free T4 (4.7).

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Intervention	Endocrinology was consulted and unveiled a history of heat intolerance, weight loss, dry skin, fatigue, diarrhea, and occasional swallowing difficulty. Additional probing revealed that extended family members had a history of thyroid removal. Goiter was noted on exam. Further laboratory work-up demonstrated elevated thyroglobulin Ab (162), free T3 (9.7), and thyrotropin receptor-Ab (12). Thyroid ultrasound showed a heterogenous, hyperemic thyroid gland consistent with thyroiditis. The patient's clinical presentation (AMS and tachycardia) along with laboratory evaluation and imaging were consistent with the diagnosis of thyroid storm secondary to Graves' Disease. After shared decision-making with family, the patient was started on Propranolol and discharged home with close endocrinology follow-up. Shortly after discharge she was started on Methimazole. Due to intolerance, she is scheduled for total thyroidectomy.
Conclusions	While ingestion is a common cause of AMS and tachycardia in adolescents, it is important to consider other etiologies for this presentation. In this case, there was an anchoring diagnosis for ingestion that was later broadened due to persistent tachycardia and no reported history or laboratory evidence of ingestion. TS presents with a myriad of non-specific symptoms that may mimic other conditions and should be considered in the differential diagnosis in pediatric patients presenting with AMS as it is associated with significant morbidity and mortality.

Non-ST-Segment Elevation Myocardial Infarction Secondary to Spontaneous Coronary Artery Dissection in Pregnancy: A Case Report

Poster Number: 54
Abstract: 1582
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Format: Poster
Category: OB/GYN
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

The Center for Disease Control has identified cardiovascular disease as a leading cause of pregnancy-related death in the United States. Spontaneous coronary artery dissection (SCAD) is one of the most common causes of myocardial infarction in young women. However, it remains an understudied topic of maternal morbidity and mortality.1,2 Since the first report of SCAD in 1931, there have only been 160 cases reported. We present a case of pregnancy-related NSTEMI secondary to SCAD which was successfully managed with conservative treatment. In this investigation, we aim to increase awareness and drive additional research efforts to mitigate the risks associated with this condition for expectant mothers.

Patient Description

The patient is a 38-year-old female who presented with complaints of midsternal chest pain accompanied by a sore throat, fever, rhinorrhea, and myalgia. Workup showed a positive COVID-19 PCR, elevated troponin levels, normal sinus EKG, and negative CT for acute cardiopulmonary abnormalities. The patient was diagnosed with COVID-19-related myocarditis and was discharged, only to return with the same complaints eight weeks later. Further imaging revealed a mid-left anterior descending SCAD with thrombolysis resulting in an NSTEMI. The patient's coronary angiogram and intravenous ultrasound images, troponin levels, and TIMI score (3) were used to determine response to treatment.

Intervention

Ultimately, intravascular ultrasound and coronary angiography imaging revealed SCAD of the mid-left anterior descending artery. The patient also received a TIMI score of 3, placing her at intermediate risk. Following the diagnosis of NSTEMI secondary to SCAD, conservative treatment protocols were initiated. The decision to continue beta blockers and aspirin therapy throughout pregnancy was crucial to mitigating cardiac stress, in addition to strategically timing the epidural-optimized pain control and minimizing cardiac strain during labor. Collaborative efforts between cardiology, MFM specialists, and obstetric anesthesiology were instrumental in closely monitoring and adapting the treatment plan throughout the patient's pregnancy. To reduce maternal and cardiac stress, a decision was made to induce labor several weeks early in order to maximize efficiency, control duration, and minimize the risk of emergency interventions. These interventions ultimately led to an uneventful labor and delivery.

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Conclusions This case report represents proof of principle regarding the use of combined therapeutic interventions in treatment of NSTEMI secondary to SCAD in pregnancy. The continuous use of pharmacological management and collaborative efforts between different healthcare teams highlights the significance of individualized care and continuous communication in complicated pregnancies to optimize outcomes for both the mother and the developing fetus.

Uterine Fibroids: A Narrative Review of Epidemiology and Management, with a Focus on Uterine Artery Embolization

Poster Number: 72
Abstract: 1583
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine; Advanced Radiology Services
Format: Poster
Category: Other
Author Status: Resident Physician
Presentation Type: Systematic Review

Introduction: Uterine fibroids are the most common benign tumors in women. Abnormal uterine bleeding is the most common presenting symptom and is responsible for 70% of gynecologic consults. Despite advances in treatment technologies, hysterectomy remains the main treatment modality. This review is an overview of the minimally invasive treatments with emphasis on uterine artery embolization considering epidemiology and pathophysiology of the disease.

Methods: Literature search was conducted using PubMed with the most updated research in the field of uterine fibroids. The results are presented as a narrative review.

Results: Uterine fibroids occur in 25-50% of women with about $34 billion in annual costs in the US alone. Risk factors including black ethnicity, genetic predisposition and early menarche have been identified in the studies. Medical management is commonly the first line approach; selective progesterone receptor modulators have offered improved treatment outcomes. Hysterectomy remains the definite treatment.
Uterine-preserving treatments such as myomectomy and magnetic resonance-guided high-intensity ultrasound offer the chance of preserving fertility in addition to their psychosocial benefits. Among these treatments, uterine artery embolization offers a unique approach further eliminating potential surgical side effects with similar outcome profiles.
Post-embolization infertility remains the main concern reported in up to 40% of treated patients in studies with mixed data. Patient selection, pre-procedural evaluation and anatomical considerations play important roles in procedural outcomes.

Conclusions: Uterine artery embolization is considered a safe and effective treatment option for uterine fibroids. Appropriate patient selection strategies can be achieved by a close collaboration between obstetrician and gynecologists and interventional radiologists and would result in improved treatment outcomes.

Improving Pre-procedural Fasting Times for Admitted General Pediatrics Patients and Decreasing Unnecessary IV Fluids Periprocedurally

Abstract: 1584

Author Names: Justin Steele; Lauren Jary; Michael Metz; Logan Jurgens; Rick Hackbarth; Emily Durkin; John Huntington

Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine

Format: Oral Presentation

Category: Pediatrics

Author Status: Medical Student

Presentation Type: Quality Study/Initiatives

Introduction: Currently, Corewell's Policy for pre-procedural fasting for clear liquid fluids (4 hours) does not align with The American Society of Anesthesiology's (2 hours). This practice is set in place to reduce the risk of aspiration, however, Pediatric Anesthesia Societies from several countries and US hospitals have liberalized their clear liquid fasting times to 1 hour given data demonstrating no serious harm from clear liquid aspiration and no relationship between aspiration and duration of clear liquid NPO status. Furthermore, patient and parent satisfaction and multiple physiologic parameters improve with clear fluid intake closer to procedure start. Our quality initiative looks to improve average pre-operative fasting duration in pediatric patients admitted to the General Pediatrics Floor at Helen Devos Children's Hospital and evaluate the amount of pre-procedural IV fluids administered.

Methods: Patients included will be admitted pediatric patients undergoing elective procedures or imaging requiring sedation or anesthesia. Patients will be primary patients from the PHM, Pediatric Surgery, Neurosurgery, ENT, or Orthopedics services. Exclusion criteria: GI dysmotility, pregnancy, morbid obesity, GERD, hiatal hernia, trauma, airway abnormalities, chronic aspiration, PICU, NICU and Heme/Onc services. Outcomes measured are time from last oral intake to anesthetic medication administration. We also will track duration of maintenance IV fluids when started simultaneously as NPO order. Quantitative data will be expressed as mean with standard deviation. Qualitative data will be expressed as frequency. Qualitative data will be analyzed via chi-squared testing.

Results: Initial data was obtained from a 6 year chart review using data obtained with the help of Honest Broker. Mean NPO time for inpatient pediatric patients was 8.4 hours. Of these patients, 36% received IV fluids and the median time for IV fluid administration was 14 hours. There were 11 episodes of hypoglycemia noted in our cohort. Our initiative was accepted as one of the inaugural HDVCH QI Practicum projects, and we will be starting our PDSA cycles in the coming months.

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Conclusions We have yet to begin collecting prospective data, but our team consists of stakeholders from Pediatric Surgery, Pediatric Sedation, Pediatric Anesthesiology, and Pediatric Hospitalists. We hypothesize that we can improve the duration of fasting in our Pediatric patients and reduce the use of IV fluids, a medication that can often be continued unintentionally postoperatively. With our team, we feel confident that we can align around a single set of safe NPO guidelines for HDVCH.q

Incidental Finding of A Hepatic Hemangioma In An Infant Hospitalized With Unrelated Symptoms

Poster Number: 65
Abstract: 1586
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Format: Poster
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Hemangiomas are frequently-observed benign tumors of infancy, with the infantile subtype being the most common at a prevalence as high as 4-10% in children (1). While technically benign, hemangiomas can carry the potential for complications including heart failure, liver failure, and hypothyroidism (2). While cutaneous hemangiomas are the most conspicuous and thus the easiest to identify, the infantile hepatic hemangioma is the most common benign vascular tumor of infancy with a prevalence of 4.5% in term neonates (3). The commonness and potential for serious complications from these lesions underscores the importance of comprehensive physical examination in infants upon hospital admission, independent of presenting clinical symptoms. Here we present a case illustrating the incidental discovery of a hepatic hemangioma in a 5-week-old infant admitted for fever.

Patient Description

Our patient is a 5 week old male infant who initially presented to the ED at 3 weeks of age for a fever. At that time, his evaluation included a CBC, procalcitonin, CMP, urinalysis, film array, peripheral blood and urine cultures, and lumbar puncture with cultures, all unremarkable. He was treated with Ampicillin and Gentamicin for a 24 hour rule out and discharged home. He presented again at 5 weeks of age secondary to a new fever of 100.8 F and underwent the same evaluation, only remarkable for a procalcitonin level of 0.53. He was on Ceftriaxone until cultures were no growth at 36 hours. On exam he was very well-appearing but notably had hepatomegaly extending into the pelvis, for which an US abdomen demonstrated a 4.7 cm heterogeneous mass within the inferior right hepatic lobe. His AFP level was 2,800. An MRI abdomen further characterized the hepatic lesion to be representative of a hemangioma.

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Intervention	After MRI further identified the lesion to be consistent with hemangioma, Hematology-Oncology recommended fibrinogen and ECHO to look for high output cardiac failure which can be seen with congenital hemangiomas as well as thyroid studies to look for consumptive hypothyroidism which can be seen with infantile hemangiomas (2). These studies were all within normal limits. Ultimately, the patient was discharged home with close hematology-oncology follow-up that will include weekly imaging and labs to help determine whether his hemangioma is congenital vs infantile, the latter of which may respond to treatment with Propranolol (4).
Conclusions	Our case highlights the importance of a proper and thorough physical exam. This patient presented with a chief complaint seemingly very unrelated to his ultimate diagnosis. Astute physical exam on a patient that otherwise seemed appropriate for discharge significantly altered this patient's hospital and overall clinical course. Early detection of hemangiomas, as in this case, allows for baseline measures with thyroid studies, echocardiograms and liver US with doppler with serial follow up with a multidisciplinary team.

Implanted Epidural Catheter After Pediatric Intradural Intramedullary Spinal Cord Tumor Resection: A Case Study

Poster Number: 1
Abstract: 1587
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Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Study

Introduction

To enhance postoperative pain relief, some surgeons and anesthesiologists use epidural catheters. Innovative techniques are crucial during spinal cord tumor excisions for successful surgery and pain control. Synthetic dural patches are essential in repairing the dura mater after tumor resection, yet they pose significant risks to the patient. Postoperative epidural analgesia introduces concerns, mainly cerebrospinal fluid (CSF) leakage, posing risks of infections and compromised wound healing. The potential for medication leaking through a dural patch into CSF poses significant risks for hemodynamic instability an neurological deficits. A detailed plan is essential for managing and preventing complications. Providers must continuously reassess patients, developing proactive measures to address challenges and optimize postoperative outcomes.

Methods

This study details the case of an 8-year-old male with a newly diagnosed spinal mass requiring T6-12 laminoplasty for intradural intramedullary thoracic spinal cord tumor resection. Intraoperatively, a motor function decline in the bilateral lower extremities immediately stopped the procedure. Postoperatively, an analgesia plan involved an epidural catheter atop a synthetic dural patch, remaining until consensus for removal. The patient tolerated the catheter well, and it's safe removal by the neurosurgeon two days later and showed no complications. Extensive discussions between the anesthesiologist and neurosurgeon ensured a comprehensive consideration of risks and benefits, contributing to an in-depth understanding of the postoperative analgesia strategy decision-making process.

Results

No postoperative infections were observed in the patient. Hemodynamic stability and neurologic assessments remained within normal ranges. On postoperative day four, the individual was successfully discharged to a rehabilitation center. This absence of postoperative infections, hemodynamic instability, and neurological deficits underscores the efficacy of the implemented surgical and analgesic measures, contributing to a favorable recovery trajectory. The prompt transition to a rehabilitation center on the fourth postoperative day reflects the patient's overall stability and suggests a positive outcome in the early stages of the recovery process.

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Conclusions Our findings stress the significance of proper planning and vigilance in postoperative observation to minimize poor outcomes in the event of loss of integrity of a dural patch when leaving an epidural catheter in place. While our case demonstrates a positive outcome, the potential complications should not be taken lightly, underscoring the need for a judicious approach when deciding on the duration of catheter placement in postoperative pain management strategies.

Mental Health Outcomes in Mothers of Children with Cleft Lip/Palate in the First Year of Life: A Scoping Review

Abstract: 1588
Author Names: Hanna Pfershy, BS; Noah Carson, BS; Ellie Gschwendtner, MD; John Girotto, MD, MBA, FAAP, FACS; Anna Carlson, MD
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Systematic Review

Introduction: Cleft lip and/or palate (CL/P) is one of the most common congenital deformities, and the effects of birthing a child with CL/P on maternal mental health outcomes are incompletely characterized in the literature. The purpose of this scoping review is to characterize the mental health outcomes in mothers of children with CL/P during the first year of life and determine interventions that addressed them.

Methods: Systematic searches of PubMed, Embase, and Cochrane were conducted, results were limited to studies published after 1990 in English. Independent reviewers screened the results based on those that included mental health outcomes (quality of life, stressors, mental health disorders) in mothers of children with non-syndromic cleft lip and/or palate. Full-text articles that reported outcomes in the first year of life were included. Those that did not stratify outcomes based on age less than one year, included combined parental outcomes where mothers were <75% of the participant makeup, and reported CL/P in combination with other congenital anomalies were excluded.

Results: 1187 publications were identified, of which 21 met the inclusion criteria. The majority of these studies identified stress, anxiety, and depression in mothers of children born with CL/P. Major stressors in the first year of life included fears for the future, surgical uncertainty, and feeding difficulties. Cultural views of congenital deformities influenced stress and mothers' perceptions of their child. The Parenting Stress Index and Edinburgh Post-Partum Depression Scale were the most used assessment tools, at 19%. 33% of studies performed interviews and thematic analysis, 85% used survey(s), and 19% used a combination of both. Twenty-four unique assessment tools were used across all studies, not including custom surveys. Only 10% of studies were performed in the United States and only 2 studies looked at the impact of interventions; however, alleviating maternal psychological stressors was not the primary aim of either.

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Conclusions Our review has shown that raising a child in the first year of life with CL/P negatively influences mental health outcomes in the mother. However, no studies have looked at interventions with the primary goal of alleviating these stressors and improving maternal mental health. Furthermore, studies evaluating mental health in mothers of patients with CL/P are non-uniform and highly varied in methodology. Future studies should target interventions for mothers in the first year of life that facilitate positive psychological outcomes.

Anesthetic Considerations in a Second Trimester Pregnant Patient with Decompensated Cirrhosis

Poster Number: 55
Abstract: 1590
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: OB/GYN
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: As treatment of cirrhosis in patients of childbearing age improves, pregnancy and delivery becomes more common, with hopes of improving maternal and fetal mortality. However, literature remains limited for delivery and pregnancy outcomes pertaining specifically to patients with decompensated cirrhosis, as pregnancy in these patients is relatively rare. As a result, safely managing these patients intraoperatively involves unpredictability and requires an abundance of caution.

Patient Description: Here we present a 21-year old nulliparous female with a 2-year history of decompensated cryptogenic liver cirrhosis, portal HTN, esophageal varices, and complex psychiatric history with prior opioid use. This patient underwent a successful urgent primary classical cesarean section for preterm labor at 23 weeks and 6 days with postpartum hemorrhage. Antepartum The patient was admitted at 22+2 weeks gestation for pancytopenia and severe abdominal and back pain, unable to be weaned off IV opioids. A multidisciplinary care conference was convened for peripartum management, determining the patient should ideally be transferred to a hospital with a specialized liver transplant team and controlled delivery.

Intervention: Intrapartum At 23+6 weeks gestation prior to transfer, the patient went into preterm labor requiring an urgent primary classical cesarean section due to breech presentation. Thrombocytopenia and coagulopathy necessitated general anesthesia rather than neuraxial. Massive transfusion protocol in the main OR was activated for anticipated hemorrhage, secondary to cirrhosis and uterine atony. The neonate was delivered and transferred to the NICU. The patient required multiple blood products and medications for postpartum hemorrhage. PCA opioid and post-operative TAP blocks were administered as a part of multimodal pain control. The patient was extubated and transferred to PACU in stable condition. Postpartum The patient was admitted to SICU and then transferred to the general medicine floor on PPD3. The patient required additional blood products in her postoperative course. After meeting postpartum goals, the patient was discharged on PPD6. The patient continues to have recurrent readmissions for her cirrhosis.

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Conclusions Here we present a successful urgent, primary classical cesarean section under general anesthesia at 23+6 weeks in a patient with decompensated cirrhosis. Unfortunately, the baby expired at 11 days of life (ie, 25+3 weeks). This case affords the opportunity to discuss the importance of proactive multidisciplinary care and anesthetic planning for patients with complex comorbidities. While not all outcomes were ideal, diligently following anesthetic protocols allowed this patient to have as safe of a delivery as possible.

Comparing Test Utility of CT Esophagography with Fluoroscopic Technique for Detection of Esophageal Perforation

Poster Number: 75
Abstract: 1591
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Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Systematic Review

Introduction: Fluoroscopic esophagography (FE) remains the gold standard for diagnosis of esophageal perforation despite the widespread availability of computed tomography (CT) imaging. CT esophagography (CTE), however, offers distinct advantages over FE. This study aims to evaluate the diagnostic accuracy of CTE in comparison to FE.

Methods: A systematic review using PubMed, EMBASE, Scopus and CINAHL was conducted to identify articles evaluating CTE with oral contrast and/or FE for the diagnosis of esophageal perforation. Performance parameters for each diagnostic modality were retrieved and/or calculated from data supplied within each manuscript. Random-effect meta-analysis was conducted to calculate and compare pooled sensitivity, specificity and area under Receiver Operating Characteristics (ROC) curve of the two tests.

Results: After application of inclusion and exclusion criteria 18 studies were entered in meta-analysis. Fifteen studies (2708 subjects) and 10 studies (601 subjects) included evaluation of FE and CTE, respectively, and 7 studies included evaluation of both FE and CTE. Studies were conducted between 1995 and 2020. Pooled sensitivity and specificity (95% confidence interval) for FE were 0.59 (0.48-0.69) and 0.98 (0.96-0.99), and corresponding values for CTE were 0.70 (0.58-0.80) and 0.88 (0.79-0.93).

Conclusions: CT esophagram with oral contrast is non-inferior to fluoroscopic esophagram for the detection of esophageal perforation.

Cough-Induced Syncope and Purulent Pericarditis: A Rare Presentation of a Rare Disease

Poster Number: 44
Abstract: 1592
Author Names: Mitchell Sarkisov, DO
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Purulent pericarditis is an infection of the pericardial sac characterized by the presence of purulent fluid in the pericardial space. In the pre-antibiotic era, it was a common complication of pneumonia. Today, purulent pericarditis is a rare condition seen primarily as a complication of cardiothoracic procedures. Purulent pericarditis often has an indolent disease course that, if left untreated, can progress to cardiac tamponade in 42% to 77% of cases. Here, we discuss a unique case of purulent pericarditis that involved development of effusive-constrictive pericarditis with coughing-induced syncope as the presenting symptom. Cough-induced syncope has been recognized as a feature of constrictive pericarditis but is rarely seen in the setting of a pericardial effusion or cardiac tamponade.

Patient Description

A 45-year-old male presented to Urgent Care due to productive cough with chest discomfort. Chest x-ray did not show any acute disease processes and he was diagnosed with bronchitis. He was treated with a five-day course of azithromycin, prednisone, and albuterol. Four days later, he presented to the emergency department (ED) due to coughing fits that lead to cyanosis and syncope. A repeat chest x-ray did not show any acute disease processes. He was diagnosed with 'post-tussive syncope' and was discharged with a prescription for Tessalon Perles. He presented again eight days later to the ED due to increasing frequency and severity of his cough-induced syncope episodes. A CTA thorax was ordered to rule out pulmonary embolism. While in the CT scanner, the patient had a coughing fit that lead to cyanosis and ultimately shock. Bedside echocardiogram revealed a large pericardial effusion and he subsequently was transferred to the MICU for obstructive shock secondary to cardiac tamponade.

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Intervention	The patient underwent pericardiocentesis yielding 350 mL of grossly purulent fluid. Pericardial pressure decreased from 15 mmHg pre-drainage to 4 mmHg post-drainage, indicative of cardiac tamponade. A drain was left in place. His shock initially improved, but reaccumulation of fluid necessitated a pericardial window procedure. Upon creation of the window, 1.1 L of clear serous fluid was drained along with removal of pus and adhesions from the pericardial space. Another pericardial drain was left in place. He had recurrent shock following window creation with echo showed constrictive features with respirophasic septal bounce, and IVC dilation consistent with elevated right atrial pressure. Additionally, new left-sided loculated pleural effusions were noted on CT. His shock improved following placement of a new chest tube and medical treatment of his pneumonia and effusive constrictive pericarditis. The patient discharged home but has since required partial pericardiectomy for constrictive pericarditis.
Conclusions	Purulent pericarditis can manifest insidiously and can quickly progress to cardiac tamponade and death. Cough-induced syncope is often associated with chronic conditions like COPD, but it can also be indicative of a life-threatening condition such as cardiac tamponade in the right clinical context. It is also important to recognize that constrictive pericarditis is a common complication of purulent pericarditis. Our patient developed a subtype of constrictive pericarditis called effusive-constrictive pericarditis, which can present with cardiac tamponade.

Appendicitis Caused by Traumatic Appendix Herniation: A Rare Complication of a Motor Vehicle Accident

Poster Number: 31
Abstract: 1593
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Traumatic abdominal wall hernias are rare, difficult diagnoses, but can carry morbid complications. They are most often described in pediatric literature in association with traumatic injury from handlebars or motor vehicle accidents, but adult cases have been reported as well. This case describes a 23-year-old male involved in a motor vehicle accident who was found to have a traumatic abdominal wall hernia containing only the appendix. His hernia was complicated by appendicitis and intraabdominal abscess which was treated with exploratory laparotomy, appendectomy, washout, and percutaneous drain placement.

Patient Description

The patient is a 23-year-old male with a recent history of a motor vehicle accident who presented with progressively worsening abdominal pain. His accident occurred 17 days prior to presentation, in which he was a restrained driver in a stationary vehicle rear-ended by another fast-moving vehicle. Between his accident and his presentation, he was evaluated in an outpatient clinic and in another ER initially for neck pain, then back pain and dysuria, with negative cervical and lumbar spine x-rays as well as a negative urinalysis. Two days prior to admission, he had a dramatic worsening of his pain, and presented to his PCP for evaluation. His PCP ordered a CT scan, but he presented to our ER before obtaining it. Notable findings on admission included diffuse abdominal tenderness which was worst in the right lower quadrant, a leukocytosis of 20900, and moderate volume ascites with a prominent appendix seen on CT scan.

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Intervention	The patient was taken to the operating room for a diagnostic laparoscopy which was converted to an exploratory laparotomy upon discovery of purulent peritonitis and intraabdominal adhesions. Upon inspection and washout, there appeared to be a defect within the musculature of the anterior abdominal wall superior to the right inguinal ligament, and a necrotic appendix densely adhered within the defect. Several interloop adhesions were lysed, the appendix was bluntly reduced, an appendectomy was performed, and the abdomen was thoroughly washed out and closed. The patient's postoperative course was complicated by an ileus which resolved with supportive treatment and abscess formation which was addressed with percutaneous drain placement by interventional radiology. The patient was discharged on postoperative day 8 with the drain in stable condition. His follow-up appointments revealed resolution of pain and his abscess, and his drain was removed on postoperative day 37.
Conclusions	Traumatic abdominal wall hernia is a rare, difficult diagnosis. As many motor vehicle accidents involve some degree of blunt abdominal injury, a high index of suspicion is required to make this diagnosis, and timely surgical treatment is crucial to avoiding unnecessary morbidity.

A case of a right para-duodenal hernia

Poster Number: 32
Abstract: 1594
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Author Institutions: Corewell Health West
Format: Poster
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Para-duodenal hernias are a form of an internal hernia where viscera herniate through a defect typically at the level of the ligament of Treitz. These defects are often congenital and due to malrotation of the gut. The defect most commonly is found in the left para-duodenal fossa, however, this defect rarely can be found to the right of midline resulting in a right sided para-duodenal hernia. The less common right sided para-duodenal hernia defect originates from the Waldeyer fossa and is often due to failure of malrotation around the SMA. Para-duodenal hernias are commonly asymptomatic prior to visceral incarceration or strangulation and are therefore difficult to diagnose.

Patient Description: A 73-year-old female presented with a one-day long history of right upper quadrant abdominal pain radiating to her back. She had nausea, vomiting, and obstipation since the onset of her pain. Surgical history included a hysterectomy. She was hemodynamically normal and underwent a CT of the abdomen and pelvis. Upon review by the surgical team, a right para-duodenal hernia with a defect though the Foramen of Winslow containing colon, was noted.

Intervention: The patient was taken to the operating room for an exploratory laparotomy with reduction of the right sided para-duodenal hernia with incarceration of the cecum and terminal ileum. The duodenum was partially kocherized to aid in the reduction of the dilated cecum. Following inspection, the bowel appeared viable. The cecum was pexied to the right abdominal wall and a pedicle of falciform ligament was used to close the defect. The patient tolerated the procedure and was discharged home the following day.

Conclusions: Patients with an incarcerated para-duodenal hernia present with obstructive symptoms such as pain, vomiting, and obstipation. The diagnosis can be made with CT scan imaging. Para-duodenal hernias require prompt surgical intervention, with an open or laparoscopic approach, and must include reduction of herniated viscera and closure of the defect.

Increased Vascularity in cases of Cesarean Scar Pregnancy as a First Trimester Sonographic Marker for Placenta Accreta Spectrum

Poster Number: 52
Abstract: 1595
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Poster
Category: OB/GYN
Author Status: Resident Physician
Presentation Type: Case Study

Introduction

Placenta Accreta Spectrum (PAS) is a condition that occurs when the placenta attaches abnormally to the uterine wall. This poses significant risks to the mother and baby. The incidence of PAS is increasing as rate of cesarean delivery is increasing. Timely detection of PAS is important for improving outcomes. Diagnosis is usually made in the second trimester with US. There is limited information on US markers for PAS in the first trimester. Early diagnosis can impact decisions regarding patient's reproductive health. Recent studies are exploring the use of first-trimester markers such as implantation site to aid in the diagnose PAS. The purpose of this study is to evaluate the vascularity index in the first trimester in patients with cesarean scar pregnancy (CSP) as a predictor of the development and severity of PAS in the third trimester.

Methods

This retrospective analysis included 18 women diagnosed with CSP through first trimester US at Corewell Health Grand Rapids between January 2020 and January 2023. Participants were allocated into two groups based on the first trimester color score index: Group A had a low color score index (Color Score 1, 2, or 3), and Group B had a high color score index (Color Score 4). The Mann-Whitney U-test facilitated comparisons across various demographics and clinical variables such as age, BMI, discharge day, history of prior cesarean, gestational age (GA) at diagnosis and delivery, blood loss volume, and the amount of packed red blood cells (pRBCs) administered. The color score was determined by the presence and intensity of color Doppler flow, ranging from a score of 1 (no flow) to a score of 4 (high flow), to investigate the relationship between early vascularity and the risk of developing PAS, thereby enhancing our understanding of PAS pathophysiology and potential outcomes.

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Results Out of the 18 patients that were included 11 had a first trimester ultrasound that assessed vascularity. Out of these patients 6 had low and 5 had high vascularity indices. There was no difference in age, BMI, GA, blood loss, transfusions, neonatal weight, and delivery mode ($P>0.05$) between the groups. The vascularity index was used to investigate if increased vascularity would predict the presence of PAS. There was not a statistically significant difference in presence of PAS between the low vascularity and high vascularity groups ($P=0.0123$). The vascularity index was examined to see if high vascularity index would predict the severity of PAS, which encompasses a spectrum of disease. There was not a statistically significance difference in severity of PAS between the low and high vascularity groups ($P=0.242$). There was a statistically significant difference in average GA at time of diagnosis with 6.4 weeks in the low vascularity group compared to 8.8 weeks in the high vascularity group ($P=0.044$).

Conclusions In conclusion, increased vascularity is not a predictor of the presence of PAS, although this study is limited by small sample size. There was a significant difference in GA at time of diagnosis of CSP, with the high vascularity group being diagnosed later. We theorize that the increased blood flow can obscure the implantation site leading to later diagnosis of CSP. Future studies should investigate other first trimester markers for PAS. In conclusion, high vascularity does not predict the likelihood of developing PAS, but it can delay the diagnosis of CSP.

OUTCOMES OF CHRONIC INOTROPE USE IN END-STAGE HEART FAILURE IN SEPTUAGENARIANS AND OCTOGENARIANS

Poster Number: 39
Abstract: 1596
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Author Institutions: Corewell Health West
Format: Poster
Category: Heart and Vascular
Author Status: Other
Presentation Type: Basic Research Study

Introduction: Heart failure (HF) prevalence increases with age; life expectancy in the US is increasing, and therefore the number of elderly patients with end-stage heart failure (ESHF) will continue to increase. Only select elderly patients may benefit from Left Ventricular Assist Devices (LVAD) or heart transplantation (HT). Our objective was to evaluate clinical characteristics and outcomes of inotropes in elderly patients.

Methods: Adults with ESHF, discharged on milrinone January 1, 2018 to August 1, 2023 were included. Clinical and epidemiological data were collected. Outcomes included: death, LVAD implant, HT, ongoing milrinone support, or milrinone wean. The cohort was stratified by age. Survival probability in different groups was compared using Kaplan-Meier methodology.

Results: A total of 309 patients were included in our study. The population was mostly male (74.1%) and white (74.4%) with non-ischemic cardiomyopathy (50.2%). Two hundred and three subjects (65.7%) were younger than 70 years old, whereas 78 (25.2%) and 28 (9.1%) were 70-79 and older than 80 years old, respectively. Survival probability was 44%, 13%, and 4%, for patients younger than 70, 70-79 and older than 80 years old, respectively (Figure 1).

Conclusions: Survival of elderly patients with ESHF on chronic inotropic support was very poor. Our data suggests that shared decision-making is necessary prior to the prescription of chronic therapy in the elderly, as these patients may benefit from hospice or comfort care.

Assessment of Barriers to Pediatric Diabetes Camp

Abstract: 1597
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Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Pediatrics
Author Status: Medical Student
Presentation Type: Quality Study/Initiatives

Introduction: Current research suggests that youth attending diabetes camps have improved knowledge of their disease, glycemic control, and emotional well-being.While the benefits of attending diabetes camp are well established, there remains large disparities in the racial/ethnic representation of youth attending diabetes camp.Nationwide, racial/ethnic minority youth are underrepresented in diabetes camps.The current research is lacking studies distinctly asking patients and caregivers about barriers to attending diabetes camps. Additionally, racial/ethnic minority youth have been shown to have worse disease management and glycemic control, as well as more diabetes-related complications.For this reason, it is important to identify barriers to camp attendance, in order to work towards increasing accessibility of camp to racial/ethnic minority youth and improve overall health and management of disease.

Methods: At the Pediatric Endocrinology Clinic at 35 Michigan St NE, Suite 1800 Grand Rapids, MI 49503 there are approximately 1800 pediatric diabetes patients. They are seen in the clinic every 3 months for follow up. The survey will be administered for 4 months in an effort to recruit all interested patients. After the 4 month survey period, a mixed study analysis will be performed. We aim to collect 450 surveys within this time frame, assuming a 25% completion rate. While checking in, all parents or legal guardian's of pediatric diabetes patients will be given an informational sheet on the project. If interested, they can scan a QR code with their smart device to fill out the survey electronically through REDCap. For those subjects without a smart device, a paper copy will be provided. For Spanish speaking patients, a paper copy in Spanish will be provided. For other non-English speaking patients or patients who are not literate, a translator will be provided to read the survey aloud.

Results: Survey is currently in the implementation phase. Most recent survey results will be presented.

Conclusions: There are many established benefits to attending a pediatric diabetes camp; however, minority youth are underrepresented in camp attendance. We aim to increase attendance to pediatric diabetes camps, specifically minority youth attendance, in order to improve overall diabetes management and long term health outcomes in pediatric populations. This project will identify the prevalence of barriers to families of children with diabetes attending camp, in order to identify areas of change to improve access to all families and eliminate barriers.

Buprenorphine as a Treatment for Severe Chemotherapy-Induced Neuropathy - A Case Report

Poster Number: 40
Abstract: 1598
Author Names: Byoungchul Kim, MD; Jonathan Abraham, MD
Author Institutions: Corewell Health West
Format: Poster
Category: Other
Author Status: Clinical/Research Fellow
Presentation Type: Case Report (< 3 patients)

Introduction: Buprenorphine is an opioid used for the treatment of pain and opioid use disorder, offering a lower risk of dependence and misuse than other opioids such as morphine. While it has shown promise in the treatment of neuropathic pain, there is no literature identifying buprenorphine being used to treat chemotherapy-induced neuropathy in palliative care patients. This abstract presents a case in which buprenorphine demonstrated high efficacy in treating severe, refractory chemotherapy-induced neuropathy.

Patient Description: The patient is a 71-year-old male with a past medical history of adenocarcinoma of the sigmoid colon, in remission for the past 16 years following total colectomy and adjuvant FOLFOX chemotherapy. He unfortunately developed severe chemotherapy-induced neuropathy refractory to several interventions including gabapentin, amitriptyline, duloxetine, fentanyl patch, and a spinal cord stimulator. After the patient was subsequently diagnosed with multiple myeloma and discovered that induction chemotherapy had worsened his pain, he was referred to an academic palliative oncology clinic. Pregabalin and methadone were initiated which provided minimal relief, methadone was subsequently discontinued due to adverse side effects.

Intervention: A trial of buprenorphine was initiated, and within 24 hours the patient reported near-total resolution of his neuropathic pain. Several weeks later, the patient continues to report that his pain remains greatly improved.

Conclusions: This case identifies buprenorphine as a promising intervention for palliative care patients with chemotherapy-induced neuropathy. Despite this, there remains little evidence or guidance in existing literature on treating neuropathic pain with this medication. This case reveals the potential benefit of buprenorphine for the treatment of chemotherapy-induced neuropathic pain and indicates the necessity of further research on this topic.

Bottoming Out: A Comparative Analysis of Saline and Silicone Breast Implant Impact Force

Abstract: 1599
Author Names: Mitchell Gauger, MD; Yunju Lee, PhD; Dennis Hammond, MD
Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Basic Research Study

Introduction

Bottoming out is a well described, but dreaded, phenomena in both reconstructed and augmented breasts using implants. Over time , the soft tissue of the breast lose their structural integrity under the weight of a breast implant which causes preferential expansion of the lower poles of the breast. This can lead to implant malposition, nipple malposition, and patient discomfort. This phenomenon happens with both saline and silicone breast implants, but many plastic surgeons anecdotally feel the frequency of botting out is greater with the use of saline implants. No comparative mechanical studies have been done to investigate this experience, however. Our hypothesis is that saline implants have a higher rate of bottoming out, as they impart more force on their surroundings compared to silicone implants. This study aims to develop a model of bottoming out, by examining the vertical force o

Methods

Three silicone implants (Mentor MemoryGel Smooth Round High Profile Memory Gel: 250cc, 450cc, 650cc) and three saline implants (Mentor Smooth Round High Profile Slaine: 250cc-300cc, 420cc - 500c, 630cc-750cc) were chosen to act as matched comparisons. Silicone implants were weighed, and each corresponding saline implant was filled with saline solution to match the weight of the silicone implant. Implants were dropped from varying heights onto a force plate, and the vertical force of impact was recorded. Each implant was dropped five times from the varying heights. Implants were dropped from 5cm, 10cm, 15cm, 20cm, 25cm, and 30cm to simulate the spectrum vertical variation that a breast implants feels through normal day to day activities (i.e, walking, running, jumping). Repeated measure ANOVA was utilized to analyze the 3 main factors (material, implant weight, and drop height) and their interactions.

Results

Saline implants across all three weights, and from all five drops heights, imparted more vertical force on the force plate when compared to their matched silicone implants (Figure 1). All main factors, and their interactions, were found to significantly affect the vertical impact force.

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Conclusions Saline implants, when dropped from varying heights impart more vertical force compared to weight matched silicone implants. The inherent properties of silicone in a breast implant act a type of shock absorber, which absorb the force of implant movement and prevent that translation of force onto its surroundings. In the breast, this may serve as an explanation for why bottoming out is anecdotally observed more with saline implants. Further studies are needed for clinical correlation.

Bilateral Inguinal Hernias with Bilious Vomiting in an Infant

Poster Number:	25
Abstract:	1600
Author Names:	Megan Coble, BS (MS-3); Benjamin Kowalske, BS (MS3); Todd Chassee, MD; Jeff Jones, MD
Author Institutions:	Michigan State University College of Human Medicine
Format:	Poster
Category:	Emergency Medicine
Author Status:	Medical Student
Presentation Type:	Case Report (< 3 patients)

Introduction	This case report describes an unusual presentation of bilateral inguinal hernias in a male infant, along with the utilization of ultrasound and laparoscopic intervention for diagnostics and treatment.
Patient Description	A 3-week old male presented to the emergency department with a one day history of decreased oral intake, vomiting, and blood in the stool. A limited physical exam confirmed no diagnosis, an upper GI study and abdominal ultrasound were then conducted. These studies demonstrated a bowel obstruction and a right inguinal hernia. Pediatric surgical consultation was performed where a more thorough physical examination concluded bilateral inguinal hernias which were manually reduced.
Intervention	Surgery was then conducted with resolution of both inguinal hernias and abdominal symptoms. Diagnosis of inguinal hernias is vital due to the risk of bowel strangulation. The variability of presentation of inguinal hernias requires a thorough physical examination for diagnosis which can be aided with ultrasound. Bilious vomiting, such as in this case, is not a common finding seen with inguinal hernias. This unusual presentation led the physicians away from a diagnosis of inguinal hernias. This case demonstrates the importance of a thorough physical exam with a chief complaint of bilious vomiting in infants.
Conclusions	This case report highlights the importance of maintaining a wide differential, including inguinal hernia, in the presentation of vague abdominal symptoms in infants.

Incidence and Risk Factors for Mild Cognitive Impairment (MCI) in West Michigan: A Rural-Urban Comparison Utilizing Electronic Health Records

Abstract: 1601

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Format: Oral Presentation

Category: Neurology

Author Status: Other

Presentation Type: Clinical Study

Introduction Mild Cognitive Impairment (MCI) is characterized by a noticeable decline in cognition beyond typical age-related changes. An estimated 7.5 million Americans aged 65+ have MCI, although survey studies indicate that the condition is vastly underdiagnosed. 10-15% of individuals with MCI progress annually to dementia and one-third develop Alzheimer's disease (AD) within five years. Early identification and intervention for MCI can reverse or delay progression. Understanding MCI risk factors is crucial in Michigan, which has the United States' 14th largest population age 65+. Surveys show Subjective Cognitive Decline (SCD) is noted starting at age 45. Urban-rural differences are purported to influence incident MCI and associated risk factors, as shown by ex-U.S. studies, including ages 45+. For the first time in the literature, we assess these unexplored quandaries in West Michigan.

Methods This retrospective cohort study of Electronic Health Records (EHRs) in West Michigan included Corewell Hospital System data from 15 hospitals from January 1, 2015 to July 31, 2022. The study included patients aged 45+ with completed demographics and confirmed Michigan residency who attended 2+ in-person visits during study period. Study excluded patients with documented MCI, dementia, brain cancer, or AD at baseline. Further, those who progressed to dementia or AD directly from cognitively unimpaired without an intermediate diagnosis of MCI were excluded. Aged 45+ was prioritized as Corewell EHR data revealed an upward trend in MCI diagnoses beginning at this age. Patient residences at baseline visit were categorized as rural or urban using Rural-Urban Commuting Area (RUCA) codes. Twenty-eight potential risk factors were identified, based on Epic associations with MCI or correlations found in previous studies. Primary outcome measures were MCI incidence and associated risk factors.

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Results Of 423,592 patients (24.6% rural; 75.4% urban), MCI incident rate was 3.67 per 1000 person-years. RUCA categorizations remained stable throughout the follow-up period, with rural/urban category changes in only a nominal percentage of patients (1.4%). Urban populations exhibited higher risk of incident MCI (HR: 1.15 [95% CI, 1.08-1.23]). Urban-specific risks included hearing loss, Inflammatory Bowel Disease, Obstructive Sleep Apnea, insomnia, being African American and being underweight. Risk factors in both populations included epilepsy, depression, stroke, diabetes, intracranial injury, Chronic Kidney Disease, Parkinson's, Chronic Obstructive Pulmonary Disease, and increased age. Lower risks were in patients with higher body mass indices and diastolic blood pressures. Consistent with prior studies, advancing age emerged as the most prominent risk factor for MCI across all groups, while female gender was a protective factor relative to male gender.

Conclusions This study fills a critical gap in the existing literature, enhancing our understanding of how geographical settings influence incident MCI risk factors. Additionally, by showing that variation exists in incident MCI and MCI risk factors across rural and urban settings, this study highlights the importance of geographically-tailored interventions. As EHRs data lacks certain data associated with dementia including trauma, pollution, and activity level, further research will assess the effect of other potentially salient variables.

The Role of Total Abdominal Hysterectomy Simulations with the Rise of Minimally Invasive Gynecologic Surgery. A Multi Year Study at a Community/University Affiliated Program

Abstract: 1602
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Format: Oral Presentation
Category: OB/GYN
Author Status: Resident Physician
Presentation Type: Educational Study

Introduction

Hysterectomy is one of the most common surgical procedures in the United States. This procedure can be performed vaginally, laparoscopically, and abdominally. The number of abdominal hysterectomies (AHs) performed by OBGYN residents has decreased dramatically in recent years as the number of minimally invasive procedures continues to increase. From 2010 to 2014, the number of AHs performed by graduating residents fell by 29% while the rate of minimally invasive procedures increased. Though decreasing in frequency, this procedure remains an essential, and sometimes lifesaving, procedure for the modern gynecologist. Therefore, there is a need for simulation training to complement resident exposure outside of the OR. Low fidelity simulators have been shown to reduce errors and improve surgical performance. These types of models have also been comparable to higher fidelity models.

Methods

A low-fidelity AH simulator was constructed from craft-store supplies costing less than $40 per Ob gyn resident based on the ACOG and the CREOG surgical skills task force curriculum. Residents completed the simulation in a single 3 hour session in November 2022 and 2023. This included a pretest, a 20-minute lecture presentation on AHs, the surgical simulation, and a posttest. An additional posttest was performed 3 months later to assess for long term retention of the learned material and resident sense of confidence to continue to perform the procedure. On the pre- and posttests, participants were asked about their sense of confidence regarding the indications, steps of a hysterectomy, and ability to perform one with assistance. They rated their answers as strongly agree, agree, disagree, or strongly disagree. A 10-point questionnaire on general knowledge on AH was also performed at each pre- and posttest. The results from each year are to be analyzed and compared.

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Results For the 2022 AH simulation, 23 of 34 of possible residents were able to complete the session, with representation from all levels of training. On the knowledge based portion of the test, the majority of participants improved their scores and these results were maintained at the 3-month mark. On the post simulation survey, all the residents agreed or strongly agreed that the simulation exercise increased their knowledge and confidence on performing an AH. Given the success of the simulation on resident knowledge and confidence on this procedure, the same simulation session was repeated in November 2023 to see if results could be replicated and if repetition of the simulation could further increase resident knowledge and confidence. The results for the 2023 simulation are pending and will be determined once all participating residents have completed the follow up posttest at the three month interval. These results will then be compared to our pilot study in 2022.

Conclusions Based on multiple published studies and our own data, there is a clear benefit from skill learning and practice through simulation. Based on the 2022 simulation results, the use of low-cost, low-fidelity models can be used to improve surgeon knowledge and sense of confidence to maximize surgical exposure without need for increase in surgical volume. Additional conclusions, especially regarding the role of simulation repetition, will be determined based on the 2023 simulation data once all participating residents have completed the follow up posttest at end of February.

Anesthesia Administration complicated by Mediastinal Mass

Poster Number: 2
Abstract: 1603
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine; Anesthesia Practice Consultants
Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

The mediastinum is an anatomic location of the thoracic cavity that houses the thymus, heart, major blood vessels and nerves, lymphatic tissue and portions of the esophagus and larynx. As with any part of the body, there is no place that is immune of cancer. Occasionally, malignancies to the mediastinum but have unique manifestations because of the unique pathophysiologic consequences they may cause. As such, this poses additional risk factors to the administration of anesthesia and requires an individualized approach. The mechanical changes that a mass can cause becomes translated to physiologic and pharmacologic changes required by the body.

Patient Description

We present here the case of a 73 year old female with a newly discovered mediastinal mass requiring biopsy; she referred to interventional pulmonology at a tertiary care center, as her current hospital did not feel it safe to do so with their limited resources. Prior to their presentation, the patient states they were in good health and take no regular medications; however, they do not regularly follow with a primary care provider or seek preventative care. The patient initially presented to their local emergency department complaining of difficulty breathing and generalized fatigue. The patient was admitted with an acute COVID-19 infection with acute hypoxic respiratory failure ultimately requiring NIPPV. The patient was transferred. Bronchoscopy with numerous biopsies and placement of a self-expanding metallic tracheobronchial Y stent ensued. Bronchoscopy demonstrated malignant-appearing stenosis; pathology was positive for CD10 positive B-cell lymphoma.

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Intervention	In terms of anesthetic management, the bronchoscopy was performed under general anesthesia. The presence of a mediastinal mass substantially because of its inherent risks, like superior vena cava syndrome, Horner syndrome and cardiorespiratory collapse. Because of its ability to change the hemodynamics of someone's thoracic cavity, the anesthesiologist must tailor their approach to the patient and prepare to work collaboratively. A larger endotracheal tube was selected for the patient; this was requested by the pulmonologist so they would have optimal access and control with a rigid bronchoscope. There are a multitude of other specialized tubes that could be used, like armored endotracheal tubes, long endotracheal tubes or a double lumen endotracheal code. Because of the risk of hemodynamic changes, it was decided inhalation induction with ketamine would be the safest. In the event of total airway collapse, a multidisciplinary back up plan was prepared to engage in an emergent airway surgery or initiate ECMO
Conclusions	As with any airway procedure, preparing for the worst case scenario is critical. Induction of sedation and intubation is a common procedure that is performed commonly around the hospital. The procedure is relatively standardized, but this does not mean that each patient responds the same to it. As seen with this patient, anatomic differences have profound pathophysiologic that required unique, tailored approaches to best safely treat patients.

The BIG 3ab Study: An Assessment of the Brain Injury Guidelines Category 3

Abstract: 1606
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Trauma
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction: The Brain Injury Guidelines (BIG) are a traumatic brain injury (TBI) stratification system that assign risk-associated treatment plans based on clinical and radiographic variables. Studies indicate that the BIG are highly sensitive but not highly specific in accurately capturing patients most likely to experience intracranial hemorrhage (ICH) expansion or require neurosurgical intervention (NSI). Our study intends to identify demographic, clinical, and radiographic risk factors for poor TBI outcomes in patients classified as BIG 3. These findings will assist in identifying essential variables to use as parameters in a machine-learning model. We believe this machine learning model can set the foundation to create more specific and dynamic risk-stratification criteria for BIG 3 categorized TBI patients.

Methods: A retrospective study of 1257 patients presenting to our Level I Trauma Center from June 1, 2020-September 2023 was performed. Patients > 18 years of age and meeting BIG 3 criteria per the original 2014 guidelines were included. All patients meeting BIG 3 criteria were managed in accordance with the original guidelines, including index and repeat head CT (rHCT), and neurosurgery consultation (NSC). Patients meeting BIG 3 criteria were differentiated into BIG 3a (stable rHCT without NSI) and BIG 3b (ICH expansion on rHCT and/or underwent NSI). ICH expansion was defined as increasing to the next size category in the BIG. Once the cohorts were separated into the two groups, rates of type and size of ICH, loss of consciousness (LOC), normal vs abnormal neurologic exam, intoxication on presentation, use of anti-coagulant (AC), anti-platelet (AP), aspirin prior to arrival, and presence/type of skull fracture were assessed between BIG 3a and 3b groups.

(continued)

Results 822 patients (67.5%) met BIG 3a criteria, while 435 (35.5%) met BIG 3b criteria. All cohorts were predominantly white (88.6% 3a; 86.2% 3b) and male (54.0% 3a; 67.3% 3b). BIG 3a patients had lower injury severity scores (ISS) (15 3a; 22 3b) and abbreviated injury scores (AIS) of head/neck (3 3a; 4 3b). For comorbidities, BIG 3a patients had higher rates of beta-blocker use (43.9% 3a; 37.7% 3b), congestive heart failure (19.5% 3a; 17.0% 3b), dementia (20.6% 3a; 14.5% 3b), hypertension (70.0% 3a; 62.9% 3b), and functional dependency (33.6% 3a; 25.5% 3b). Rates of all clinical and radiographic variables pertaining to BIG 3 criteria were analyzed and reported in Table 1. When evaluating use of AC and AP use, BIG 3a patients had greater documented instances of all anticoagulation use (36.1% 3a; 28.3% 3b), antiplatelet use (12.1% 3a; 7.9% 3b), ASA use (50.9% 3a; 46.2% 3b), and factor Xa inhibitor use (17.2% 3a; 13.5% 3b).

Conclusions Our analysis reveals that 67.5% of patients categorized as BIG 3 may be undergoing unnecessary imaging and neurosurgical interventions. These BIG 3a patients had higher rates of medical comorbidities, a lower ISS, less ICH, and a higher incidence of AC and AP use. Given these confounders, a multivariate analysis related to medical comorbidities and ISS is necessary and ongoing. Once completed, this will identify target parameters for our machine learning model to assess risk more accurately and appropriately stratify BIG 3 TBI patients.

Evaluation of prophylactic tranexamic acid (TXA) administration for prevention of post-partum hemorrhage: A retrospective study

Abstract: 1607
Author Names: Joana Barth, MD
Author Institutions: Corewell Health West; Michigan State University
Format: Oral Presentation
Category: OB/GYN
Author Status: Resident Physician
Presentation Type: Case Study

Introduction: Postpartum hemorrhage (PPH) is the leading cause of maternal mortality worldwide. PPH affects 14 million women worldwide per year and results in approximately 70,000 maternal deaths per year. Tranexamic acid (TXA) prevents and reduces bleeding by inhibiting the breakdown of fibrin clots. The WOMAN trial, a multi-center RCT published in 2017, showed that administration of TXA significantly reduced death due to postpartum bleeding. Notably, the effect on death due to bleeding was greatest when tranexamic acid was given within three hours of childbirth. Risk factors such as hx of PPH, bleeding disorder, or anemia, place women at higher risk of postpartum complications due to bleeding. It would be beneficial to determine whether prophylactic administration of TXA reduces risk of postpartum hemorrhage and complications associated with bleeding.

Methods: This is a retrospective study of patients who delivered at Butterworth hospital from 2017 - 2023 who received TXA at time of delivery. Data was collected from retrospective chart review. Patients were subcategorized based on 1) the time of TXA administration in relation to time of delivery, 2) the reason they received prophylactic TXA administration (i.e., whether due to a history of postpartum hemorrhage, a pre-existing bleeding disorder, or severe anemia at time of delivery), and 3) route of delivery (vaginal delivery vs. cesarean section).

Results: This study aims to identify whether there is a decrease in bleeding complications in the postpartum period with prophylactic administration of TXA. Primary outcome of this study would be whether prophylactic TXA reduces incidence of postpartum hemorrhage. Secondary outcomes include need for postpartum blood transfusion, need for IV iron infusion, length of hospital stay, and occurrence of thromboembolic events.

Conclusions: pending; research in progress at the time of abstract submission

Hyperosmolar therapy for Traumatic Brain Injury patients in a pre-hospital setting

Abstract: 1608

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Format: Oral Presentation

Category: Trauma

Author Status: Medical Student

Presentation Type: Clinical Study

Introduction: Trauma brain injury (TBI) continues to be a predominant cause of morbidity and mortality within the United States. Guidelines for managing TBI associated intracranial hypertension focus on non-operative management before escalating care. Non-operative management includes optimizing sedation and analgesia, hyperventilation, and hyperosmolar or hypertonic therapy. Conflicting evidence in the literature regarding hyperosmolar and hypertonic therapy consists of some studies stating there is no conclusive data, while other studies conclude that HTS is superior. We evaluated outcomes of patients with severe TBI who were administered hyperosmolar and hypertonic therapies in a pre-hospital flight medicine setting. We hypothesized that patients who were administered HTS pre-hospital will have decreased hypotension and decreased hospital events relative to patients who received mannitol.

Methods: This is an exploratory retrospective study in which we analyzed 107 patients >= 5 years old who received either mannitol or HTS via air medical transport due to clinical suspicion of increased intracranial pressures with a severe TBI. Data collection utilized the adult and pediatric trauma registry databases, electronic medical records (EMR) and air medical transport EMR dataset.

Results: There were no significant differences regarding demographics: age, sex, race, ethnicity, and mechanisms of injury between patients who were administered mannitol or HTS. When evaluating systolic blood pressure (SBP) and mean arterial pressure (MAP) in transit, and after ED arrival, there was no significant difference in hypotension between the two patient groups. A higher Injury Severity Score was noted for patients who were administered HTS, however it was not statistically significant when compared with patients who were administered mannitol. Patients who received HTS were less likely to have neurosurgical intervention compared to those who received mannitol with 9.09% of patients versus 32.18% of patients respectively (p=0.030). Additionally, there were clinically significant differences between the two groups with the HTS group having decreased in-hospital mortality, and longer hospital and intensive care unit lengths of stay however these were not statistically significant. (Table 1)

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Conclusions Patients who received HTS rather than mannitol in the pre-hospital setting for treatment of TBI associated intracranial hypertension were less likely to require neurosurgical intervention and clinically demonstrated a decrease in mortality. Although the choice was suspected to be secondary to hemodynamic parameters, there was no difference in SBP or MAP. Given the statically significant decrease in neurosurgical intervention and mortality, within the HTS cohort, this data favors HTS for the treatment of TBI associated intracranial hypertension.

Abdominal abscess at site of recent hernia repair caused by Nocardia farcinica leading to possible disseminated infection in elderly patient with past medical history of sarcoidosis

Poster Number: 37
Abstract: 1609
Author Names: Marissa A. Solorzano; Aryana Sharrak, MD; Jason Aubrey, MD; Giuseppe Zambito, MD; Amy Banks-Venegoni, MD
Author Institutions: Michigan State University College of Human Medicine
Format: Poster
Category: General Surgery
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Nocardia is an aerobic gram-positive bacterium, commonly considered an opportunistic pathogen. Nocardia farcinica is a rare Nocardia species causing localized and disseminated infections, when disseminated it carries a high mortality rate. Immunocompromised patients are more affected by pulmonary and disseminated nocardiosis, whereas immunocompetent patients are primarily affected by primary cutaneous nocardiosis.

Patient Description: We describe a rare case of a disseminated Nocardia farcinica infection secondary to an abdominal abscess at a recent hernia repair site in an elderly patient. This patient's past medical history includes stable sarcoidosis, not requiring immunocompromising therapy. This patient underwent a robotic and open incisional flank hernia repair. Two months after this hernia repair, the patient was readmitted for malaise and fevers, and she was found to have an abscess at her mesh site. Interventional radiology placed a drain which returned with Nocardia farcinica. In addition, new pulmonary infiltrates were revealed on CT suspicious for disseminated nocardiosis.

Intervention: The patient's abscess was successfully treated with completion of a 6 month course of antibiotics (TMP/SMX DS q8h, linezolid 600 mg BID, ciprofloxacin 750 mg BID. The patient developed mucositis secondary to TMP/SMX; this was changed to moxifloxacin after susceptibilities returned). A CT thorax-abdomen-pelvis revealed resolution of the abscess two months into therapy (2 months from diagnostic imaging date).

Conclusions: This case report adds to the literature as it describes a patient that was successfully treated of a possible disseminated Nocardia farcinica infection, which is a rare disease with a high mortality rate.

Clinical Characteristics and Outcomes of Patients with Heart Failure and Reduced Ejection Fraction who underwent Chronic Total Occlusion Percutaneous Coronary Revascularization

Abstract: 1610

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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine

Format: Oral Presentation

Category: Heart and Vascular

Author Status: Resident Physician

Presentation Type: Clinical Study

Introduction Patients with ischemic cardiomyopathy and obstructive coronary artery disease associated with chronic total occlusion (CTO) of one of the coronary arteries have limited revascularization options. Often coronary artery bypass grafting, an open-heart surgical procedure, is considered high risk given the concomitant presence of depressed myocardial function. With current technology, revascularization via percutaneous coronary intervention (PCI) of the CTO is possible but considered high risk. Most of the reports of these procedures have focused on the immediate success or complications or the short-term outcomes and often report the outcomes on patients with normal left ventricular ejection fraction (LVEF). Limited information is available about the long-term follow-up and outcomes of patients with decreased LVEF following percutaneous coronary revascularization.

Methods This retrospective single center study reviewed all patients with heart failure with reduced ejection fraction (<=40%)(HFrEF) who underwent CTO PCI from January 2015 to September 2023. Epidemiologic, clinical, echocardiographic, hemodynamic, and procedural characteristics were obtained. Survival analysis was performed using Kaplan-Meier methodology. Patients were classified in survivors and non-survivors. Comparisons between survivors and non-survivor were performed using standard statistical techniques. Statistical significance was considered if p <0.05.

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Results A total of 65 patients were included in the study. The median(Q1-Q3) age was 64(59-68), 80% were males, with a mean LVEF of 31% ± 8 and a LVDD of 5.7 ± 0.7cm, prior to CTO procedure. A total of 42% had ICD or CRT devices. Comorbidities included: Diabetes mellitus in 63%, atrial fibrillation in 25%, history of cerebrovascular accident in 12%, history of heart valve repair or replacement in 6%, history of cancer other than skin cancer in 29%, chronic obstructive pulmonary disease in 29%, and 3% on home oxygen. A total of 11 patients died during the follow-up period. There were no significant differences between survivors and non-survivors, except for more subjects in the mortality group were on home oxygen at baseline and LVEF increased by 6.9±12.8 in the survivor group. The survival at 5 years post PCI procedure in this cohort was 58%. Only one patient of the overall cohort received a cardiomems device for monitoring of pulmonary artery pressures.

Conclusions Patients with HFrEF and obstructive coronary artery disease with CTO of a coronary artery, represent a high risk population with a high mortality in the long term follow-up. Lack of improvement in LVEF post procedure was more frequently observed in non-survivors. Close collaboration between Advanced heart Failure and Interventional Cardiology is necessary to identify patients at risk of poor outcome and the possibility to offer advanced heart failure therapies.

Functional Outcomes & Complications of Hepatic Artery Infusion Pumps by Device Manufacturer; A Single Center Retrospective Review

Abstract: 1611
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction: Colorectal liver metastasis (CRLM), hepatocellular carcinoma (HCC), and intrahepatic cholangiocarcinoma (ICC) are fatal liver cancers. CRC is a top global cancer with CRLM in 40-50% of cases; CRCLM 5-year survival is <5%. HCC is 90% of primary liver cancers with 10% 5-year survival; ICC is second most common with <10% 5-year survival. Surgical resection is preferred for these patients, but hepatic artery infusion (HAI) chemotherapy is used for inoperable tumors. In the US, the Codman 3000 pump (Johnson & Johnson) was discontinued in 2018 with no FDA-approved alternatives. Programs used the Synchromed II Pump (Medtronic) as an alternative. The Codman 3000 pump returned in 2021 as the Intera 3000 by Intera Oncology. Supply shortages affect HAI pump availability. This study compares the Intera and Medtronic pumps for functional outcomes and complications.

Methods: A retrospective analysis from 2017-2023 was conducted to assess the outcomes of all patients who underwent HAI chemotherapy. Patients were grouped by pump manufacturer, and clinical outcomes including pump pocket, catheter, vascular, and hepatobiliary complications were compared. Additional variables including age, BMI, and Charlson Comorbidity scale were also compared to determine the effects of extraneous variables on patient outcome. Analysis of data was performed using Student's t-testing with a significance level of 0.05.

Results: A total of 94 patients underwent hepatic artery infusion pump placement with 30 (32%) using Intera (Codman) 3000 pump devices and 64 (68%) using the Medtronic SynchroMed II device. The two groups were similar in age (59.1 vs 57.8, p = 0.547), BMI (27.6 vs 27.4, p = 0.607), and Charlson Comorbidity Index (8.0 vs 8.0, p = 0.950). There were no statistically significant differences in pump pocket (21.9% vs 18.5%, p = 0.690), catheter (3.1% vs 4.6%, p = 1.000), vascular (3.1% vs 6.2%, p = 1.000), or hepatobiliary (34.4% vs 32.3%, p = 0.839) complications in the postoperative and treatment periods. There were no HAI pump-related mortalities.

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Conclusions No statistically significant differences were found between the two pump types in terms of postoperative pump pocket, catheter, vascular, or hepatobiliary complications. This study suggests that the Interna (Codman) and Medtronic pumps have comparable safety and functionality profiles. These results provide reassurance to physicians that both pump models can be utilized for HAI chemotherapy without a significant difference in device-related complications and outcomes.

Diagnostic Imaging Utilization in the Emergency Department: Recent Trends in Volume and Radiology Work Relative Value Units

Abstract: 1612
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Author Institutions: Corewell Health West; Michigan State University
Format: Oral Presentation
Category: Other
Author Status: Resident Physician
Presentation Type: Clinical Study

Introduction: The aim of this study was to quantify and characterize the recent trend in emergency department (ED) imaging volumes and radiology work relative value units (wRVUs) at level I and level III trauma centers.

Methods: Total annual diagnostic radiology imaging volumes and wRVUs were obtained from level I and level III trauma centers from January 2014 to December 2021. Imaging volumes were analyzed by modality type, examination code, and location. Total annual patient ED encounters (EDEs), annual weighted Emergency Severity Index, and patient admissions from the ED were obtained. Data were analyzed using annual imaging volume or wRVUs per EDE, and percentage change was calculated.

Results: At the level I trauma center, imaging volumes per EDE increased for chest radiography (5.5%), CT (35.5%), and MRI (56.3%) and decreased for ultrasound (-5.9%) from 2014 to 2021. Imaging volumes per EDE increased for ultrasound (10.4%), CT (74.6%), and MRI (2.0%) and decreased for chest radiography (-4.4%) at the level III trauma center over the same 8-year period. Total wRVUs per EDE increased at both the level I (34.9%) and level III (76.6%) trauma centers over the study period.

Conclusions: ED imaging utilization increased over the 8-year study period at both level I and level III trauma centers, with an increase in total wRVUs per EDE. There was a disproportionate increased utilization of advanced imaging, such as CT, over time. ED utilization trends suggest that there will be a continued increase in demand for advanced imaging interpretation, including at lower acuity hospitals, so radiology departments should prepare for this increased work demand.

Prevention and Management of a Retained Lumbar Catheter

Abstract: 1613
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Author Institutions: Michigan State University College of Human Medicine; Anesthesia Practice Consultants
Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Anesthesiologists routinely place lumbar drains for surgeries in order to allow adequate perfusion to the spinal cord by decreasing CSF pressure. Breaks can occur during catheter removal, and this case report aims to highlight preventative measures as well as the management options for a retained lumbar catheter. The gaps in knowledge are 1.) lack of a 'gold standard' for retained lumbar catheter, 2.) evidence for complications of a retained lumbar catheter, 3.) psychological effects and sequelae on the patient with a retained lumbar catheter.

Patient Description: Patient is a 72 year old male with a PMH of inclusion body myositis, CAD, DM Type 2, CHF, and complicated UTI's who underwent surgery for repair of abdominal aortic aneurysm. Patient had a lumbar drain placed for the procedure, but after the surgery, tension was noted during removal attempt, and the catheter snapped, leaving 7.5 cm inside the patient. Non-contrast CT showed the tip of the catheter to be at T11-T12 in the intrathecal space. Neurosurgery did not recommend surgical removal of the piece due to risk of CSF leak. Patient had no neurologic deficits or infection and was discharged. 13 days post-op, the patient was readmitted for altered mental status and sepsis. CT abd/pelvic, CXR, and UA were all negative for signs of infection. LP showed pleocytosis. Neurosurgery still did not recommend surgical removal. ID recommended empiric antibiotics for 2 weeks and repeat LP in 4 weeks. Patient improved after 2 weeks of antibiotics and repeat LP was negative for signs of infection.

Intervention: The first intervention was to leave the retained piece in the patient, as lumbar drain placement is a sterile procedure and there is very little evidence in the literature to remove a retained catheter in an asymptomatic patient. Patient was stable for 13 days following this intervention. The second intervention performed was empiric antibiotics with two lumbar punctures in order to monitor infection. Patient improved from this intervention and was thus able to avoid surgery.

Conclusions: 1. Preventative measures, such as spine flexion in lateral decubitus position, should be considered in cases when catheters feel tense upon removal attempts. 2. Because there is no gold standard for managing a retained catheter, treatment should be considered based on the patient factors such as age, medical history, and whether they are immunocompromised. 3. Psychological effects of the retained catheter on the patient, as well as patient education should be considered as dissatisfaction of care and motive for litigation may arise.

A Case Series on the Surgical Management of Esophageal Atresia/Tracheoesophageal Fistula

Abstract: 1614
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: General Surgery
Author Status: Medical Student
Presentation Type: Case Study

Introduction: Tracheoesophageal Fistula Malformations (TEF) are caused by a defect in the lateral septation of the foregut into the esophagus and trachea. They most often require immediate intervention and can lead to aspiration. Additionally, they are associated with vertebral anomalies, anal atresia, cardiac defects, renal anomalies and, limb defects in a mnemonicized association known as VACTERL. Typical presenting symptoms include choking, respiratory distress, and inability to feed.

Methods: Three newborn cases with respiratory difficulties and EA/TEF were reviewed. Data were collected on preoperative and postoperative conditions, surgical interventions, and complications. Transient tachypnea of the newborn, persistent pulmonary hypertension of the newborn and atrial septal defects were some of the difficulties each case had. These issues were addressed with treatment plans such as CPAP, a strategy for hypothermia, and antibacterial medication.

Results: We present three cases of TEF. Case 1 highlights a newborn with Esophageal Atresia (EA)/TEF, pulmonary hypertension requiring therapeutic hypothermia for low APGAR scores, low cord pH and respiratory failure. Case 2 described a term infant with EA/TEF and significant respiratory distress managed with CPAP and subsequent surgical repair. Case 3 involved a neonate with transient tachypnea and EA/TEF and EA/TEF, requiring respiratory support and careful monitoring for sepsis. All cases underwent successful surgical repair for EA/TEF. Nutritional care following surgery involved a gradual switch to oral feedings and constant observation for anastomotic leakage. Results were positive; all babies were released with arrangements for follow-up care outside of the hospital.

Conclusions: These cases underscore the complexity of EA/TEF management, particularly when complicated by additional respiratory conditions. The management of neonates with EA/TEF and respiratory complications is complex but can result in positive outcomes with comprehensive and individualized care strategies. These cases contribute to the growing body of evidence supporting a multidisciplinary approach and underscore the import of protocolization for such high-risk neonatal patients.

AAA Rupture Sans Anesthesia: Art and Adaptability to Optimize Patient Survivability

Abstract: 1615
Author Names: Brandon Keys, MD; Andrew Kimball, MD
Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Heart and Vascular
Author Status: Other
Presentation Type: Case Study

Introduction: Abdominal Aortic Aneurysms are amongst the most dangerous of pathologies, with a natural history towards expansion and subsequent rupture if untreated, a complication that carries a tremendously high mortality rate. The advent of endovascular surgery in the 1990s rendered a new technique for the management of AAA. Endovascular surgery's arrival is rivaled by its rapid progression that extended the repair of AAA to elective cases once excluded by anatomical criteria and ruptures. In this case report, a rapidly decompensating patient had an EVAR without a general anesthetic in order to safely exclude their rupture.

Methods: 75M presents with 48 hours of worsening hip, abdominal, and back pain. Imaging was obtained which demonstrated a ruptured 10 cm infrarenal AAA. The aneurysm was amenable to treatment with an endovascular aortic device namely a Gore conformable device. Careful communication and management of his cardiopulmonary comorbidities allowed for a successful repair without a general anesthetic yet maintaining control of his blood pressure to an acceptable level to allow for treatment. He was ultimately discharged on post operative day 7.

Results: The crux of the case and this patient's care relied upon precise control of blood pressure especially intraoperatively as well as coordination with anesthesia to manage pain and comfortability while the case proceeded without general anesthesia

Conclusions: Endovascular aneurysm repair is a viable option even in the patients that were once considered unsuitable for surgery. This paper highlights the benefits of EVAR as well as the success that can be achieved with collaboration from other specialties

BIG 3 on Thinners: Risk of Anti-Coagulation and Anti-Platelet Therapy in Severe Intracranial Hemorrhage

Poster Number: 79
Abstract: 1616
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Author Institutions: Corewell Health West
Format: Poster
Category: Trauma
Author Status: Clinical/Research Fellow
Presentation Type: Clinical Study

Introduction

Past evidence outlining the risks of chronic anticoagulant (AC) and antiplatelet (AP) use in traumatic brain injury (TBI) suggested AC and AP use were independent risk factors for intracranial hemorrhage (ICH) expansion, neurosurgical intervention (NSI), and mortality in TBI patients. This led to the Brain Injury Guidelines (BIG) incorporating all patients on AC and AP agents as the most severe category of TBI (BIG 3), regardless of clinical or radiographic findings on presentation. Recent studies however suggest the association between AC and AP use and poor outcomes varies greatly between different agents. Despite this, there remains a knowledge deficit characterizing the risk of adverse outcomes in BIG 3 TBI patients utilizing various AC and AP agents.

Methods

A retrospective study of patients admitted to a single Level I Trauma Center was performed from June 1, 2020-September 30, 2023. Patients meeting BIG 3 criteria were included. Patients without ICH expansion on repeat head CT (rHCT) and no NSI were classified as low-risk. Patients with ICH expansion on rHCT and/or underwent NSI intervention were classified as high-risk. ICH expansion was defined as any bleed progressing to the next size range in millimeters as outlined in the BIG classification. NSI was defined as insertion of an intracranial pressure monitor, ventriculostomy catheter, or operative intervention. Study variables were AC, AP, or aspirin use, type of AC/AP agent used, and dose of aspirin. Aspirin use was evaluated separately from other APs. The primary outcome was whether the patient met criteria for low or high-risk TBI. Secondary outcomes were number and type of blood products transfused for severe hemorrhage, use of reversal agents, and type of reversal agent given.

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Results 1257 patients were included. 822 and 435 were classified as low and high-risk respectively. Both groups were predominantly white (88.6% low-risk vs 86.2% high-risk) and male (54.0% low-risk vs 67.3% high-risk). Median injury severity score (ISS) was 14 and 22 in the low and high-risk groups. Median abbreviated injury score (AIS) was 3 and 4 between the low and high-risk groups. High-risk patients were less likely to have taken any AP agent (7.9% vs 12.1%) or AC agent (28.3% vs 36.1%), aspirin (46.2% vs 50.9%) and Factor Xa inhibitors (13.5% vs 17%). More specifically, high-risk patients had slightly higher rates of 325 mg aspirin use (8.1% vs 6.8%) and warfarin use (7.2% vs 6.6%). High-risk patients more often received blood products (19.8% vs 4.4%). Rates of reversal agents used were 23.9% in the high-risk group compared to 21.4% in low-risk group. The most common agents given in the low-risk and high-risk groups respectively were desmopressin (68.2% vs 66.3%) and 4 Factor PCC (27.8% vs 29.8%).

Conclusions The current study identifies 325 mg aspirin, and warfarin as potential risk factors for poor outcomes in BIG 3 patients. Our findings of generally higher rates of AC, AP and aspirin use seen in the low-risk patients is likely limited by the inability to control for injury severity and medical comorbidities as confounders. The next phase of this study will evaluate AP/AC/aspirin use as independent predictors for poor outcomes. This analysis is critical in more accurately risk-stratifying severe TBI patients.

Lymphadenopathy's Likely Culprit: A Diagnostic Dilemma

Poster Number: 45
Abstract: 1617
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Author Institutions: Corewell Health West
Format: Poster
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Imaging revealing lymphadenopathy inspires a differential diagnosis including sarcoidosis, occupational lung disease, tuberculosis, fungal infection, and malignancy. On two relative ends of the diagnostic spectrum, we have histoplasmosis and sarcoidosis - the former, the most common fungal infection endemic to North America and the latter, an inflammatory condition with an estimated lifetime risk of 2.4 percent in the United States1,2,3. Between these two conditions there exists significant symptomatic and imaging overlap resulting in diagnostic dilemmas.

Patient Description: Patient is a 30-year-old male with pertinent past medical history of tobacco use, military occupation with 3 deployments to the Middle East, and no personal or family history of cancers or autoimmune diseases. He presented with one week of fever, dyspnea, diaphoresis, and rigors. Labs revealed mild neutrophilic leukocytosis with elevated CRP, lactate dehydrogenase, and ferritin. CT (Computed Tomography) angiography showed diffuse ground-glass opacities and non-calcified mediastinal hilar lymphadenopathy. These imaging results in the context of persistent symptoms and absence of viral/bacterial causes raised suspicion for acute histoplasmosis.

Intervention: Although Histoplasma serum antibody and serum/urine antigens were all negative, isavuconazonium was initiated, and patient was discharged with Infectious Disease (ID) follow-up. Patient's repeat Histoplasma serology remained negative. Repeat CT chest approximately 3 months later showed unchanged bulky lymphadenopathy and stable nodularity. An endobronchial ultrasound (EBUS) with bronchoalveolar lavage and lymph node biopsy showed non-necrotizing granulomatous inflammation from multiple lymph nodes with no evidence of malignancy or infection. With the above findings, the diagnosis of Sarcoidosis was confirmed. No treatment was started then, and the patient was lost to follow up. Imaging 1 year later re-demonstrated lymphadenopathy and nodular scarring.

Conclusions: In the absence of a proven diagnosis, this patient was treated for probable histoplasmosis appropriately. His follow-up imaging without characteristic pulmonic calcification and repeatedly negative Histoplasma testing shifted the leading diagnosis to sarcoid. Given most sarcoid patients are asymptomatic and spontaneously remiss, an improvement in his condition was expected regardless. Lymphadenopathy carries a broad differential. In the absence of confirmatory results, patients should be treated for probable diagnoses with follow up and repeat testing as indicated.

Routine Chest Radiography in the Follow Up of Traumatic Rib Fractures: is it Necessary?

Abstract: 1618
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Author Institutions: Corewell Health West; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Trauma
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction: Institutional guidelines at our Level I Trauma Center recommend patients hospitalized with severe rib fractures undergo routine outpatient chest radiography (oCXR) in our multi-disciplinary trauma clinic upon discharge. The utility of routine oCXR is not well defined in the current literature. To address this deficit, we intend to explore whether oCXR findings are beneficial in detecting patients previously hospitalized for severe rib fractures who are at high risk for complications following discharge.

Methods: A retrospective review of 50 adults admitted to our Level I Trauma Center was performed. The study period was September 30, 2021-December 31, 2023. All patients with severe rib fractures (>=3 rib fractures, or any number of fractures with pneumothorax [PTX], hemothorax [HTX], or tube thoracostomy placement) and oCXR in our trauma clinic within 30 days of discharge were included. Those with significant polytrauma (abbreviated injury score [AIS] > 1 in all categories other than chest), penetrating trauma, and history of rib fixation were excluded. Primary outcomes were rates of repeat medical evaluation (repeat clinic visit, 30-day ED presentation, or hospitalization), follow up imaging (radiography or CT), procedures (operation, or interventional radiology referral) and one-year mortality. Secondary outcomes were abnormal lung findings (PTX, HTX, lobar consolidations or pleural effusion) on oCXR. Mortality data was obtained utilizing the Michigan State Death Registry.

Results: Median age was 71 years. 66% of all patients were female and 96% were white. 33 patients (69%) suffered multiple fractures, 15 (31.3%) had at least one displaced fracture and 6 (12.2%) had flail segments. 3 (6%) had bilateral rib fractures. 32 patients (64%) had evidence of at least one pulmonary finding on admission (HTX, PTX or pleural effusion). The incidence of PTX and HTX was 40% (20 patients) and 32% (16 patients) respectively. An additional 8 (16%) had evidence of unspecified pleural effusion on admission CT. 10 (20%) had evidence of multiple pathologies, all of which were HTX. 17 patients (35%) required tube thoracostomy. Primary and secondary outcomes are reported in Table 1. Cohorts were separated based on presence or absence of pulmonary findings on initial hospitalization imaging. Review of the Michigan State Death Registry showed 1 death within one-year post discharge among our patient cohort.

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Conclusions The current study shows patients without lung pathology on admission experienced lower percentages of medical re-evaluations, imaging, and procedures after discharged compared to those without lung pathology. We will further evaluate the primary and secondary outcomes using a larger cohort to ensure adequate statistical power in the next step of this study. This analysis is crucial in identifying high-risk patients that will benefit most from oCXR after discharge, and potentially reduce the burden of unnecessary imaging performed in low-risk patients.

Beneath the Surface: A Case of Bactrim-Triggered Erythrodermic Psoriasis

Abstract: 1619
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Psoriasis is an inflammatory skin condition characterized by erythematous plaques often over extensor surfaces. There are multiple subtypes including the most severe form, erythrodermic psoriasis (EP), which usually presents with systemic pruritis, and pain accompanied by reddened exfoliation of the skin covering 90% or more of the body's total surface area1. Complications can be life-threatening including disruption of thermoregulation and metabolic dysfunction1,2. There are numerous documented triggers including abrupt changes to steroid regimen or overuse of topical steroids, recent stressors or illnesses, and certain medications3. Here we present a case of suspected Bactrim-triggered EP.

Patient Description: Patient is a 35-year-old male with pertinent past medical history of juvenile rheumatoid arthritis with contractures and psoriasis on oral prednisone. He was diagnosed with MRSA/MSSA bacteremia and was treated with Bactrim. A couple of days later, he presented with neck and axillary pain associated with globally erythematous skin with a positive Nikolsky sign. Infectious Disease (ID) was consulted for concern of staphylococcal scalded skin syndrome. The differential included possible staphylococcal infection with drainage vs recent use of Bactrim which triggered a severe episode of EP.

Intervention: Bactrim was promptly discontinued. The patient was started on intravenous antibiotics and IV steroids with marked improvement of his erythema and pain. A diagnosis of EP was confirmed by Dermatology and treatment with methotrexate and folate was initiated. The patient was transitioned to a slow taper of oral steroids with outpatient Dermatology follow up. It was important to note in this case that EP is among the rarest subtypes of psoriasis, accounting for less than 3% of cases. And that there is at least one other documented case of Bactrim-induced EP. This patient was high-risk with known rheumatologic and dermatologic history and was started on first-line methotrexate with transition to biologics which is in line with national guidelines. Systemic steroids as treatment are generally not recommended and use in flares remains controversial - we see this reflected accordingly in this patient's taper although there was discussion amongst dermatology and rheumatology prior to taper initiation.

Conclusions: EP is a rare dermatologic emergency and medication regimens should be scrutinized for possible inciting agents, including Bactrim, in tandem with initiation of treatment.

Balancing Autonomy and Medical Intervention: Advance Directives and Do Not Resuscitate Orders

Abstract: 1620
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Format: Oral Presentation
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

This report will center on Advance Directives (AD) and Do Not Resuscitate (DNR) orders, which jointly facilitate proactive patient decision-making to safeguard their autonomy within medical contexts. AD is a legal document that states patient medical preferences when they can no longer communicate their wishes which includes treatments, end-of-life care, and specific instructions such as DNR. DNR often is included in AD, indicating the patient's choice to not receive cardiopulmonary resuscitation (CPR) in the event of a patient becoming pulseless. Prior research has shown there may be misinterpretation of DNR orders and what treatment can be taken if a patient refuses resuscitation. These challenges emphasize the importance of educating staff and families about navigating code status (DNR/I, DNR intubation okay, full code) and discussing aggressive treatment options.

Patient Description

The patient is a 65 year old male admitted to the cardiothoracic intensive care unit (CTICU) following mitral valve and aortic valve replacements and coronary artery bypass graft (CABG). While recovering in the CTICU on post-op day 2, he suffered an intractable ventricular tachycardia arrest. Despite CPR and defibrillation attempts, he remained in torsades and was cannulated for veno-arterial extracorporeal membrane oxygenation (ECMO). During CPR he suffered a right ventricular laceration which was repaired surgically. He returned to the intensive care unit (ICU) on veno-arterial ECMO with a left pulmonary artery vent and an intra-aortic balloon pump (IABP). On day 7 of ECMO, a family meeting was held to discuss the slim likelihood of cardiac recovery beyond the first week of ECMO.

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Intervention

With this knowledge and the guidance of the medical team the family elected to wait another week (if possible) for myocardial recovery. Discussed were the differences between Code Status (what to do when CPR would be required) and Advanced Directives (how aggressive to be for how long, and what limitations in care the patient would place on medical interventions). The family elected to make the patient DNR, indicating that CPR should not be performed if his heart were to fibrillate again. However, they elected to continue aggressive measures (ECMO, IMV, and antimicrobial therapy). Ultimately, the patient arrested again and his code status was honored by not conducting CPR. Afterward, the family modified the AD to no longer focus on myocardial recovery but on measures intended to maximize his comfort with the use of narcotics and benzodiazepine Shortly after the withdrawal of aggressive but non-beneficial medical interventions, the patient died of his underlying cardiac dysrhythmia while surrounded by family.

Conclusions

It is crucial to highlight patient-centric decision-making, aiming to discern the ultimate objective of the patient, whether it involves comfort care or recovery. Once AD and DNR decisions have been established, various types of quality care and treatment options can be explored and discussed. This includes deliberating on the extent of aggressive treatment that may be pursued if chosen. While discussions may be uncomfortable, protecting patient autonomy through advance care directives is essential for transparent, patient-centered healthcare.

The Use of SternaLock 360 Plate for Unstable Traumatic Sternal Fractures

Abstract: 1621
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Format: Oral Presentation
Category: Trauma
Author Status: Resident Physician
Presentation Type: Case Study

Introduction

Sternal fractures account for more than 5% of admissions for thoracic trauma. Though most are amenable to treatment with conservative management, fractures that are displaced, freely mobile, and causing persistent pain with daily activity are more appropriately treated with definitive fixation via metal locking plates. The SternaLock TM 360 plate is available as a comprehensive ready-to-use kit originally developed and described for use in patients requiring surgical closure of the sternum. This system includes a tensioning device allowing for reproducible closure and stability. The use of this device and its banding system for unstable sternal fractures in trauma patients has yet to be evaluated. Here we will describe its use in this context including preoperative and post-operative imaging as well as a visual representation of the device.

Methods

This patient is a 60 y/o relatively healthy male with history of non-ischemic cardiomyopathy (EF 35% with global hypokinesis) s/p ICD placement who presented as a trauma activation following a MVC at 40 MPH in which he notably hit his chest on the steering column. At the time of presentation he was hemodynamically stable on room air and endorsed pain in his mid-sternum and right arm. Workup was significant for CT of the chest demonstrating an oblique, displaced (approximately 5 mm) sternal fracture and small anterior mediastinal hematoma. Remainder of imaging and lab workup was unremarkable. He was admitted to a general medical floor for monitoring and pain control. He began to have significant pain near his sternal fracture site while working with therapy on HD 1, endorsing that he could feel bony movement with mobilization and simple movements (lifting a cup to drink, coughing). After discussion with the patient, he was taken to the operating room for sternal plating.

Results

The sternal fracture was accessed via a 6 cm incision under intraoperative ultrasound guidance. A retrosternal plane was established through which the SternaLock TM band was passed. The band was then fed through the tensioner device allowing for the fracture to be reduced and subsequently affixed via an 8-hole butterfly SternaLock TM 360 plate. The procedure was without intraoperative or immediate postoperative complications. On POD 1 the patient reported a marked improvement in his symptoms and mobility had significantly less pain control needs compared to pre-procedure. He was able to be safely discharged less than 24 hours following his operation. 2 weeks after discharge he was seen and evaluated in our clinic and was healing well at that time, using motrin PRN for pain control.

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Conclusions Sternal plating is known to be an effective and important strategy for management of some symptomatic displaced sternal fractures. The use of the SternaLock TM 360 plate along with its tension banding system has not been described for repair of traumatic unstable sternal fractures. Here we present a case of a patient with a traumatic sternal fracture who was successfully stabilized and recovered quickly following fixation with SternaLock TM 360.

Transfusion Rates Following Proximal Femur Fractures: Cephalomedullary Nailing versus Hemiarthroplasty

Abstract: 1622
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Format: Oral Presentation
Category: Orthopedics
Author Status: Medical Student
Presentation Type: Clinical Study

Introduction: Proximal femur fractures are common orthopedic injuries in elderly patients and the annual incidence of these fractures is expected to rise substantially. Blood transfusions are common peri- and post-operatively and carry risks such as transfusion reactions, infections, and TRALI (transfusion-related acute lung injury). Existing research has compared transfusion rates between long and short cephalomedullary nails (CMNs), however there is a paucity of literature comparing CMNs to hemiarthroplasties (HAs). CMN fixation is indicated for extracapsular pertrochanteric femur fractures, while HAs are indicated for intracapsular femur fractures that disrupt the blood supply to the femoral head. A myriad of factors such as fracture morphology, bone quality, and surgeon preference guide the decision between short and long CMN fixation. This study's primary objective is to compare transfusion rate

Methods: A retrospective review of patients >= 65 years old presenting to our Level 1 trauma center from November 2017 through April 2023 with isolated proximal femur fractures and operative management with CMN or HA was performed. Data collected included patient demographics, operative details (such as CMN size and whether HA was cemented or press-fit), transfusion rates, and hospital events. Descriptive statistics were performed; further data collection and statistical analyses with propensity score matching and multivariable regression are pending.

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Results 1728 patient records met the inclusion criteria. We performed a preliminary analysis on 708 records that were completed. 70.6% were female and the median age was 83.5 (SD: 8.2). Proximal femur fractures in this population were managed more frequently with CMN fixation (59.0%) than HA (41.0%). The transfusion rate for CMN was 33.7% (N=141), and for HA was 5.5% (N=16). Of the CMN group receiving blood transfusion, 56.7% had a long CMN, and 43.3% had short CMN. Transfusion rates in HAs were similar between cemented and press-fit cohorts. Thirty-six patients experienced in-hospital complications, with more observed in the CMN cohort (4.2%) compared to HA (0.9%). Overall, there were 48 total complications as some patients experienced multiple. For patients in the CMN cohort, unplanned ICU admission was the most common complication, followed by delirium and pulmonary embolism. For the HA cohort, unplanned ICU admission and delirium were the most frequent events.

Conclusions Preliminary findings indicate that CMNs lead to higher post-operative blood transfusion rates compared to HAs. Furthermore, there was a higher percentage of unplanned ICU admissions and delirium in the CMN cohort. This may have been attributed to higher rates of post-operative anemia in this group, which may be related to achieving hemostasis intra-operatively during these percutaneous procedures. The standard hemoglobin threshold for blood transfusion is < 7 g/dL and existing literature suggests an up to 20% complication rate associated with blood transfusions. With

In situ screw fixation for stable slipped capital femoral epiphysis is safely treated in both inpatient and outpatient settings.

Abstract: 1623
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital
Format: Oral Presentation
Category: Orthopedics
Author Status: Resident Physician
Presentation Type: Clinical Study

Introduction: Patients diagnosed with slipped capital femoral epiphysis (SCFE) are usually admitted and treated with screw stabilization as quickly as possible to prevent development of an unstable or worsened slip. In the modern quality and value health care environment, prevention of unnecessary inpatient hospital admissions is ideal. This study compares the safety of SCFE stabilization in an inpatient (admitted and pinned same hospital stay) versus outpatient (pinned and discharged on same but separate day from diagnosis) setting.

Methods: A retrospective review of all stable SCFEs treated at 2 level 1 pediatric trauma centers from 2010 to 2018 with a minimum follow-up of 12 months was performed. Comparisons were made between patients stabilized as an inpatient or an outpatient. General demographics were collected along with slip severity as determined by Southwick angle on anteroposterior (AP) and lateral hip radiographs at 5 separate time points. Outcomes assessed included post-operative complications (e.g., infection, avascular necrosis, chondrolysis), slip angle progression, need for revision screw fixation (due to slip progression, growth off screw, symptomatic hardware), and symptomatic femoroacetabular impingement (FAI) requiring further, or planned for, surgical intervention. Independent t-test was used to evaluate quantitative variables, chi-squared test for qualitative variables, and logistic regression for differences between severity groups. P-values <0.05 were considered significant.

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Results 171 SCFEs in 140 patients (92 inpatient, 52 outpatient) were reviewed. 108 were stabilized as an inpatient and 63 as an outpatient. Table 1 reports the patient demographics between the groups including slip severity, need for revision surgery, other complications, and residual symptomatic FAI. Outside of age at time of stabilization, there were no significant differences between the groups including overall complications (p=0.17) or need for revision surgery (p=0.17). There was a significant difference for initial Southwick AP and lateral angles at time of diagnosis between inpatient and outpatient groups (p=0.04 and 0.03 respectively). Despite this, AP angles did not significantly change over time between groups (p=0.35). Lateral angles did progress 2.4 degrees from time of diagnosis to final follow-up in all SCFEs (p=0.0028) but were not significantly different between inpatient or outpatient groups (p=0.09). If a complication occurred (including screw revision), there was a 4.7 times higher likelihood for..

Conclusions Screw stabilization for stable SCFEs can be safely performed in both inpatient and outpatient settings, limiting the need for unnecessary inpatient admissions and ultimately, decreasing overall hospital care costs. This is predicated on a system that can ensure expedient SCFE stabilization within a reasonable time period and close patient follow-up between diagnosis and screw fixation.

Cryptococcal meningoencephalitis with a protracted course in an immunocompetent patient with history of intravenous drug use

Abstract: 1625
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Author Institutions: Corewell Health West
Format: Oral Presentation
Category: Internal Medicine
Author Status: Clinical/Research Fellow
Presentation Type: Case Report (< 3 patients)

Introduction: Cryptococcus neoformans is an environmental fungus and a known cause of opportunistic infections in immunocompromised patients with a predilection to cause pulmonary disease and Cryptococcal meningoencephalitis (CME). Cryptococcal disease is rare in immunocompetent hosts. CME presents as an atypical and indolent disease in immunocompetent patients, carrying a high mortality rate. Recognition of the clinical manifestations and appropriate evaluation for CME is imperative to early diagnosis and effective treatment. We present a CME case in a patient with history of intravenous drug use.

Patient Description: A 29-year-old man with a history of intravenous drug use presented to the hospital with 3 weeks of headache followed by 4 days of diplopia, dysphagia, and bilateral lower extremity weakness. Brain MRI demonstrated small acute infarcts in the left basal ganglia. CT scan of the thorax showed bilateral ground glass opacities and scattered lower lobe nodules. Blood culture grew Bacillus sp., raising concern for infective endocarditis with septic embolic phenomenon. Since his neurological symptoms were not well explained by the location of acute intracranial infarcts, lumbar puncture (LP) was performed and demonstrated elevated opening pressure of 40 cm H2O. Cerebrospinal fluid (CSF) analysis showed pleocytosis and elevated protein. CSF meningoencephalitis PCR panel was positive for C. neoformans. Cryptococcal antigen test in CSF was positive with the titer 1:160. CSF culture ultimately grew C. neoformans, confirming the diagnosis of CME.

Intervention: The patient was started on liposomal amphotericin B and 5-flucytosine and underwent repeated LP for management of persistently elevated intracranial pressure (ICP). His neurological symptoms gradually improved but his headache was persistent. After 15 days of persistently elevated ICP despite negative CSF cultures and decreasing cryptococcal antigen titer, prednisone was started for suspected post-infectious inflammatory response syndrome, with improvement in his ICP and resolution of headache. Testing for underlying immunological deficit was unremarkable. The patient proceeded to leave against medical advice and was subsequently hospitalized on multiple occasions for complications of CME, including evolution of his previously seen intracranial infarcts consistent with progressing cryptococcoma. He continues treatment with high dose fluconazole with plans for a prolonged course of therapy. 6 months after initial diagnosis his symptoms are completely resolved.

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Conclusions CME presents as an atypical disease in immunocompetent patients, caring high morbidity and mortality rate. High level of clinical suspicion, early LP, and timely and prolonged course of antifungals are necessary to improve patient outcomes. Published clinical data are lacking on the role of corticosteroids in the treatment of CME; they are used on case-by-case basis. Our experience provides further support for their potential benefits in the management of CME, particularly in cases of persistently elevated ICP.

IMPACT OF A REGIONAL ACUTE LARGE VESSEL OCCLUSION STROKE PROTOCOL FOR IDEAL DESTINATION DECISIONS (RAPIDD): PRELIMINARY RESULTS

Poster Number: 50
Abstract: 1626
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Author Institutions: Corewell Health West
Format: Poster
Category: Neurology
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction: Current guidance for regional EMS stroke transport protocols recommend preferential transport of suspected large vessel occlusion (LVO) strokes to comprehensive stroke centers (CSC), however the impact of such protocols on rural stroke patients is unclear. RAPIDD is a county-level EMS based intervention study involving the implementation of a Los Angeles Motor Scale (LAMS)-based triage algorithm to improve EMS destination (bypass) decision making (Fig 1).

Methods: EMS crews are instructed to go to the closest stroke-ready hospital for patients <4 hours from last known well (LKW) regardless of LAMS score, and to CSC for those 4-24 hours from LKW with a LAMS score >=4. We present a preliminary pre-post analysis comparing EMS hospital destination decisions in the 18 months prior to the protocol change to the to 3 months, with data limited to the first intervention county.

Results: From November 2021 to October 2023, 167 suspected stroke patients were transported by EMS (140 before and 27 after implementation). Before implementation, 66% of suspected stroke patients were bypassed directly to the CSC. Optimal destination selection improved from 37% to 59% (p=0.032) following implementation, and potential thrombolysis candidates were more likely to arrive at the closest facility (40% vs. 75%, p<0.001). Conversely, late presenters were more frequently transported to the CSC following the intervention regardless of stroke severity (65% vs. 85% p=0.278).

Conclusions: EMS education improves transportation patterns of patients with suspected stroke in the rural setting

Pediatric Hollow Viscus Injury caused by a Motor Vehicle Accident: A Case Report

Poster Number: 68
Abstract: 1627
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Author Institutions: Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine
Format: Poster
Category: Pediatrics
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: A hollow viscus injury is commonly caused by blunt abdominal trauma such as a motor vehicle accident. However, they can be difficult to diagnose but a clinician must have a high index of suspicion for this diagnosis as this injury can easily lead to a poor outcome. These injuries are ultimately diagnosed while in the operating room, but it is important to know the signs and symptoms that a patient has when presenting with this injury.

Patient Description: A 16 year old male presents after a high speed motor vehicle accident. He was restrained in the front passenger seat. He did not experience a loss of consciousness and self-extricated from the vehicle. Upon admission to the ED he complained of hand and abdominal pain. He was found to have a fracture of his first metacarpal and physical exam signs consistent with a seatbelt sign. An abdominal CT scan showed free fluid within the abdominal wall, pelvis, and splenic region. A chest x-ray was unremarkable. He was given Toradol and morphine for his pain. He was unable to ambulate due to the abdominal pain. He was admitted for close observation. During rounds the next morning he appeared stable and still complained of hand and abdominal pain. The abdominal pain was attributed to the seatbelt sign. He was permitted to have a clear liquid diet.

Intervention: Upon drinking a small amount of fluid he started to experience severe lower abdominal pain. He became tacypnic and his nostrils began to flare. A KUB and upright KUB was ordered and free air was found under his diaphragm. He was taken to the operating room and underwent an exploratory laparotomy. Intraoperatively they found a traumatic hernia below the umbilicus, a small bowel perforation with associated mesenteric defect, and two additional mesenteric defects without small bowel injury. These injuries were repaired and the patients condition stabilized.

Conclusions: A hollow viscus injury presents with acute and severe symptoms after a traumatic blunt injury but is sometimes missed on a CT. The presence of a seatbelt sign and ongoing abdominal pain should lead to a high level of suspicion for a hollow viscus injury. Physicians should have a high level of suspicion and a low threshold for diagnosis as the untreated outcome can be poor.

A case of a biliopancreaticocolonic fistula following Roux-en-Y gastric bypass

Abstract: 1628
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Format: Oral Presentation
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Since its advent, the Roux-en-Y gastric bypass has proven to be a durable and effective weight loss operation. However, although generally considered safe, bariatric surgery does pose risks. While much less common than complications such as anastomotic leaks, marginal ulceration, or nutrient deficiencies, the formation of fistulae following RYGB has also been reported. These include the more frequently encountered gastrogastric and GJC fistulae. However, there is no known literature describing a fistulous connection from the BP limb to the colon. Here, we report the first known case of a patient presenting with a BPC fistula.

Patient Description

The patient was a 52 year old female with a history of obesity for which she had undergone a RYGB 26 years prior. She required gastrojejunostomy revision 13 years after her index Roux-en-Y for marginal ulcer formation. She was also known to have chronic, intermittent jejunojejunostomy intussusception. During her most recent hospitalization, imaging demonstrated free air concerning for perforated hollow viscus. The patient was taken for an exploratory laparotomy, and a perforation of the transverse colon was discovered proximal to the splenic flexure; a fistula tract from the BP limb to the transverse colon was found just proximal to the site of perforation. The fistula tract was divided on the BP limb with a TX linear stapler. A partial colectomy of the splenic flexure containing the perforation was then completed. Due to her malnutrition, the decision was made to bring up a transverse colostomy. Enteral feeding access was achieved via a remnant stomach Stamm gastrostomy tube.

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Intervention	The patient was taken to the floor postoperatively where she continued on antibiotics and was started on a diet on POD #2 after bowel function had returned. An upper GI study on POD #5, with contrast administered via the remnant stomach gastrostomy tube, demonstrated no leakage and prompted the initiation of supplemental tube feeds. The remainder of her hospital course was complicated by episodes of hypoglycemia, poor healing, and hypoalbuminemia with abdominal ascites requiring paracentesis. On POD #13, she was discovered to have fascial dehiscence with evisceration. She was taken back to surgery where she was found to have necrotic fascia. The previous staple line on the BP limb was noted to be intact and healthy. The fascia was debrided back to healthy tissue, and a primary closure was completed with running PDS, reinforced with interrupted Vicryl sutures, and Vicryl onlay mesh. Tube feeds and another course of antibiotics were started the next day. The patient was discharged to inpatient rehab on POD #20.
Conclusions	The pathophysiology of this BPC fistula is unclear, but it is likely related to chronic inflammation resulting from a contained jejunojejunal perforation or abscess formation. While this particular fistula is rare, it is reasonable to consider fistulae as a whole in post-RYGB patients with chronic abdominal pain and malnutrition. When considering surgical repair, it is imperative to ensure adequate perioperative nutrition, and a single-stage operation with primary bowel anastomoses is preferred. A minimally invasive approach can be considered in elective settings.

The Medicolegal Consequences of Encroachment on Cosmetic Surgery

Abstract: 1629
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Format: Oral Presentation
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Case Study

Introduction: Since its formation in 1979, the American Board of Cosmetic Surgery (ABCS) has yet to become recognized as a certifying body by the American Board of Medical Specialties. Despite this, many physicians trained under the standards of the ABCS advertise themselves as board certified cosmetic surgeons, potentially leading to misperceptions of qualifications by patients. The purpose of our study is to educate the plastic surgery community and our patients on the medicolegal consequences of cosmetic surgeons who operate outside their scope of practice.

Methods: A retrospective analysis of civil case reports in the Nexis Uni legal database was performed. Legal information was collected including plaintiff, defendant, plaintiff claims, original judgement, and awards amounts. A physician's scope of practice was determined based on the ACGME competencies outlined for the physician's post-graduate education. Our exclusion criteria consisted of all board-certified plastic surgeons, otolaryngologist and oral maxillofacial surgeons performing aesthetic surgery above the neck, and dermatologists performing biopsies or Moh's reconstruction. The data was then compiled and summary statistics were provided.

Results: A total of 17 cases were identified in our preliminary analysis. Physicians from 7 distinct specialties were practicing cosmetic surgery outside their scope with the most represented being General Surgery, OBGYN, and ENT (n=3, 18%). The most common procedures performed included liposuction (n=9, 52.9%), abdominoplasty (n=4, 23.5%), and breast augmentation (n=3, 17.6%). Complications ranged from dissatisfaction to facial paralysis and death. Judgement was in favor of the patient (n=12, 85.7%) in all but 2 cases, in one a plastic surgeon was denied as an expert witness and in the other the physician operated within the standard of care. The average award when the patient was the plaintiff was $,1,216,513.

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Conclusions There is currently a campaign by the ABCS to make plastic surgery and cosmetic surgery two distinct specialties. In the case of Genovese v. Bodynew Inc., the court ruled plastic surgeons are unqualified to speak about the technical aspects of cosmetic surgery. Although several State medical boards have taken action against cosmetic surgeons practicing outside their scope of practice, cosmetic surgery remains largely unregulated. We encourage dialogue amongst our national organizations on ways to better regulate cosmetic surgery to protect patients seeking our services.

A Retrospective Review of Healthcare Disparities in Postpartum Preeclampsia Readmissions: Inequity by Design?

Abstract: 1630
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Format: Oral Presentation
Category: OB/GYN
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction: With growing awareness of maternal morbidity and mortality in the United States, race has been identified as an independent risk factor for poor maternal outcomes. Hypertensive disorders in pregnancy (HDP), including preeclampsia, account for 6.3% of maternal mortality in the US and are associated with many short- and long-term maternal morbidity and mortality (death, stroke, pulmonary edema, myocardial infarction, cesarean delivery, postpartum hemorrhage, renal failure). The primary objective of this study was to identify the impact of race on postpartum preeclampsia readmission at our tertiary care center. Our secondary objective was to evaluate the factors associated with postpartum readmission for preeclampsia.

Methods: This retrospective case-control study evaluated the readmission rates for postpartum preeclampsia from 2018 to 2022 at a single tertiary institution. This study was exempt by the Corewell Health IRB. Race was evaluated in four subgroups: Non-Hispanic Black, Non-Hispanic White, Hispanic, and Other. The chi-square and Fisher's exact test were used for descriptive statistical analysis. Pairwise multiple comparisons were further performed to assess the association between sociodemographic characteristics and readmission rates.

Results: Of the 7270 patients included, 536(7.37%) were readmitted with postpartum preeclampsia. The majority were Non-Hispanic White(71.16%) when compared to Non-Hispanic Black(13.79%), Hispanic(10.67%), and patients of other races(4.38%). The majority of patients had private insurance(63.11%). Most patients had a preexisting diagnosis of chronic hypertension. Non-Hispanic Black patients were readmitted at higher rates than Non-Hispanic White patients, 100(10.01%) v. 364(7.06%), (p=0.0012). Non-Hispanic Black patients were also readmitted at higher rates than Hispanic patients 48(6.21%), (p=0.0041). Readmitted patients were older on average (31.1±5.9) than those who were not readmitted(29.5±5.5), and of higher parity(p=0.0105). History of HDP in prior pregnancy(8.9%) was associated with a lower readmission rate. There were no statistically significant differences in the association between readmission and BMI, Aspirin use, median household income, preexisting diabetes, SLE, rheumatoid arthritis, or renal disease.

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Conclusions The readmission rate for patients with HDP at our institution was 7.37%. Non-Hispanic Black, older, and higher parity women were readmitted at higher rates with postpartum preeclampsia than their counterparts, indicating potential individual risk factors for readmission. These findings demonstrate a complex relationship between demographics and readmission, suggesting a need for more tailored healthcare interventions to address disparities. Identifying further risk factors is essential to elucidate gaps in care, identify interventions, and promote equitable care.

Congenital LQTS Unmasked By Postpartum Cardiac Arrest

Abstract: 1631
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Author Institutions: Corewell Health West; Michigan State University
Format: Oral Presentation
Category: Internal Medicine
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction: Women with long QT syndrome (LQTS) are four times more likely to suffer arrhythmias postpartum than age-matched controls.1 Despite this, without documentation of cardiac symptoms and a personal or family history of arrhythmia, electrocardiograms (ECG) are rarely performed during the perinatal period. 1,2 Hence, LQTS remains underdiagnosed unless symptoms arise.

Patient Description: We present a 23-year-old female with history of preeclampsia who was two months postpartum when she presented following an out-of-hospital sudden cardiac arrest, requiring multiple rounds of CPR, defibrillation, and subsequent intubation. Post-resuscitation ECG showed sinus bradycardia with prolonged corrected QT of 479 ms (ECG 1).

Intervention: She was started on amiodarone and lidocaine, and was eventually extubated, given uneventful telemetry monitoring. On day 2 of hospitalization, the patient had another episode of sustained pulseless polymorphic ventricular tachycardia (Image 1) requiring brief CPR, which spontaneously converted after intravenous magnesium. She was subsequently reintubated and deeply sedated to decrease sympathetic tone. Repeat ECG showed further prolongation of QTc at 645 ms (ECG 2). Cardiac MRI demonstrated preserved biventricular size and function, normal valvular anatomy, and absence of late gadolinium enhancement. A subcutaneous ICD was implanted for secondary prevention. Genetic testing revealed a pathogenic variant of KCNH2 mutation consistent with hereditary LQT2.

Conclusions: Hormonal changes, most specifically decreasing progesterone, in the postpartum period and increased life stressors make women with LQTS increasingly high risk for cardiac events. Treatment of LQTS perinatally involves beta-blocker therapy. Maternal use of these medications is associated with decreased newborn birth weight and hypoglycemia but not with increased risk of miscarriage, spontaneous abortion, or fetal malformation. 6-8. The above case highlights the importance of early identification and risk mitigation of QT-related events in postpartum females.

A Case of Spontaneous Adrenal Hemorrhage Associated with Undifferentiated Adrenal Mass

Poster Number: 33
Abstract: 1632
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Format: Poster
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Case Report (< 3 patients)

Introduction

Spontaneous adrenal hemorrhage is associated with trauma, sepsis, anticoagulation, hematologic disorders, pregnancy, and masses, with masses being among the least common etiologies, only described in case reports and case series.1,2,4 Most hemorrhage is asymptomatic and can result in adrenal insufficiency, however, significant hemorrhage can be fatal.1,4 Based on a systematic review by Marti et al, pheochromocytoma was found to be the most common mass associated with spontaneous hemorrhage. This report presents a case of unilateral adrenal hemorrhage in a 51-year-old man with a known adrenal mass and treatment resistant hypertension to demonstrate management of a life-threatening retroperitoneal bleed in a challenging clinical situation for a patient with a known but undifferentiated adrenal mass.

Patient Description

The patient is a 51-year-old male with history of uncontrolled hypertension on 4 antihypertensives, hyperaldosteronism, suspected adrenal hyperplasia, left adrenal nodule, and Stage III CKD who presented to the ED with acute, severe left-sided abdominal pain associated clinical signs of shock: hypotension, diaphoresis, and bradycardia. He reported feeling a 'pop' while having a bowel movement about an hour and half before arrival. His initial work-up included basic labs, which showed a hemoglobin of 11.1 mg/dL, at the patient's baseline, but lactic acidosis of 2.6 mmol/L. Suspecting hemorrhagic shock, transfusion of packed red blood cells were begun, and he was taken for CTA of abdomen and pelvis which showed a large retroperitoneal hematoma measuring 26.4 x 11.5 x 14.3 cm with active extravasation centered on the left adrenal gland.

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Intervention	After discussion with interventional radiology, it was believed that upfront surgical management was most appropriate. He was taken to the operating room for exploratory laparotomy, where a left zone 1 retroperitoneal hemorrhage was found, but unable to be controlled. He was then packed and taken for embolization with interventional radiology, who found active extravasation from the left inferior adrenal artery. Later that same day, he was brought back to the operating room for removal of packing and abdominal closure. After resuscitation in the SICU, he recovered quickly and transferred to the floor where his post-operative course proceeded without complication. He was discharged on post-operative day 4. He has since been seen in clinic and is healing well from laparotomy; however, his course has been complicated by bilateral deep vein thrombosis with saddle embolus, treated with anti-coagulation.
Conclusions	A previous retrospective cohort study using 6 patients with adrenal masses out of a group of 133 with adrenal hemorrhage between 2002 and 2010 has outlined a treatment algorithm for adrenal hemorrhage associated with masses.4 Our patient represents a more acute presentation than most in their group. In this series, pheochromocytoma was found commonly (48%), and therefore reinforces the importance of a high-level of suspicion for such a tumor. His case presents a challenging clinical situation due to high acuity in a patient with a potentially morbid adrenal neoplasm.

Feasibility and Assessment of Sleep Training At Spectrum Lifted by MSU Extension Educational Programming for Patients with Diabetes Mellitus and Prediabetes (FAST ASLEEP PRE-DM/DM)

Poster Number: 27
Abstract: 1634
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Format: Poster
Category: Family Medicine
Author Status: Medical Student
Presentation Type: Quality Study/Initiatives

Introduction

Insufficient and poor-quality sleep have been associated in people with prediabetes and type 2 diabetes mellitus (T2DM) via multiple physiologic and metabolic pathways. Particularly with T2DM, one night of insufficient sleep decreases both peripheral and hepatic insulin sensitivity. Poor sleep quality also predicts suboptimal self-management behaviors. Fortunately, a MSU-developed sleep education program delivered by MSU Extension has been demonstrated to improve sleep outcomes. However, the feasibility of identifying, referring, and following the progress of this specific patient population in the program is unknown. Thus, the objectives of this study are to identify an effective referral process to the sleep education program and to track changes in prediabetic and patients with T2DM sleep quality resulting from participation in the program.

Methods

Prediabetic and patients with T2DM from Corewell Health Family Medicine Residency Center and Greenville Family Medicine Center were recruited to the free MSU Extension program 'Sleep Education for Everyone' (SLEEP). SLEEP program flyers were placed in the waiting rooms and patient rooms at both clinics for patients to sign up via QR code. Recruitment also included contacting attending physicians directly via the MyHealth messaging system to refer patients to SLEEP. Once enrolled, MSU Extension program educators gave participants access to online surveys through the Corewell Health REDCap platform for data collection about sleep quality and duration. We strived to determine program success by using validated surveys, including sleep hygiene score, to assess the sleep quality of the participants at the start and end of the program. Lastly, we sought to compare pre-program, post-program, and 6-months post program survey scores and HbA1c to assess changes in sleep and markers of diabetes.

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Results As of present, we have not reviewed our cohort of 16 patients since we have not reached our goal of 50 patients. The first aim of our study, development of a referral process to the SLEEP program, is partially complete. After several PDSA cycles, we realized that the best referral process is with direct reaching out to patients, outside of regular patient visits. Our second aim of measuring participant sleep quality and prediabetes/diabetes control before and after participating in the program will not be complete until our 50 patient goal has completed their classes. We are currently in the process of directly contacting patients who completed the program. After contacting them, we will evaluate our data to include their answers and present it in our poster. Ultimately, we aim to determine what changes can be made to improve the program overall, both from a recruitment principle and ensuring our patients with prediabetes and diabetes are presented with different opportunities to take control of their health.

Conclusions Our hope with this pilot study was that it would serve as a foundation for future programs dedicated to improving the overall health of individuals with prediabetes and T2DM. With this study, we recognized that recruiting patients can be difficult. We also recognized where we can improve our communication with our patients and how to ensure that they are in the best position possible to succeed with a program such as SLEEP. We hope to continue promoting the SLEEP program to the people that could most benefit from it.

AI-Generated Personal Statements are Difficult to Distinguish from Human Personal Statements by General Surgery Program Directors

Abstract: 1635
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Format: Oral Presentation
Category: General Surgery
Author Status: Resident Physician
Presentation Type: Educational Study

Introduction: Large language models are a form of generative artificial intelligence that can understand and produce natural language. In the 2023 NRMP match, the applicant-to-position ratio for general surgery was nearly 2:1. Selection committees evaluate candidates based on several criteria, both objective and subjective. Objective measures such as class ranking, standardized examinations, and research productivity are straight-forward, a considerable portion of the application relies on subjective appraisal of personal statements and letters of recommendation. This creates the potential for dishonest practices, including human-derived plagiarism and recently, AI -derived plagiarism. We aim to assess program directors' ability to detect AI-generated personal statements.

Methods: Two personal statements authored by matched applicants at our program were used for the human generated statements. General themes, word count, and format of the human-authored personal statements served as input for the ChatGPT 4.0 prompt to create two AI-generated statements. An anonymous survey was created in REDCap which was sent to general surgery program directors through the Association of Program Directors in Surgery listserv to determine their ability to elucidate the origin of the personal statement.

Results: A total of 37 survey responses were completed. The mean length of time as a program director was 5.08 years (SD 3.58). The AI-generated personal statements were correctly identified 20 (27.4%) times overall with 15 (41.6%) and 5 (13.5%) times for each individual statement. Respondents believed the AI-generated statement was human-derived 44 (60.3%) or uncertain of origin 9 (12.3%) times overall. The human-derived personal statements were correctly identified 43 (58.1%) times overall with 23 (62.2%) and 20 (54.1%) for each individual statement. Program directors had a sensitivity of 31%, specificity of 66%, positive predictive value of 48%, and negative predictive value of 49%. The overall accuracy of selection was 49%.

Conclusions: Generative-AI has wide reaching potential and embracing new technologies is vital for its continued growth and appropriate adoption. Just as a calculator assists in mathematics, generative-AI can be used to edit, outline, and give feedback to authors. Further work needs to be completed on how to best adopt generative-AI into medical education and healthcare.

Evaluation of the Partnership between Medical Interpreters and Limited English Proficiency Patients & Families in the setting of Inpatient Pediatrics

Poster Number: 66
Abstract: 1636
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Format: Poster
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Quality Study/Initiatives

Introduction: Pediatric patients who have families with limited English proficiency (LEP) often require interpreter services while inpatient to interact with healthcare workers. Children of immigrant parents is the fastest growing segment of the US child population, and a large portion of these families have LEP. Our hypothesis is that patient's families often only have the opportunity to have a conversation with their provider, on average, one time per day. Our objectives are to first survey LEP families to elicit their perspective on interpreter use during their child's stay, and second to increase the number of times that LEP families access an interpreter in hopes that it will afford them more seamless access with the medical team during their admission.

Methods: We conducted a cross-sectional study of the inpatient population at Helen DeVos Children's Hospital between the dates of January 10, 2024 and April 30, 2024. Limited english proficiency (LEP) was defined as families that self-reported a need for interpreter services. The survey was offered in Spanish, Swahili, Burmese, Vietnamese, and Kinyarwanda based on regional demographics. Rounds were conducted every morning and language services were offered both via phone and in-person interpreters. Families that requested medical interpreters were approached for enrollment in the study. Consent was obtained. The survey was a 1-page, de-identified document written in the family's language of choice. It consisted of 5 likert-scale questions about communication with the assistance of an interpreter, 1 multiple-choice question asking about the potential usefulness of a card to give to the nurse to request an interpreter, and 1 open question to describe problems. This study is IRB exempt.

Results: Data collection is pending. Two surveys have been collected and preliminary results show that families did benefit from phone and in-person interpretation. Family surveys also indicate that provider-initiated interpretation via hospital Language Services contributes to limitations for LEP parents to address questions during the day after family-centered rounds. We plan to further collect and analyze the data by the end of March 2024.

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Conclusions This project collected data on pediatric patient family experiences with interpreter services at Helen DeVos Children's Hospital. It is our hope that our next phase of increasing LEP patients' access to interpreters will decrease feelings of powerlessness, enhance patient-centered care, and could improve health outcomes.

Perioperative Management of Bladder Exstrophy and Subsequent Pain Management in a Newborn

Poster Number: 3
Abstract: 1638
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Format: Poster
Category: Other
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction

Bladder exstrophy is a rare congenital anomaly characterized by protrusion of the bladder outside of the abdominal wall. This can vary in severity and include exstrophy of nearby structures in severe cases. This presents complex challenges in newborns, necessitating meticulous surgical Intervention and pain management. While correction is essential, the perioperative period in newborns demands a nuanced approach to ensure optimal outcomes, particularly regarding pain control. Effective anesthesia is a critical component of perioperative care for newborns that will be variable depending on the surgical complexity. This case emphasizes the importance of coordination among specialists, optimizing outcomes through comprehensive evaluation. By observing pain related outcomes, this study seeks to add to the body of literature and improve the care of newborns with bladder exstrophy.

Patient Description

The patient, currently a 5-month-old male, initially presented with bladder exstrophy at birth. This congenital anomaly was accompanied by additional defects, including epispadias and anteriorly displaced anus, further complicating the case. On physical examination, visible protrusion of the bladder through the lower abdomen and epispadias were noted. Imaging studies revealed widened pubic bones and external rotation, confirming the diagnosis of bladder exstrophy and highlighting the associated skeletal abnormalities. Given the severity of the condition, urologic surgery and pelvic osteotomy were deemed necessary and completed at 3 months after birth. Post operative pain was elucidated through objective and subjective measures. The exstrophy was bandaged and kept clean as the patient continued routine newborn follow-up. Collaborative efforts among healthcare professionals ensured holistic management, addressing both objective clinical needs and providing support.

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Intervention Anesthesia and pain control were tailored to the needs of the patient undergoing surgical repair of bladder exstrophy. Induction included Sevoflurane and epidural catheter was placed at the sacral hiatus and passed cephalad to L5 with ultrasound guidance. L5 was chosen given the dermatomal coverage required for iliac crest (L5) bone grafting to bladder reconstruction (S1). Maintenance of anesthesia was continued with these medications. Chloroprocaine was chosen for proclivity to cause motor block and its short half-life outside the epidural space, mitigating the systemic local anesthetic toxicity maximally. With post-op traction and repaired neo-bladder, immobilization was preferred, making Chloroprocaine an ideal solution. Epidural was continued for 10 days post-op until there became evidence of pseudomonal growth. Therefore, epidural was removed, being a potential nidus for persistent growth. This approach overall provided excellent analgesia and immobilization for this patient's perioperative needs.

Conclusions The management of bladder exstrophy in newborns necessitates a multifaceted approach encompassing surgical intervention, personalized anesthesia, and vigilant pain management. This case underscores the significance of coordinated efforts in optimizing outcomes and ensuring comprehensive care for this unique patient population. Through continued observation of pain-related outcomes and advancements in clinical practices, we wish to further refine the care paradigm for newborns with bladder exstrophy, ultimately improving their long-term prognosis and quality of life.

Assessment of Peripartum Paracetamol Exposure on Fetal Development

Abstract: 1639
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Author Institutions: Michigan State University College of Human Medicine
Format: Oral Presentation
Category: OB/GYN
Author Status: Medical Student
Presentation Type: Systematic Review

Introduction: Paracetamol (APAP) is widely utilized in pregnancy for its analgesic properties, endorsed by regulatory agencies for fever and pain management. This study aims to provide a comprehensive evaluation of APAP's impact on fetal development, considering epidemiological, experimental, and clinical perspectives.

Methods: A systematic review of current literature was conducted, synthesizing findings from studies encompassing APAP use patterns, endocrine-disrupting potential, neurodevelopmental effects, and urogenital/reproductive outcomes. Epidemiological studies investigated associations with ADHD, ASD, language delays, decreased IQ, cerebral palsy, oppositional-defiant disorder, executive function, and conduct disorders.

Results: APAP usage in pregnancy is widespread, with an estimated 65% utilization among pregnant women in the USA. Regulatory endorsements, while recognizing its utility, lack comprehensive assessment. Experimental evidence reveals APAP as an endocrine disruptor, crossing the blood-brain barrier and affecting hormonal dynamics. Animal studies demonstrate fetal exposure impacts on urogenital and reproductive systems, while epidemiological studies associate prenatal APAP exposure with neurodevelopmental disorders, particularly during the second and third trimesters. Experimental studies underscore timing and duration as critical factors.

Conclusions: This comprehensive assessment highlights potential risks associated with APAP use during pregnancy, necessitating a nuanced approach in clinical decision-making. Findings emphasize the need for further research to elucidate specific windows of vulnerability and refine regulatory guidelines to ensure optimal maternal and fetal health.

Arthroscopic Repair for an Isolated Dorsal Intercarpal Ligament Tear: A Case Presentation of Technique and Outcomes

Poster Number: 70
Abstract: 1640
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Format: Poster
Category: Plastic Surgery
Author Status: Resident Physician
Presentation Type: Systematic Review

Introduction Recent anatomical studies and case series have established that the dorsal intercarpal (DIC) ligament plays a role in wrist stability with its injury a possible contributor to chronic dorsal wrist pain and scapholunate instability. The purpose of this paper is to review the current literature as it relates to the anatomic and clinical importance of the DIC ligament in addition to presentation of a case series describing outcomes of DIC ligament arthroscopic repair for chronic wrist pain.

Methods A literature review was conducted using PubMed and Medline databases to obtain data on dorsal intercarpal ligament injury associated with chronic wrist pain and scapholunate instability. The search strategy included published articles in English with the terms 'dorsal intercarpal ligament,' 'instability,' and 'isolated.' Combined searches yielded 89 abstracts. All papers were reviewed and evaluated. Fifteen studies met the inclusion criteria and described the dorsal intercarpal ligament as it relates to scapholunate instability with a mixture of biomechanical/anatomical cadaver studies and case series. Studies were excluded if the dorsal intercarpal ligament was not a subject of study or if its repair was not included as a component of treatment.

Results Five of the fifteen articles reviewed were anatomic or biomechanical studies of cadaveric upper extremities examining a total of 60 wrists. The cumulative findings of these studies suggest the dorsal intercarpal ligament as an important secondary stabilizer of the wrist with a role in scapholunate instability. The remaining ten articles retrospectively analyzed DIC ligament capsulodesis for scapholunate instability or chronic dorsal wrist pain in a total of 381 patients. The majority of studies found improvement in symptoms and objective measures of wrist mobility and strength following DIC ligament repair, however notably all studies were relatively small in sample size. One study examining long-term outcomes observed return to preoperative measurements at final follow up on average of 8.25 years after repair.

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Conclusions The DIC ligament has been established as an important wrist stabilizer through anatomical and biomechanical studies. Recent results are promising for the effect of DIC ligament repair on restoration of scapholunate stability and treatment of chronic dorsal wrist pain, however further studies are required to establish clinical significance of ligament repair as well as an effective technique for long-term stability.

Complex care optimization and hospitalist co-management for posterior spinal fusion in non-idiopathic scoliosis patients

Abstract: 1641
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Format: Oral Presentation
Category: Orthopedics
Author Status: Medical Student
Presentation Type: Quality Study/Initiatives

Introduction: The cost of medically complex patient care encompasses the intricate financial burden associated with treating individuals requiring comprehensive and often specialized medical interventions, posing significant challenges to healthcare systems worldwide. In the era of value-based care, increasing emphasis has been placed on optimizing outcomes and reducing hospital expenses. Research has shown that complex care management is associated with substantial reductions in hospitalization rates and costs. This institution implemented a program to optimize the care of medically complex children undergoing orthopedic spinal procedures. This study aims to assess the impact of complex care optimization and hospitalist co-management in patients with non-idiopathic scoliosis who underwent posterior spinal fusion procedures.

Methods: A retrospective review, cohort study was performed assessing neuromuscular patients treated at pediatric a tertiary care hospital over five-year period, before and after the implementation of a complex care management program. Data from the American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) database was utilized. Demographic and procedural details (i.e. blood transfusion rates, number of levels fused, etc.) were among the data collected. Outcomes including length of stay, complication rates, and mortalities were recorded. Basic statistical analysis was performed, and further comparative analyses are underway.

Results: 112 patients were identified based on inclusion criteria. A preliminary analysis was performed on 87 records that were completed. The average age of patients in this cohort was 12.1 (SD: 3.0) and 57.4% of patients were female. In the initial data, 74.7% of patients analyzed were part of the co-management program (n=65). The median hospital length of stay in the co-managed group was 3.0 days [2.8, 5.0] compared to 3.0 days [3.0, 5.0] in the cohort prior to the co-management program implementation. 15% of patients who were not co-managed were discharged to rehabilitation/acute care facilities compared to 7.4% in the comanaged cohort; the remainder in each cohort were discharged to home/permanent residence. Further analysis is ongoing.

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Conclusions In conclusion, the complex care optimization and hospitalist co-management program for non-idiopathic scoliosis patients undergoing posterior spinal fusion procedures has shown promising anecdotal improvements. Ongoing research aims to quantify the benefits and challenges, potentially supporting wider adoption of such programs, leading to improved patient outcomes, reduced hospital expenditure, and optimized resource utilization for medically complex patients.

Disparities in Physical and Pharmacologic Restraint Use in Pediatric Behavioral Health Patients on a Pediatric Hospital Medicine Unit

Abstract: 1642
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Format: Oral Presentation
Category: Pediatrics
Author Status: Clinical/Research Fellow
Presentation Type: Clinical Study

Introduction The use of physical and pharmacologic restraints in pediatric behavioral health settings is a critical yet controversial aspect of care, often necessitated by acute agitation or safety concerns. Physical and pharmacologic restraints are often employed as a last resort to manage challenging behaviors or prevent harm to pediatric patients in the context of behavioral health conditions. Unfortunately, there is a substantial lack of literature that has examined whether there are disparities that exist within the pediatric behavioral health population. The findings from this study will provide important insights into the patterns and disparities of physical and pharmacologic restraint use in pediatric behavioral health patients and inform the development of evidence-based strategies to promote safe and effective care for this vulnerable population.

Methods We conducted a retrospective cohort study of pediatric admissions at Helen DeVos Children's Hospital with patients aged 3 to 21 years with behavioral health conditions between November 1, 2017, and April 1, 2023. For each visit, we collected demographic data including patient age in years (children 3-12, young adults 13-21), sex, race, ethnicity, insurance type, and zip code. For continuous variables that meet the normality assumption based on a Shapiro-Wilks test, means and standard deviations will be provided. T-tests will be used to test a difference of means for continuous variables, and a Wilcoxon rank sum test will be used for continuous variables that do not meet the normality assumption. Differences in distribution will be tested using a chi-square test or Fisher's exact tests depending on the size of the expected cell counts. All tests will use an alpha level of 0.05. We will plan to report risk ratios (RR) and 95% confidence intervals (CI) for all logistic regression models.

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Results Individual socioeconomic variables are independent risk factors for the use of physical and pharmacologic restraints in behavioral health patients. The aim of this study is to determine the incidence and variations of physical and pharmacologic restraint use in pediatric behavioral health patients, across different demographic and clinical subgroups, involving age, gender, race/ethnicity, psychiatric diagnoses, health insurance carrier, and zip code. We hypothesize that non-White children, those from historically redlined communities in West Michigan, or those with non-commercial health insurance will have a higher rate of physical and pharmacologic restraint use, when compared to White children, those from affluent communities, or those with commercial insurances. The data is currently being analyzed and we will have the results prior to the Corewell Health West Research Day.

Conclusions By examining the incidence and variations in restraint utilization, this research seeks to identify potential inequities and develop recommendations for promoting equitable and patient-centered care for pediatric behavioral health patients. This research is significant as the findings from this study will contribute to the existing body of knowledge regarding restraint practices and inform future interventions and policy changes to reduce disparities and improve the well-being of pediatric patients in behavioral health settings.

Ultrasound Curriculum Experience in Obstetrics and Gynecology Residency at Corewell Health - Grand Rapids

Abstract:	1644
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Author Institutions:	Corewell Health West
Format:	Oral Presentation
Category:	OB/GYN
Author Status:	Resident Physician
Presentation Type:	Quality Study/Initiatives

Introduction Currently there is no standardized curricula for diagnostic ultrasound skills among OBGYN residency programs within the US. In the past, training has come almost entirely from clinical practice. At our institution, OBGYN residents obtain diagnostic ultrasound skills primarily through real-time practice/observation. A majority of obstetric ultrasound skill is learned during MFM rotations. Previous research has shown that some OBGYN residents believe they would require additional training after completion of residency to interpret diagnostic ultrasounds. The new impact of a MFM fellow on residency ultrasound curriculum is unknown. We believe this may provide additional opportunity for residents in skilled training in the field of obstetric ultrasound. We will assess OBGYN residents' ultrasound curriculum experience, self-competency and perceived barriers.

Methods This is a quality improvement project. An emailed survey will be sent to all obstetrics & gynecology residents at Corewell Health - Grand Rapids/Michigan State University. The survey will identify current PGY level, assessment of which modalities have been used in their current training (simulation, lecture, hands on experience, combination) and how many hours, perceived barriers to ultrasound education. This survey will also identify residents that have worked with the MFM fellow and potential impacts on their training.

Results Results pending collection of survey

Conclusions This QI project will assess OBGYN Residents at Corewell Health self-perceived comfort with ultrasound skills, current ultrasound curriculum experience, as well as perceived impact of the addition of a MFM fellow on service and educational experience regarding diagnostic ultrasound. We believe this may identify any specific areas of improvement within the current ultrasound curriculum. These results hopefully can be utilized to implement an integrated curriculum consisting of self-study, simulations, and real-time observation within our residency program in the future.

Rare Case of INI-1 Deletion, CD34 Positive Brain Neoplasm in Pediatric Patient

Abstract: 1645
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Author Institutions: Corewell Health West; Helen DeVos Childrens Hospital; Michigan State University College of Human Medicine
Format: Oral Presentation
Category: Pediatrics
Author Status: Medical Student
Presentation Type: Case Report (< 3 patients)

Introduction: Primary CNS malignant rhabdoid tumors are extremely rare in adults and very few have been described in the pediatric population. Of which, the location of these tumors has been intra-axial but superficially located. We discuss a case of a INI-1 deletion, CD34 positive skull base tumor presenting in a pediatric patient

Patient Description: A 17 year old male presented as a trauma workup and was incidentally found to have a right posterior fossa skull base mass eccentric to the right side near the hypoglossal canal with brainstem invasion and compression. On imaging studies this appeared consistent with a meningioma. He initially had no deficits, however, based on likely progression and shared decision making, surgery was planned. He underwent embolization of the right distal occipital artery followed by a far lateral craniotomy for resection of the skull base mass. Significant dural involvement was encountered and there was an injury to the right vertebral artery. Postoperatively, he was stable with new dysphagia and 6th nerve palsy. He was found to have a complete right vertebral artery occlusion with strong collateral circulation. He continued to improve postoperatively. Due to a small amount of residual tumor radiotherapy was planned.

Intervention: Initial frozen review of the sample showed an overall impression of meningothelial tumor with possible papillary meningioma. There was psamomatous calcifications, papillary organization, intranuclear inclusions, and rare rhabdoid morphology. All of which suggested possible rhabdoid meningioma. It was also negative for SSTR2a and retained BAP1 expression as expected in a papillary-rhabdoid meningioma. Additionally, the tumor showed uniform INI-1 deficiency raising concern for metastasis from another site. Further review from an outside department revealed CD34 positivity. There was SMARCB-1 deficiency which could a chordoma, but absence of brachyury expression would be unexpected. Considering the histology and molecular characteristics, this did not fit a common diagnosis. There have been few reports of INI-1 deficient rhabdoid tumors with CD34 positivity in the meninges of young adults with highly limited data and classification.

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Conclusions This pediatric case further supports recent reports of emerging INI-1 deficient and CD34 positive tumors of meningeal origin. Given the apparent rarity of this tumor, it was felt valuable to describe the clinical and molecular characteristics of this disease course in hopes to better inform subsequent classification and treatment.

Implementing the 2023 Clinical Practice Guideline for the Assessment and Treatment of Pediatric Obesity

Abstract: 1646
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Format: Oral Presentation
Category: Pediatrics
Author Status: Resident Physician
Presentation Type: Clinical Study

Introduction: Obesity is a complex, multifactorial, chronic disease associated with serious health and social consequences. There are 14.4 million children and adolescents affected by obesity. This population is at higher risk of associated comorbidities, obesity in adulthood, and premature death. The US preventative Services Task Force issued a Grade B recommendation that children are screened for obesity annually and are provided with prompt treatment by their primary care providers. The Academic General Pediatric (AGP) Resident Clinic at Helen DeVos Children's Hospital (HDVCH) participated in a national QI project associated with the American Academy of Pediatrics Institute for Healthy Childhood Weight with the global aim to improve evidence based primary care practice for pediatric patients 2 to 18 years of age concerning the prompt identification, evaluation, and treatment of obesity.

Methods: Participating outpatient pediatric clinics collected data from 4 cycles in a 25-week collaborative period for comparison. In each cycle, data was obtained from 15 random well child visits 2-18 years of age to evaluate for documentation and classification of BMI percentiles, assessment of lifestyle behaviors and social determinants of health, and preventative counseling. Additionally, 20 random charts were reviewed for children 2-18 years of age classified as overweight or obese in each of the 4 cycles. This data was compared to show how effectively providers evaluated for comorbidities including hypertension, dyslipidemia, and diabetes, how often they conducted comprehensive histories and physicals, if they evaluated for sleep apnea, polycystic ovarian syndrome, depression, musculoskeletal disease, idiopathic intracranial hypertension, and nonalcoholic fatty liver disease, and whether or not a treatment plan was created with the patient.

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Results The AGP clinic reviewed data over the 4 cycle periods and noted an increased rate at which severe obesity was identified at well child visits from 0 to 66%. When lipid screening was indicated; the clinic was successful at obtaining those labs 70% of the time during the 4th cycle compared to only 12.5% in the first cycle. Liver function tests were also ordered more frequently with a steady increase to 50% by the 4th cycle in overweight or obese patient encounters. There was a slight increase in cycle 2 in the evaluation for hypertension in overweight and obese patients, but this was a relatively unchanged rate in the AGP clinic across the 4 cycles. Providers in the clinic also showed an increase from 20 to 70% in how often they developed a treatment plan for patients with overweight and obesity.

Conclusions The 2023 American Academy of Pediatrics clinical practice guideline for the evaluation and treatment of pediatric obesity is a tool designed to screen patients early and initiate prompt treatment of this complex chronic disease. With appropriate education for primary care providers on the classification of obesity, comorbidities and laboratory assessments required for screening, and motivational interviewing, primary care providers can make improvements to ensure the well child exam is designed to improve the outcome of pediatric obesity.

Hemicraniectomy Timing in Large Territory Hemispheric Stroke: A Case Series

Abstract: 1647
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Format: Oral Presentation
Category: Neurology
Author Status: Resident Physician
Presentation Type: Case Study

Introduction: Life threatening cerebral edema usually manifests between days 2 and 5 after large territory strokes. Because the available medical therapies have limited efficacy, decompressive surgery is the only supported definitive treatment for patients with malignant cerebral edema from space occupying hemispheric infarctions. Trials currently support that early decompressive hemicraniectomy (DHC) within 48 hours of symptom onset yields the most favorable outcomes. Whether encouraging decompression within an even shorter time frame would result in better outcomes for certain cohorts is unclear.

Methods: We present here 10 cases of large territory ischemic stroke who received early decompressive hemicraniectomy at Corewell Health Butterworth Hospital from 2017 through 2021. We focus specifically on presentation and patient characteristics which may impact whether earlier decompression should be targeted.

Results: Of the 10 cases, two had DHC within 12 hours of symptom onset. Although presenting severity based on initial NIHSS score was similar for all cases, these two cases did have a shorter average hospital stay and more favorable recovery at 6 and 12 month follow up than the other 8 cases.

Conclusions: Age, sex, and comorbidities were three of the factors identified in this study which may impact whether decompression should be targeted even sooner than the current early DHC window.

Influence of Language Concordant Providers on Adequacy of Prenatal Care in Low-Income Hispanic Women

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Format:	Oral Presentation
Category:	OB/GYN
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Presentation Type:	Basic Research Study

Introduction	Compliance with evidence-based prenatal and postpartum care is important for optimizing maternal and infant outcomes. Prior studies have demonstrated that language barrier has a negative effect on patient satisfaction and compliance with care and that language concordance improves compliance and patient outcomes. This exploratory study aims to examine this theory in the low income, Spanish speaking pregnant population. The OBGYN residency clinic at Corewell Health West and Maternal Fetal Medicine office have had several native Spanish speaking physicians working concurrently between July 2018 and July 2022.
Methods	Using ICD codes and chart review, data on demographics, attendance at office visits and pregnancy outcomes will be collected for 600 Spanish speaking women who delivered at Butterworth hospital and received prenatal care at the residency clinic or maternal fetal medicine office. This data will be compared against the number of visits each patient had with a language concordant provider. Kotelchuk index will be used to measure the adequacy of prenatal care.
Results	This study hypothesizes that language concordance between patient and provider is associated with meeting an adequate or adequate plus Kotelchuk index score. Final results pending data analysis.
Conclusions	Pending.