Abstract Title: Recognizing Tracheal Stenosis in the Outpatient Setting: It Might Be More Complicated Than You Think

Presenting Author: Buckley McCall, MD

Co-Authors: Buckley McCall, MD, Internal Medicine, PGY1, Prisma Health- Greenville, SC, Anand Pariyadath, MD| Pulmonary Critical Care Medicine | Prisma Health- Greenville, SC

Abstract:
Tracheal stenosis is an often underdiagnosed disease that can have numerous causes, including trauma, infection, autoimmune disease, and injury related to intubation. Severe tracheal stenosis is an emergent situation, and early recognition is important. We present a case of tracheal stenosis that was evaluated and managed in the outpatient setting, highlighting key clinical findings that help with diagnosis.

The patient is a 38 yo male with hypertension, OSA, morbid obesity, heart failure, and chronic hypercapnic/hypoxic respiratory failure. He was admitted to the hospital for dyspnea due to volume overload and required intubation for severe hypoxemia. After adequate diuresis, he was extubated but found to have post-extubation stridor that improved with racemic epinephrine and IV decadron. He was discharged after 8 days. Over the next month, he continued to have dyspnea and complained about new “loud breathing.” He was seen by a few providers and noted to have wheezing but no actions were taken. He was eventually seen by pulmonology, where he was again noted to have loud inspiratory wheezing without expiratory wheezing over the lower lung fields. Due to concerns for stridor, a chest x-ray was obtained that showed tracheal narrowing at the level of the clavicles. Pulmonary function tests were performed for further evaluation and demonstrated flattening of both the inspiratory and expiratory limbs of the flow-volume loop, suggestive of a fixed obstruction often seen with tracheal stenosis. The patient was sent for high-resolution CT that same day, confirming significant tracheal stenosis at the thoracic inlet. He was set up for bronchoscopy within 48 hours, and had definitive treatment with balloon dilation.

Tracheal stenosis has been reported in up to 19% of intubated patients(1), and this seems to be more common in women and patients with obesity, hypertension, cardiovascular disease, and cigarette use(2). Our case of intubation-induced tracheal stenosis was left untreated for nearly 5 weeks and highlights how difficult it can be to recognize this diagnosis in the outpatient setting in a patient not in respiratory distress. It is important to have a low threshold for additional work-up for this life-threatening disease in the right clinical context.

References:

Learning Objectives:
1. Identify clinical signs and symptoms of tracheal stenosis
2. Discuss the work-up to identify tracheal stenosis
3. Incorporate this differential diagnosis into their practice
Abstract Title: Atypical Presentation of Mumps Encephalitis: A Case Report

Presenting Author: Ferdusy Dia, MD

Co-Authors: Ferdusy Dia, MD, Internal Medicine, PGY2, Novant Health, Wilmington, NC; Katherine M. Ruiz, MD, Internal Medicine, PGY2, Novant Health, Wilmington, NC; Bhumi Patak, MD, Internal Medicine, PGY2, Novant Health, Wilmington, NC; Charin Hanlon, MD FACP, Internal Medicine, Program Director, Novant Health, Wilmington, NC;

Abstract:
Introduction: Bilateral hyperintense lesions of the brain can be seen with multiple pathologies, but the most concerning one is encephalitis. There are many causes of encephalitis and when the patient is unable to provide any history, it becomes a true challenge. Mumps as a cause for encephalitis is an exceedingly rare diagnosis in the era of vaccination. Here, we present a case of atypical presentation of mumps encephalitis without evidence of parotitis.

Case presentation: A 63-year-old female presented to the ED due to headache, difficulty speaking and abnormal gait. Initial workup was remarkable for leukocytosis, abnormal right extraocular movements, and inability to follow two-step commands on examination. She was up to date in all vaccinations. Patient was admitted for concerns of stroke. CAT scan was negative for any ischemic changes or hemorrhages. Overnight, she developed a temperature of 103 and her neurologic status continued to decline. Given concerns of meningitis, she was started on broad-spectrum antibiotics while waiting for further imaging. MRI of the brain revealed abnormal flair hyperintensity within the bilateral basal ganglia, midbrain, and pons. Due to rapid decline in neurological status, the patient was intubated for airway protection and was transferred to the ICU. A lumbar puncture was completed, and infectious disease was consulted. Antiviral therapy with Acyclovir was started, along with steroids. Lumbar puncture showed pleocytosis with total neutrophil count of 680, mainly lymphocytes. Encephalitis molecular panel and meningitis PCR were negative. Tick borne infection was also ruled out. West Nile serum Ab and CSF West Nile were negative. Given unknown cause and ongoing symptoms, a repeat lumbar puncture was done 3 days later and was positive for IgM mumps on CSF.

Final diagnosis: Atypical mumps encephalitis

Management / Follow-up: There is no treatment for this disease in the literature. She was able to be extubated, but unfortunately, required a PEG tube for nutrition. She was non-verbal at the time of discharge and given her acute decline secondary to the disease, she went to a long-term rehabilitation facility to work on her neuromuscular recovery. She continues to follow up with Neurology in the outpatient setting.

References:


Learning Objectives:
1. Understand the importance of the differential diagnosis when a patient presents to the Emergency Department with neurologic symptoms.
2. Identify when a patient requires a more thorough evaluation when the symptoms are not getting better.
Abstract Title: Prenatal Diagnosis of Fetal Brainstem Disconnection

Presenting Author: Lindsay Buzzelli Yeh, MD, MEd

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Abstract:
Introduction: Dandy-Walker is a common posterior fossa malformation, with phenotypes ranging from mild to severe. Diagnosis is usually made prenatally on ultrasound by fourth ventricle dilation that fills the posterior fossa and cerebellar vermis hypoplasia. In extremely rare cases, it can be associated with brainstem disconnection. In this condition, only a thin cord of tissue connects the superior and inferior portions of the brainstem.1 There exist only 14 known cases of brainstem disconnection.2 The vast majority were not diagnosed prenatally and were almost universally lethal in the months following delivery.3

Case Report: Here we describe a 15th case of brainstem disconnection. The patient was a 38-year-old G1P0 with an uncomplicated prenatal course until findings consistent with Dandy Walker malformation were noted on anatomy scan at 18 weeks. She presented for a second opinion with a maternal fetal medicine specialist and findings were confirmed with absent cerebellar vermis, enlarged cisterna magna, and severe ventriculomegaly. Amniocentesis with whole genome sequencing demonstrated no relevant abnormalities.

Final/Working Diagnosis: Fetal MRI revealed kinking of the brainstem and positioning at the level of the foramen magnum consistent with brainstem disconnection. This represents only the second known case to be diagnosed prenatally. The patient was counseled that, from the few known cases, outcomes are poor with the majority of neonates dying within days to months.2

Management/Outcome/Follow-up: Given the prognosis, the patient was referred to palliative care. After counseling by a multidisciplinary team, she elected comfort care. Close follow-up with serial ultrasounds demonstrated increasing fetal head size. This ultimately necessitated earlier delivery at 37 weeks as well as cephalocentesis, and classical Cesarean delivery. The neonate was found to have severe macrocephaly, ear underdevelopment, micrognathia, cleft lip, and hypotonicity. Unfortunately, the neonate died less than an hour after delivery.

Conclusion: Brainstem disconnection significantly worsens the prognosis of Dandy Walker malformation. The constellation of findings ultimately resulted in increased morbidity of delivery and neonatal death shortly thereafter. In this case, MRI provided the diagnosis of brainstem disconnection during the prenatal course. Unlike in previous cases, this allowed for multidisciplinary palliative care counseling which informed the patient’s decision for comfort care.

References:

Learning Objectives:
- Understand the negative prognostic implication of the finding of brainstem disconnection in the setting of Dandy Walker malformation.
- Describe the role that prenatal diagnosis plays in allowing for shared decision making and informed care.
- Explain how prenatal imaging can inform delivery planning.
Abstract Title: Drop It like It’s Hot: Long Term Hormonal Blockade for High-Risk Endometrial Stromal Sarcoma

Presenting Author: Naden Kreitz, BS

Abstract:

Introduction:

Uterine mesenchymal tumors are derived from endometrial stroma, smooth muscle cells, or blood vessels. One subtype, Endometrial Stromal Sarcoma (ESS), is a rare malignant tumor that comprises approximately 1% of gynecological malignancies and less than 10% of all uterine malignancies (1). The World Health Organization classifies ESS into four subtypes: endometrial stromal nodule (ENS), low grade ESS (LG-ESS), high grade ESS (HG-ESS), and undifferentiated uterine sarcoma (UUS) due to cell morphology and mitotic counts (2). In a Surveillance, Epidemiology, and End Results (SEER) analysis of endometrial stromal sarcoma, the five-year disease-free survival was 91.4% (ENS), 95.4% (LG-ESS), and 42.1% (HG-ESS and UUS) for the respective subtypes (1). Late recurrences have been identified in LG-ESS in up to 60% of patients (3). Typical clinical presentations of ESS include the following: abnormal uterine bleeding, pelvic pressure, enlarged uterus, and abdominal distention. Diagnosis is made based upon pathology evaluation. Standard initial treatment for ESS includes a hysterectomy and bilateral salpingo-oophorectomy. There is currently no consensus on adjuvant therapy.

Case Presentation:

A 22-year-old G0 female reported to the Emergency Department of an outside facility due to worsening lower pelvic pain. Out of precaution for the risk of ovarian torsion, the patient was taken for a robotic-assisted diagnostic laparoscopy with directed uterine biopsies as well as hysteroscopy with directed biopsies. During the procedure, the uterus was markedly enlarged and a fundal complex mass was subsequently incised and biopsied. Hysteroscopy was performed and revealed normal-appearing endometrium. Endometrial curettage was benign. Postoperatively, an MRI showed an 8.8 x 8 x 8.3cm intrauterine abnormality with 4mm capsule, multiple thin septations of uncertain etiology, and bladder distention. The patient was transferred to a higher-level acuity center for further evaluation and management due to ongoing post-operative pain and urinary retention.

Upon arrival, the patient reported her pain as an 8 out of 10 scale and described the character of the pain as “cramping.” The patient notably had not had a bowel movement in the past 7 days but did report passing flatus. The patient tolerated oral intake without nausea and vomiting. The patient’s vital signs were within normal limits. On physical examination, her abdomen was soft, tender without rebound or guarding and the port incisions were clean, dry, and intact. Her pelvic exam revealed normal external genitalia. The patient could not tolerate a bimanual exam, and the speculum exam was deferred as the patient was not sexually active. A small amount of vaginal bleeding was noted. A foley catheter was placed for urinary retention and adequate urine output was recorded subsequently. The foley was discontinued 24 hours later and the patient could void spontaneously without issues. The patient was discharged from the hospital 48 hours after admission due to adequate pain control with a plan for follow up after final pathology returned.

Pathology resulted as ENS vs. LG-ESS with the following characteristics: CD 10 positive, ER/PR positive, SMA negative, no mitosis or necrosis identified. The patient was notified of these results and consented to exploratory laparotomy with resection of the endometrial mass via hysterotomy. During the procedure, the mass was noted as “fleshy and soft, mostly avascular and necrotic with yellow/tan discoloration with what appeared to be adipose tissue vs thecal tissue within it.” The mass was completely resected, though fragmented. The mass was described by the surgeon as an “intracavitary lesion with some areas having clear planes and in other places the mass appeared to be clearly infiltrating the myometrium.” The gynecological oncology team then counseled the patient on treatment options of hysterectomy versus wedge resection of the myometrium given high risk of recurrence balanced with desire for future fertility. The patient chose to proceed with an attempt at a wedge resection.

A second laparotomy was performed 4 weeks later with fundal wedge resection performed. Final pathology of the anterior uterine wedge confirmed multiple clusters of atypical endometrial stroma in the myometrium with focal lymphovascular invasion (LVI) and negative margins were not achieved. Thus, concluding a low-grade mesenchymal neoplasm with JAZF1 gene rearrangement detected by FISH, consistent with a LG-ESS. It was recommended the patient undergo a total laparoscopic hysterectomy (TLH).
Robotic-assisted TLH was completed without complication. After surgery, pathology reported persistent LG-ESS with 8mm invasion into the myometrium (total myometrium thickness 13mm) with lymphovascular invasion in addition to negative margins, negative biopsies, and no other signs of cancer metastasis. Given the high risk of recurrence with invasion of uterus and LVI as well as history of prior surgery with mass fragmentation, the patient was offered a GnRH agonist hormonal blockage with norethindrone add back therapy for a duration of two years to block endogenous estrogen. She has tolerated this treatment course well with minor side effects such as hot flashes during the course of her treatment. The patient is now two years disease free.

**Final Working Diagnosis:** Low grade Endometrial Stromal Sarcoma

**Management/outcome/Follow-up:**
The patient is currently well managed on a GnRH agonist hormonal blockage with norethindrone add back therapy for a duration of two years to block endogenous estrogen administration. The patient continues to be without evidence of recurrence at this time and will continue to seek follow up with the gynecologist-oncologist every six months for the next three years.

**References:**

**Learning Objectives:**
1. Develop the ability to recognize and explain the diagnosis of Endometrial Stromal Sarcoma based on the patient’s clinical presentation and pathology results.
2. Implement patient centered treatment for Endometrial Stromal Sarcoma.

**Abstract Title:** Medical Trauma in a Young Adult with Psychogenic Non-epileptic Seizures: A Case for Retraining and Control Therapy (ReACT)

**Presenting Author:** Chelsea Ross Miller, MD

**Co-Authors:** Chelsea R Miller, MD, Psychiatry, PGY3, University of Alabama Birmingham, Birmingham, AL; Melissa Greenfield, PsyD, Assistant Professor, Psychiatry, University of Alabama Birmingham, Birmingham, AL

**Abstract:**
*Introduction:* Psychogenic nonepileptiform seizures (PNES) are the most common type of functional neurological disorder (FND). PNES is associated with chronic disability and welfare dependence. Studies have shown that anti-epileptic drugs do not improve symptoms burden, and cognitive behavioral therapy results in limited reduction of symptoms. Prolonged episodes occur in 78% of patients with PNES and are often misdiagnosed in the ER as status epilepticus, resulting in large doses of benzodiazepines, and iatrogenic respiratory depression leading to ICU admissions. Retraining and control therapy (ReACT) is a newly developed manualized mind-body intervention that has shown reduction in symptoms for pediatric PNES. In this case, it is applied to a young adult with medical trauma from ICU admissions for PNES.

**Case Presentation:** Patient is a 21-year-old man with a history of focal epilepsy due to multiple cavernous malformations, status-post resection of right mesial-temporal malformations and new onset PNES. PNES was diagnosed after multiple irretractable episodes of seizure-like activity that resulted in NICU admission and intubation. On discharge, the patient exhibited signs of ICU related PTSD, awakening with flashbacks to intubation and having subsequent PNES activity causing patient to re-present to the ER, with further hospital admissions. Patient established care for ReACT on an outpatient basis. He had episodes of PNES that were lasting the entire day consisting of whole-body clenching, moaning, diminished response to environment, and periodic bilateral upper and lower extremity
jerking. He had to stop working due to PNES activity. After 1 session of psychoeducation on PNES, 1 session of behavioral plan development, and 1 session of basic cognitive behavioral therapy, the patient had remission of symptoms throughout a month. Patient had spontaneous recovery of his PNES and then got in a motorcycle accident, requiring hospitalization. After this hospitalization he exhibited increased PNES activity. He continued ReACT completing 1 session on extinction burst with four check-in sessions. He then exhibited improvement in PNES activity, even with subsequent hospitalization for pyelonephritis.

**Diagnosis:** PNES

**Management and Follow-up:** Patient still has one relapse and prevention module of ReACT to complete. He also has two more check-in sessions if needed.

**References:**

**Learning Objectives:**
1. Understand the basic principles of ReACT therapy and how they can quickly be incorporated into most clinical encounters.
2. Develop a framework to discuss PNES with patients and integrate basic ReACT principles into practice with patients in any outpatient or inpatient setting.
3. Understand that PNES can be debilitating without intervention, but that some interventions do not come in the form of a pill, and most providers can equip themselves with simple skills to aid patients with FND.

**Abstract Title:** The First Successful Employment of Brentuximab Vedotin in a Peritoneal Dialysis Patient

**Presenting Author:** Sunpil Hwang, MD

**Co-Authors:** Sunpil Hwang, MD, Internal Medicine, PGY2, North Alabama Medical Center, Florence, AL; Sucheta Kundu, MD, Internal Medicine, Attending, North Alabama Medical Center, Florence, AL; Brett Barlow, MD, Internal Medicine Hematology/Oncology, Attending, Clearview Cancer Center, Florence, AL

**Abstract:**
**Introduction:** Brentuximab Vedotin is a chemotherapeutic agent selectively targeting CD30 antigen. Its indication includes the treatment of Hodgkin lymphoma, systemic/primary cutaneous large-cell lymphoma, and CD30-expressing T-cell lymphomas. As of now, there is no available data on its administration in patients undergoing peritoneal dialysis. This abstract describes the first case regarding the successful employment of Brentuximab Vedotin in a patient with peritoneal dialysis.

**Case presentation:**
A 75-year-old male with a documented medical history of end-stage renal disease on peritoneal dialysis presented at the dermatology clinic due to a rapidly enlarging skin lesion on his right flank. It was described as a 4×3.5cm erythematous oval lesion. Another lesion on the lower back exhibited a similar description. The patient denied any prior episodes of such skin lesions, fever, chills, sweat, or weight changes. Vital signs were within normal. Physical examinations were unremarkable.
The patient underwent a skin biopsy of the right flank lesion due to concerning signs of malignancy. It revealed dermal infiltration of large atypical T-cells with a positive CD30 antigen. His PET/CT scan yielded negative results for additional lesions, except for two aforementioned lesions. Peripheral blood flow cytometry showed no evidence of abnormal T-cells in the blood.

**Final Diagnosis:** Consequently, he was diagnosed with primary cutaneous anaplastic large-cell lymphoma. Given the localized nature of the patient’s skin cancer, radiation therapy was scheduled.

**Management:** Unfortunately, the patient developed multiple skin lesions in between, making radiation therapy not a feasible option. After an extensive discussion, he decided to receive Brentuximab Vedotin, a treatment that had never been administered to patients undergoing peritoneal dialysis. Peritoneal dialysis was held on the day he received chemotherapy. He was started with a reduced dosage, taking into consideration his kidney dysfunction, which was complicated by severe weakness. The dosage was further reduced to 0.9mg/kg every 3 weeks. Notably, he experienced an improvement in weakness throughout the cycle and did not report any new side effects.

Following the completion of 9 cycles of Brentuximab, the patient exhibited resolution of the skin lesions. A follow-up PET/CT scan was negative with no evidence of abnormal uptakes, indicating neoplasm.

**References:**

**Learning Objectives:**
1. Upon completion of this lecture, learners should be better prepared to diagnose primary cutaneous anaplastic large cell lymphoma. Primary cutaneous anaplastic large cell lymphoma is a subtype of cutaneous T-cell lymphoma and ranks as the second most prevalent form of cutaneous T-cell lymphoma, following mycosis fungoides. Its name was derived from the histologic features, characterized by a dermal infiltration of medium to large anaplastic cells. This cutaneous lymphoma also exhibits a notable trait of being strongly positive for CD30 antigen. Its prognosis generally associated with a favorable outcome, but it can be less favorable in cases of multiple skin lesions. Treatment modalities include radiation therapy with a good response rate and chemotherapy.
2. Upon completion of this lecture, learners should be better prepared to identify the indication or side effects of Brentuximab Vedotin. Brentuximab Vedotin is a chemotherapeutic agent employed in the treatment of untreated Stage III or IV classical Hodgkin lymphoma, or Hodgkin lymphoma with a high risk of relapse, primary cutaneous/systemic anaplastic large cell lymphoma or other CD30 expressing T-cell lymphomas. Common side effects associated with its use include peripheral neuropathy, infusion reaction, fatigue, nausea, and a rare occurrence of reported progressive multifocal leukoencephalopathy.
3. Upon completion of this lecture, learners should be better prepared to discuss and explore further application of Brentuximab Vedotin to end-stage renal disease patient group. Information regarding the utilization of Brentuximab Vedotin in dialysis patients remains exceptionally limited. To our knowledge, a sole case report by Nanni L et al., 2019, reported a successful administration of Brentuximab in a patient receiving hemodialysis. This abstract serves as the primary documentation of its application in a peritoneal dialysis patient with successful outcomes marked by the resolution of pathologic lesions. This preliminary evidence suggests the potential application of Brentuximab in dialysis patients. Further case reports and research studies will broaden the scope of its safe application to include the end-stage renal disease population.
Abstract Title: Acute Type A Aortic Dissection Complicated by Hepatic Hypoperfusion Treated with Intravascular Ultrasound-Guided Celiac Artery Stent

Presenting Author: Hailey Shoemaker, BS, MPH

Co-Authors:
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Abstract:
Introduction: Type A aortic dissection is a common deadly cardiovascular emergency requiring prompt corrective surgery (1). Potential complications of the dissection itself, surgery, and cardiopulmonary bypass include aortic arch or branch occlusion, thrombosis, and eventual ischemia of vital organs (1, 2). Occlusion of the celiac artery leading to liver malperfusion in this setting requires prompt surgical care to avoid fulminant liver failure and death (3, 4, 5). However, the most effective approach has not yet been established in the literature.

Case Presentation: In this report, we describe a 39-year-old female patient with hypertension who presented with severe acute chest pain radiating to the upper back. Physical exam findings on admission included hypertensive urgency, equal radial pulses, and no neurologic deficits. Computed tomography (CT) angiogram of the chest showed a Stanford Type A, DeBakey Type I aortic dissection involving the aortic takeoff from the heart, aortic arch, and common iliac arteries, with partial involvement of the celiac axis and superior mesenteric artery (SMA). One day after emergent total arch replacement, she developed acute kidney injury, leukocytosis, lactic acidosis, and elevated INR. CT scan of the abdomen and pelvis showed bowel edema, pelvic free fluid, and redemonstration of the previous dissection involving the celiac trunk and SMA. The celiac artery appeared to have a central stenosis, presumably due to the dissection flap.

Working Diagnosis: Our patient suffered from imminent hepatic failure secondary to a celiac artery dissection in the setting of Type A aortic dissection.

Management and Outcome: Hepatic reperfusion was achieved through ultrasound-guided balloon angioplasty of the celiac artery with placement of a bare-metal stent extending into the common hepatic artery to prevent recurrence. The patient’s INR and hepatic function tests normalized by 20 days post-arch replacement, indicating that stent placement prevented acute fulminant hepatic failure and patient mortality. Her clinical course was unfortunately complicated by left hemispheric cerebral infarction and hemodialysis-dependent acute renal failure. On postoperative day 20, she was discharged to a neurological skilled nursing facility for further care.

References:
Learning Objectives:
1. Describe end-organ complications secondary to Type A aortic dissection and a possible time course for their development, as not all damage is evident at presentation and multiple interventions may be required.
2. Describe the warning signs, including imaging and laboratory values, indicating end-organ complications warranting further evaluation as mentioned above.
3. Discuss the potential treatment options for organ malperfusion or impending organ failure secondary to extension of an aortic dissection into a branch vessel (celiac trunk, superior mesenteric artery, etc).

Abstract Title: Cefazolin and Surgically Treated Acute Appendicitis, When, Where and Why?

Presenting Author: Andrew Nicholas Hendrix, BS

Co-Authors: Kevin M. Schuster, MD, MPH, FACS|Section Chief, Trauma, Surgical Critical Care, Acute Care Surgery and Burns & Wound Care | Yale School of Medicine

Abstract:
Background/Knowledge Gap: Antibiotics within an hour of incision have been shown to reduce incidence of surgical site infection (SSI) in clean-contaminated abdominal surgery. Patients undergoing emergency surgery often receive treatment antibiotics in the emergency department and may not benefit from additional pre-incisional antibiotics. To date, no study has examined pre-incision cefazolin’s efficacy in the case of emergency intra-abdominal procedures, particularly in the case where broad-spectrum coverage was administered in the emergency department prior to surgery. We hypothesized that additional preoperative cefazolin does not decrease incidence of SSI in emergency appendectomies in patients previously treated with broad spectrum antibiotics in the emergency department.

Methods/Design: We evaluated outcomes of patients before and after a policy change recommending pre-incision cefazolin irrespective of ongoing antimicrobial therapy. All adult patients at a single institution undergoing emergency appendectomies for acute appendicitis between 2013 and 2020 were included. Age, sex, perforation, body mass index (BMI), Elixhauser comorbidity index (ECI), surgical approach, emergency department antibiotics (EDA), and preoperative antibiotics were abstracted. Primary outcomes were superficial/deep and organ-space SSIs. Bivariable and multivariable logistic regression models assessed the independent impact of each strategy. Multivariable models compared those receiving pre-incisional cefazolin to those receiving no pre-incision antibiotics.

Results/Findings: Patients (n= 1328) had a mean age (SD) of 39.5 (17.0) years and 40% were female. Age, sex, perforated appendicitis, EDA, ECI and BMI all were predictive of infection. After adjustment for age, sex, perforation, EDA, ECI and BMI, ED broad spectrum antibiotics were associated with lower incidence of superficial/deep infection [OR 0.06 95% CI (0.00 – 0.68)] however pre-incision cefazolin was not [OR 0.71 95% CI (0.08 – 15.34)].

Conclusions/Implications
For patients undergoing emergency appendectomy who have received broad spectrum antibiotic treatment in the emergency department, additional pre-incision cefazolin may not reduce the incidence of superficial/deep or organ-space SSI. As the antibiotic resistance epidemic continues to be a major problem within the healthcare system, finding opportunities to limit the administration of unnecessary antibiotics is both valuable and necessary in combating resistance.

References:
Learning Objectives:
1. Demonstrate an understanding of the guidelines for preoperative antibiotic administration as well as the impact these guidelines have had on the prevalence of surgical site infections.
2. Demonstrate an understanding of the role preoperative and perioperative antibiotic administration plays in the antibiotic resistance epidemic.
Abstract Title: PBP2 and PBP3 Spatial and Temporal Localization in the Polarized Cell Division of Chlamydia

Presenting Author: Marquinta Moná King, BS, MS

Co-Authors: Marquinta King, M3, UTHSC, Memphis, TN; John Cox, PhD, Associate Professor, Department of Microbiology, Immunology, and Biochemistry, UTHSC, Memphis, TN

Abstract:
Background: Chlamydia trachomatis (CT) is a major human pathogen and the leading cause of bacterial sexually transmitted infections. Infections in women are most often asymptomatic, but if the bacterium ascends to the oviduct it can cause more serious disease. Current therapies to eradicate Chlamydia genital tract infections employ broad-spectrum antibiotics that have profound effects on the vaginal microbiota that can lead to vulvovaginal candidiasis or bacterial vaginosis, which reduce the quality of life for women. A therapeutic vaccine against CT is currently unavailable which underlines the importance of creating a targeted treatment for these infections. In contrast to the majority of bacteria that divide by binary fission, Chlamydia trachomatis divides by polarized budding.

Methods: To define the mechanisms that regulate this novel division process, we analyzed the localization patterns of key regulators of bacterial division, PBP2, PBP3, and MreC. M-Cherry PBP2, M-Cherry PBP3 and M-Cherry MreC fusions were introduced into the plasmid, pBOMB4. CT serovar L2 was transformed with these constructs that allowed for the inducible expression of the fusions by the addition of anhydrotetracycline (aTc) to the media. HeLa cells were infected with the transformants and the fusions were induced. The Chlamydia were then isolated from infected cells, fixed to a slide, and analyzed, using conventional epifluorescence microscopy.

Results: Analyses revealed that PBP2, PBP3, and MreC primarily accumulated in a spot at the septum between the mother and daughter cell during polarized division.

Conclusions: The localization profiles of these proteins are distinct from their localization in other bacteria, and they suggest that chlamydial PBPs may interact with peptidoglycan in a manner very different than that seen in other bacteria. The nature of this interaction will be investigated in future real-time imaging studies.

References:

Learning Objectives: To discern the unique modes that Chlamydia uses to divide compared to other bacterium species.
Abstract Title: Relevance of Red Cell Distribution Width in Postural Orthostatic Tachycardia Syndrome or Postural Symptoms Without Tachycardia Patients: A Comparative Analysis

Presenting Author: Smriti Awasthi, BS

Co-Authors: Smriti Awasthi, BS, Extern, Cardiology, The Heartbeat Clinic, Mckinney, TX; Jawad Shahid, MBBS, Extern, Cardiology, The Heartbeat Clinic, Mckinney, TX; Kazma Kulsoon, MPH, Biostatistician, The Heartbeat Clinic, Mckinney, TX; Amna Butt, MBBS, Extern, Cardiology, The Heartbeat Clinic, Mckinney, TX; Amer Suleman, MD, Physician, Cardiology, The Heartbeat Clinic, Mckinney, TX.

Abstract: Background: Postural Orthostatic Tachycardia Syndrome (POTS) is a complex disorder that is characterized by an increase in delta HR of 30 beats or more while doing a TILT table test. Postural symptoms without tachycardia (PSWT) is a condition similar to POTS without a significant increase in Heart Rate. They are often accompanied by various debilitating symptoms such as dizziness, fatigue, and cognitive impairment. As of recent studies, there are associations between POTS and cardiovascular abnormalities.

Red Cell Distribution Width (RDW), a measure of red blood cell size heterogeneity, reflects a potential biomarker in various cardiovascular disorders. By examining RDW in relation to clinical parameters such as heart rate variability, symptom burden, and autonomic function, we aim to correlate its abnormalities in POTS. Abnormal RDW levels have been implicated as a predictor of adverse cardiovascular outcomes and increased mortality risk in various cardiac conditions, such as heart failure.

Methods: A random data set of 158 patients has been selected from The Heartbeat Clinic, Texas, USA. The data was arranged in excel sheet, whereas SPSS 29.0 was used to analyze and generate the results.

Results: Among 158 POTS or PSWT patients, 145 (91.8%) were female, and 13 (8.2%) were male. There were 135 (85.4%) patients had POTS, whereas 23 (14.6%) had PSWT. RDW had 3 ranges; low (11-11.6), normal (11.7-15) and high (15.1-24). 8 (5.1%),134(84.8%) and 16(10.1%) patients had low, normal and high ranges of RDW respectively. Upon application of One-way ANOVA on the variables, the p-value obtained was 0.138 which is higher than the standard significant value 0.05. Which showed no statistical significant role of RDW in POTS or PSWT patients.

Conclusion: It is concluded that RDW has no statistical relevance in POTS or PSWT patients.

Learning Objectives: The objective of this study is to find out the relevance of RDW in POTS or PSWT patients.

Abstract Title: Association between Red Cell Distribution Width (RDW), Maximal Oxygen Consumption (VO2 max) and Delta Heart Rate in Postural Orthostatic Tachycardia Syndrome (POTS) or Postural Symptoms Without Tachycardia (PSWT) patients

Presenting Author: Jawad Shahid, MBBS

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Abstract: Background: Postural Orthostatic Tachycardia Syndrome (POTS) is an autonomic disorder which is characterized by an abnormal increase in Heart Rate of more than 30 beats per minute upon standing. Postural symptoms without tachycardia (PSWT) is a condition which mimics the same symptoms as POTS without significant increase in Heart Rate. Red Cell Distribution Width (RDW) is a measurement of variability in red cell size which has been indicative of prognosis in various cardiovascular diseases. VO2 max is an ability of the person to utilize maximal oxygen during exercise. This study aims to explore the relationships between RDW, VO2 max, and Delta HR to enhance the prognostic value in clinical setting in POTS or PSWT patients.

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Methods: A comparative study design was used in this research. A random data of 158 individuals with POTS or PSWT were selected from The Heartbeat Clinic, Texas. RDW, VO2 max and Delta HR were recorded through blood reports and metabolic stress test reports. For arranging and analyzing the data, SPSS 29.0 was used.

Results: Out of 158 POTS or PSWT patients 145(91.8%) were females whereas 13(8.2%) were males. For this comparative analysis, One-way ANOVA test was applied on variables. The obtained significance value upon the association between RDW with VO2 max and Delta HR was 0.087 and 0.179 respectively. The significance values were higher than 0.05 which showed that there was no association between RDW, VO2 max and Delta HR in POTS or PSWT patients.

Conclusion: It is concluded that RDW has no significant association with VO2 max and Delta HR. Elevated RDW has no bad prognosis on VO2 max and Delta HR in POTS or PSWT patients.

Learning Objectives: The primary objective of this study was to explore the association between RDW, VO2 max, and Delta HR in individuals with POTS or PSWT, to identify any significant hematological and cardiovascular differences.

Abstract Title: Mental Health Stigma Radio Intervention: Qualitative Effects of a Radio Intervention to Reduce Mental Health Stigma In Rural Uganda

Presenting Author: Brandon Fickling, BA

Co-Authors: Jae Lee, MD, Psychiatry, PGY3, Yale School of Medicine, New Haven, CT; Anna Belle Gallaher, M2, UTHSC College of Medicine, Memphis, TN; Micah Goode, M2, UTHSC College of Medicine, Memphis, TN; Paul Kaan, Undergraduate Student, Williams College, Williamstown, MA

Abstract:

Background: Despite its widespread impact on populations, mental health conditions are often stigmatized, resulting in a lack of public awareness and access to treatment that deters individuals from seeking help, particularly in low-resource settings and rural areas. Uganda and other sub-Saharan African countries have documented various human rights violations against the mentally ill, including emotional and physical abuse, as well as exclusion from mainstream society due to pervasive stigma and discrimination. This study aimed to develop and evaluate a novel intervention to reduce mental illness stigma and improve healthcare-seeking behaviors in rural Uganda.

Methods: A 45-minute radio intervention was created based on a previously successful community-led theater intervention that was produced by community health workers with instruction of educational material. The adapted radio intervention was played for 17 in-depth interviews and 2 focus groups consisting of 5-6 participants to evaluate the impact of the drama. Qualitative analysis of the radio intervention was conducted using framework analysis by mapping themes onto a matrix to develop and assess the intervention's potential effectiveness in reducing mental health stigma.

Results: The framework analysis involved detailed feedback received via qualitative interviews to identify themes of the intervention aimed to address mental health stigma. These themes encompassed education, awareness, entertainment, treatment, and social acceptance. The radio intervention effectively educated the audience about factors that contribute to mental illness, including stressors and substance use, and expanded awareness beyond psychosis. The intervention elicited a shift in the perception of treatment rooted in religious and traditional practices to an understanding of the accessibility and efficacy of medicine. Furthermore, the intervention fostered an awareness of the need for community support and respect.

Conclusions: The study demonstrated the utility of a radio intervention to reduce mental health stigma through increased awareness of the signs of mental illness, a change in perception of how mental illnesses can be treated, and increased community support for those with mental illness. Future research should assess the intervention's impact on stigma reduction and explore scaling possibilities. Addressing mental health stigma is crucial to promote healthcare-seeking behaviors in rural and low-resource settings to improve health outcomes.
References:

Learning Objectives:
Upon completion of this presentation, learners should be better prepared to:
Identify the stigmas currently associated with mental illness in rural Uganda.
Discuss stigma attached to mental illness has adverse impacts on mental health service use and on people with mental illness.
Examine the main themes that we drew from our in-depth interview and focus groups that were elicited by the radio intervention.

Abstract Title: Exploring Pathways to Mental Health Care in Rural Uganda: Provider Attitudes, Collaborative Challenges, and Implications for Holistic Patient Care

Presenting Author: Nicole Terflo, BS

Co-Authors: Jae Lee, PGY3; Emrose Kathawala, M2 UTHSC College of Medicine; Anurag Epparla, M2 UTHSC College of Medicine; Nolan Corbitt, M2 UTHSC College of Medicine; Emmy Coleman, M2 UTHSC College of Medicine; Camryn Coley, M2 UTHSC College of Medicine; Corrine Lafferty, Undergraduate Student, Ohio State University; and Kassidy Cole, Undergraduate Student, Notre Dame University.

Abstract Title: Exploring Pathways to Mental Health Care in Rural Uganda: Provider Attitudes, Collaborative Challenges, and Implications for Holistic Patient Care

Abstract:
Knowledge Gap: This research study investigates the attitudes toward collaboration for mental health treatment among three types of providers in rural Uganda: Traditional Healers, Religious Leaders, and Biomedical Providers. Given the predominant focus on mental health in developed regions, this study aims to deepen our comprehension on the openness of these three providers to interdisciplinary approaches in rural communities. Using the Buyende district as a representative model, the study examines providers’ attitudes toward mental illness, effective strategies proposed for mental health care, and collaborative approaches for optimal patient outcomes.

Methods: The study involved a total of 53 one-on-one interviews and 8 focus group discussions with select participants: traditional healers, religious leaders and biomedical providers. Interviews conducted in the native language, Lusoga, were transcribed into English. Scripts were analyzed by a qualitative thematic framework.
Findings: Examining the findings revealed key insights into the perspectives and interactions among mental health care providers:
1. Belief disparities: While all providers recognized contemporary medical causes of mental illness, differences also emerged. Religious Leaders often attributed mental illness to divine punishment, while Traditional Healers tended to link mental illness to witchcraft.
2. Inter-provider Hesitations: Traditional Healers hesitated to collaborate with Religious Leaders, and vice versa, due to stigma and differing perspectives.
3. Biomedical Providers’ Views: Biomedical Providers were skeptical of Traditional Healers’ efficacy, but acknowledged cultural significance. They advocated for a combined approach, emphasizing medication and prayer.
4. Stigma and collaboration: A positive trend toward collaboration and minimal stigma toward mental illness was seen from all providers.
5. Accessibility Challenges: Findings indicate a lack of accessibility to care for patients due to the cost of medication, transport to facilities, and lack of available mental health providers.

Conclusions & Implications: In summary, the study highlights the importance of interprofessional collaboration in mental health care. Shared perspectives and nuanced differences among providers, coupled with the challenges in accessibility, suggest potential areas for intervention and collaboration in the holistic treatment of mental illness. Moreover, the study shows that helpful steps could be taken within the biomedical health care system to further incorporate Religious Leaders and Traditional Healers for a more comprehensive approach to patient care.

References:
Catherine Abbo (2011) Profiles and outcome of traditional healing practices for severe mental illnesses in two districts of Eastern Uganda, Global Health Action, 4:1, DOI: 10.3402/gha.v4i0.7117

Learning Objectives:
1. Understand the attitudes of different mental health care providers (i.e. Traditional Healers, Religious Leaders, and Biomedical Providers) in rural Uganda, and explore belief disparities and differing views on treatment efficacy.
2. Examine the challenges that individuals with mental illnesses face in rural Uganda, including barriers to receiving care such as availability of medications, providers, and transportation to facilities.
3. Explore the study’s findings regarding collaborative hesitations and proposed strategies by providers for addressing mental health care. Particularly, learners will examine potential benefits of incorporating Religious Leaders and Traditional Healers into the biomedical health care system for a more comprehensive approach to patient care.

Abstract Title: Suture Tech Program at the University of Tennessee Health Science Center

Presenting Author: Eleanor Lee, MPH

Co-Authors: Eleanor Lee, MPH, UTHSC COM, MS2, Memphis, TN; Jarrett Rong, BS, UTHSC COM MS4, Memphis, TN; Anna Conner, BS, UTHSC COM MS3, Memphis, TN; Nicholas Yanek, MBA, UTHSC COM, MS1, Memphis, TN.

Abstract:
In the United States, trauma centers are stratified into five levels (Level I to Level V) based on the available resources for the care of patients with traumatic injuries, defined as the sudden onset of physical injury requiring immediate medical attention. Emergency departments (EDs) in Level I trauma centers typically manage a substantial patient load, with wound care constituting a critical service provided nationwide. A study by Cross et al examined 60,345 patients in a sizable public ED in a metropolitan area over a 12-month period, revealing that approximately 6% required wound care, a prevalence observed throughout the country.

In the context of a high-volume ED, the strategic training of technicians to administer fundamental wound care, including cleansing, bandaging, and superficial wound closure, enables ED physicians to allocate their expertise to more complex cases. This initiative seeks to elucidate the organizational structure of the Suture Tech Program (STP) at the
University of Tennessee Health Science Center (UTHSC). The STP is meticulously designed to equip medical students with the requisite skills to deliver these interventions under the direct supervision of physicians in the ED.

We conducted an insightful interview with Thomas Triplett, MD, an ED physician at Regional One and the current chief of the STP. Additionally, we actively participated in numerous shifts to gain firsthand insights into the program's design. Regional One, affiliated with UTHSC, serves as the sole Level I Trauma Center within a 150-mile radius of Memphis, TN, attending to an estimated 34,499 patients between July 2016 and June 2018. Originating in the 1990s, the STP was established to alleviate ED congestion while unwaveringly maintaining the standard of care for patients. The program comprises 15 meticulously trained medical students from the second to fourth year at UTHSC, each undergoing approximately 150 hours of training before actively contributing to basic wound care under the judicious guidance of ED physicians. Operating from 6 pm to 12 am on Sunday to Thursday, and from 6 pm to 6 am on Friday and Saturday, the program has witnessed a noteworthy proportion of participants advancing to graduate and securing placements in surgical subspecialties. It is our fervent hope that by providing a comprehensive overview of the STP's structure, other programs nationwide, if deemed necessary, can draw upon its success for emulation.

References:

Learning Objectives:
1. Upon completion of this presentation, learners should have a better understanding of the hierarchical structure of trauma centers in the United States, distinguishing the key characteristics and services provided at Level I trauma center emergency departments.
2. After this presentation, participants should be equipped to assess the impact of high-volume emergency departments on patient care, emphasizing the role of trained technicians in administering fundamental wound care to optimize the allocation of expertise for more complex cases.
3. Following this lecture, attendees should possess an enhanced understanding of the Suture Tech Program (STP) at the University of Tennessee Health Science Center, enabling them to evaluate its organizational structure, training procedures, and outcomes, with the aim of informing potential replication in other healthcare institutions.

Abstract Title: A Retrospective Analysis of Needle Thoracostomies at a Level 2 Trauma Center

Presenting Author: Sarthak Biren Parikh, DO

Co-Authors: Sarthak Parikh DO, Orthopedic Surgery and Trauma Research Fellow, Saint Francis Health System Tulsa OK; Maryavis Howell MSN, TCRN, CEN, CPHRM, Director of Trauma Services, Saint Francis Health System Tulsa OK; Hung-Wen Yeh, Division of Health Services and Outcomes Research Children’s Mercy Kansas City; Many Cheruvu, PhD, Manager, Clinical Research Clinical Research and Sponsored Programs Saint Francis Health System Tulsa OK; John Shellenberger MD Saint Francis Health System Tulsa OK.
Abstract:
Introduction: A tension pneumothorax is a condition that results in an elevated pressure within the pleural space leading to lung compression, mediastinal shift, decreased venous return and ultimately cardiovascular collapse. The 2nd ICS MCL is the most commonly used decompression location; however some literature suggests that catheters placed in the 2nd ICS MCL are prone to have higher failure rates compared to the 5th ICS MAL (42.5% versus 16.7%, respectively).

Purpose: In this study, we aim to identify and scrutinize the prevalence of prehospital needle decompression from one tertiary care center over 8 years and examine their trends, efficacies, or pitfalls.
Methods: A set of 90 patient records obtained using the trauma registry, EPIC hyperspace and Oklahoma Emergency Medical Service Information System were included in the study. Data from these patients were retrospectively reviewed and analyzed to identify outcomes.

Results: Results showed a total of 117 needle thoracostomies were performed with 86 documented in the 2nd ICS MCL (63, 53.85%), 5th ICS AAL (7, 5.98%) and 5th ICS MAL (16, 13.68%). The most documented indications for needle decompressions included diminished or absent breath sounds (52.70%), hypoxia (15.54%), hypotension and hemodynamic instability (6.76%). EMS reported improvements in 51 (56.67%) patients after needle thoracostomy. Improvements in vital signs after needle decompression were sporadic.
Conclusion: Needle decompressions should be performed after accurate diagnosis of tension pneumothorax in the 5th ICS, where research supports the lowest rate of complications and highest rate of success. Improvement of EMS education regarding thoracic trauma, early tension pneumothorax diagnosis and treatment can reduce complication rates and improve overall outcomes of needle decompressions in the prehospital setting.

References: 

Learning Objectives:
1. Prehospital needle decompressions should be performed in the 4th or 5th ICS MAL to avoid catheter dislodging.
2. According to the ITLS guidelines published in 2017, finger thoracostomy may be the best intervention for treatment of tension pneumothorax because it avoids many of the complications associated with catheter.
3. Improving education on proper diagnosis and management of tension pneumothorax can improve the efficacy rate of needle decompression and reduce negative outcomes.

Abstract Title: Patient and Caregiver Perception of Adenoidectomies: a non-Real World Social Media Analysis

Presenting Author: Nikhil Godbole, BS

Co-Authors: Nikhil B. Godbole, BS, MS3, Tulane University School of Medicine, New Orleans, LA; Ethan D. Paliwoda, MBA, MS1, Albany Medical College, Albany, NY; Avi A. Gajjar, BS, MS1, Albany Medical College, Albany, NY; Nithin Gupta, BS, MS3, Campbell University School of Osteopathic Medicine, Lillington, NC; Alexander Nguyen, BS, MS1, Creighton University School of Medicine, Phoenix, AZ; Andrew Nguyen, BS, MS1, University of Florida College of Medicine, Gainesville, FL; Richard Alexander, MD, PhD, MBA, Granville ENT, Oxford, NC

Abstract:
Introduction: Social media analysis allows healthcare providers to gain a holistic understanding of the patient experience as well as more direct insight into the positive and negative attitudes regarding a procedure.

Objective: To survey the social media outlets Twitter and Instagram for public posts related to adenoidectomy surgery. This study aims to investigate the attitudes and perceptions of patients and caregivers on social media, through thematic content-analysis of social media posts regarding adenoidectomy.

Methods: This was a non-real world qualitative study of Twitter and Instagram social media platforms. Public posts uploaded between February, 2021-February, 2023 using the hashtags “#adenoidectomy”, and
“#adenoidectomyrecovery” were searched. Posts were excluded if they were unrelated to adenoidectomy or were in a non-English language. Relevant posts were stratified demographically as patient or caregiver and pre- or post-operative and categorized into relevant themes for analysis. Outcomes were measured as the total number of posts.

**Results:** 394 relevant posts were analyzed. A significance threshold of $p < 0.05$ was used. Patients (31.1%) posted significantly more posts regarding procedure pain ($p = 0.002$) and concern for appearance ($p = 0.048$) compared to caregivers (14.4%). Caregivers (19%) posted significantly ($p < 0.001$) more posts regarding condition awareness and were significantly ($p < 0.001$) more likely to spread positivity in their posts compared to patients themselves (11.1%). Posts made by female caregivers were more likely to reference fear, while those made by male caregivers were more likely to provide education ($p = 0.002$).

**Conclusions:** Patients may worry about appearance and mental health while caregivers are more likely to spread information and positivity. Male and female caregivers may also use social media differently. A better understanding of patient and caregiver concerns may optimize physician interaction and involvement.

**Learning Objectives:**
Identify important trends in patient and caregiver concerns
Understand the patient provider relationship in greater detail
Describe factors which may foster an improved physician-patient relationship

**Abstract Title:** A Comparative Analysis of Next-Generation Sequencing and Culture-Based Technology in Burn Microbiome Analysis

**Presenting Author:** Henry Clayton Ross, BS MS

**Co-Authors:** Caroline Corley, BS, MS3, MUSC, Charleston, SC; Carter M. Powell, BS, Mindy Engevik, Ph.D., Assistant Professor, Regenerative Medicine & Cell Biology, MUSC, Charleston, SC; Michael G. Schmidt, Ph.D., Professor, Microbiology & Immunology, MUSC, Charleston, SC; Lisa Steed, Ph.D., Professor, Pathology & Laboratory Medicine, MUSC, Charleston, SC; Arman Kilic, MD, Associate Professor, Surgery, MUSC, Charleston; Steven A. Kahn, MD, Associate Professor, Surgery, MUSC, Charleston, SC; Deepak K. Ozhathil, MD, Assistant Professor, Surgery, MUSC, Charleston, SC.

**Abstract:**
**Background/Knowledge Gap:** Bacterial colonization of wounds is the primary contributor to graft loss and delayed wound healing in burn care. Multiple studies have linked bacterial counts with graft loss and specific microbes with delayed wound healing. Conventional microbial culture methods have yielded information on bacteria capable of colonizing wounds, but analysis of the complex microbial community in these wounds is lacking. Although Next Generation Sequencing (NGS) technology represents a promising alternative to traditional culturing, this technology has not been validated in burn wounds. Our study hypothesizes that NGS will be non-inferior to traditional culture-based methods in characterizing the wound microbiota.

**Methods/Design:** The study will enroll adults who undergo surgery for acute burn wounds. A pre-operative surface wound swab and two adjacent tissue specimens will be collected from 80 wounds. The swab and one tissue specimen will undergo 16S and 18S amplicon sequencing, while the other specimen will be sent for wound cultures. Species profiles and other outcomes will be compared with Chi-square and ANOVA/MANOVA tests using SPSS software.

**Results/Findings:** Preliminary results are available for 17 of 80 samples from 10 patients. Enrollees favor male gender, average 50.9 years of age, and suffered an average 16.6% total burned surface area injury. Samples were collected a mean of 15.1 days post-injury, cultures identified an average of one species and NGS identified three. Twelve specimens exhibited positive NGS results: 4 were culture negative, 6 captured all species detected on culture, and 2 had incomplete capture. Nine specimens identified species on NGS not detected on wound culture including some emerging pathogens. Of the 5 negative NGS specimens, 2 were positive by culture.
Conclusions/Implications: Our preliminary data support the predictive value of NGS relative to culture-based methods. Specimens collected closer to the date of injury were predominantly commensal/environmental species, while later specimens revealed enteric/pathogenic incursion. Pseudomonas aeruginosa predominance in tissue samples occurred after 14 days but was detected on swabs earlier, suggesting delayed tissue penetration. This study supports the use of NGS to characterize the burn wound microbiome and promotes its potential to uncover future biotherapeutic strategies.

Learning Objectives:
1. Identify the limitations of routine burn wound cultures and understand the potential of Next Generation Sequencing (NGS) as an alternative diagnostic method.
2. Assess the implications of NGS in burn care, recognizing its ability to capture diverse bacterial species and its potential to revolutionize treatment strategies based on microbial progression.

Abstract Title: Fooled: Unusual Presentation of Sarcoidosis Mimicking a Fungal Foe

Presenting Author: Amanda V. Hardy, MD

Co-Authors:
Amanda V. Hardy, MD, Internal Medicine-Pediatrics, PGY4, University of Tennessee Health Science Center, Memphis, TN; Christopher D. Jackson, MD, Primary Care Physician, Internal Medicine, University of Tennessee Health Science Center, Memphis, TN

Abstract:
INTRODUCTION: Sarcoidosis in patients with HIV is rare, and the association is not well established(1,2). Deficiency of CD4 cells defines HIV, while CD4 lymphocyte accumulation is characteristic of sarcoidosis. The understanding of these diseases conceptually challenges their coexistence. We herein report an unusual presentation of sarcoidosis in a patient with HIV, skin lesions, and significant bone disease resembling blastomycosis.

CASE PRESENTATION: A 46-year-old female with HIV presented to an outside facility with thigh pain, skin lesions, and weight loss. There, CT revealed extensive mediastinal adenopathy and destructive lesions in her left ischium, left femoral head, and lumbar spine. Biopsy of the vertebral lesions revealed nonspecific histiocytic inflammation. She was discharged with outpatient follow-up but presented to the current facility a month later with the same complaints. Physical exam revealed multiple papular, flesh-colored lesions over her face, and labs resulted in CD4 and CD8 counts of 116 and 173 cells/μL, respectively, and an undetectable viral load. Given her immunosuppression, clinical picture, and area of residence, Amphotericin B was initiated for presumed blastomycosis. Additional testing for infectious causes, including Blastomyces, Histoplasma, and Aspergillus, were negative. Skin biopsy revealed granulomatous dermatitis with negative stains for acid-fast bacilli, spirochetes, fungus, or malignancy. CT-guided biopsy of left ischial lesion was performed, but given the patient’s clinical improvement, she was discharged on itraconazole with follow-up with her PCP and infectious disease (ID). In ID clinic, her biopsy results were reviewed.

FINAL DIAGNOSIS: Histopathology confirmed the diagnosis of sarcoidosis.

OUTCOME/DISCUSSION: Oral corticosteroids were initiated, and after several weeks, the patient improved. Importantly, this case highlights the danger of anchoring bias with certain historical data, such as HIV status. Despite classic findings and demographical features, the patient’s diagnosis was delayed while other differentials were considered. The seemingly paradoxical coexistence of HIV and sarcoidosis is rare, but unlike the other <100 cases reported to date, the patient in the present case had a CD4 count of <200 cells/μL, suggesting the underlying pathophysiology of sarcoidosis exceeds the suspected role of CD4 lymphocytes(3). Recognizing the limitations imposed by incomplete understandings of diseases can help generate a more inclusive list of differential diagnoses.
References:

Learning Objectives:
- Recognize that sarcoidosis in the setting of HIV is extremely rare
- Review how imaging can lead to a delay in diagnosis

Abstract Title: Spontaneous Escherichia coli Meningitis: A Rare Case Study

Presenting Author: Tara Kronen, DO, MA

Co-Authors: Tara Kronen, DO, Internal Medicine, PGY2, University of Florida, Jacksonville, FL; Sarah Colando, DO, Anesthesiology, PGY1, University of Florida, Jacksonville, FL

Abstract:
Introduction: Spontaneous bacterial meningitis infections secondary to gram-negative bacilli are an infrequent occurrence in the immunocompetent adult population. Amongst the most common gram-negative bacilli causing adult bacterial meningitis include Klebsiella pneumoniae, Pseudomonas aeruginosa, and Actinobacter, with E.coli meningitis as the rarest. E.coli meningitis typically occurs in three settings: neonatal meningitis, postoperative meningitis, and spontaneous meningitis. Spontaneous meningitis typically is seen in immunocompromised patients, and rarely in immunocompetent patients. Between 1945 to 2017, there was a total of 45 confirmed cases of spontaneous E.coli meningitis in immunocompetent patients. Given that these individuals often have higher mortality rates, of around twenty times greater than other meningitis infections, early identification of symptoms and presentation is imperative to improving outcomes for our patients.

Case Presentation: A 55-year-old female with a past medical history of polymorphic ventricular tachycardia status post dual chamber implantable cardioverter defibrillator, hypertension, and type III spinal meningeal cyst presented with right-sided facial droop, dysarthria, headache, and neck stiffness for 3 hours. On physical examination, heart rate was 110 beats/min, temperature was 102.3°F, and Glasgow coma score of 12. The patient was stroke alert with computed tomography of the head without acute intracranial hemorrhage. Ultrasound of the bilateral orbits was obtained, which revealed increased optic nerve sheath diameter bilaterally (> 0.7cm). An infectious workup was collected. Blood cultures were negative. A lumbar puncture was performed with findings significant for elevated leukocytes, elevated protein, decreased glucose, and gram stain significant for gram-negative rods. Cerebral spinal fluid was negative for herpes simplex virus. Urinalysis was positive for leukocyte esterase with urine culture growing Escherichia coli (E.coli). Computed tomography of the abdomen/pelvis was negative for intra-abdominal findings. The patient was started on antibiotics and de-escalated to Ceftriaxone once sensitivity confirmed pan-sensitive E.coli.

Final/Working Diagnosis: Infectious disease was consulted with suspicion of E.coli meningitis etiology from a urinary source translocated to the central nervous system through the disruption of the blood-brain barrier as a result of her meningeal cyst.

Management/Outcomes/Followup: During the patient’s hospitalization, she continued to clinically improve with symptoms resolving. The patient was discharged home on Levaquin 750 mg daily for three weeks, and follow-up with Infectious Disease outpatient.
References:

Learning Objectives:
Recognize/Identify early signs of spontaneous gram-negative bacilli meningitis to prevent morbidity/mortality, and improve patient outcomes.
Recognize other causes of bacterial meningitis in adult immunocompetent populations.

Abstract Title: Interaction between Gene Mutations and Comorbidities on a Patient Cohort with Hypertrophic Cardiomyopathy

Presenting Author: Pooja Nair, BS in Molecular, Cell, and Developmental Biology

Co-Authors: Pooja Nair, BS, UCSD School of Medicine, La Jolla, CA; Cody Kelso, MD, Internal Medicine, PGY1, UPMC, Pittsburgh, PA; Apurv Prabhakar, BS, UCSD, La Jolla, CA; Elizabeth Silver, Division of Cardiovascular Medicine, UCSD, La Jolla, CA; Jeffrey Ding, BS, UCSD School of Medicine, La Jolla, CA; Quan M Bui, MD, Assistant Clinical Professor, Division of Cardiovascular Medicine, Department of Medicine, UCSD, La Jolla, CA; Eric Adler, MD, Professor of Medicine, Division of Cardiovascular Medicine, UCSD, La Jolla, CA; Kimberly N Hong, MD, MHSA, Assistant Professor of Medicine, Division of Cardiovascular Medicine, Department of Medicine, UCSD, La Jolla, CA

Abstract:
Background/Knowledge Gap: Hypertrophic Cardiomyopathy (HCM), an inherited cardiomyopathy, affects 1 in 500 Americans. Metabolic syndrome which includes diabetes mellitus (DM), hyperlipidemia, obesity and hypertension affects 20-30% of Americans(1). The goal of this study is to assess the impact of metabolic syndrome on disease severity in patients with HCM, stratifying by genotype positive and genotype negative patients.

Methods/Design: Data was collected from a single center of patients who underwent cardiomyopathy gene testing. Patients were identified using guideline diagnostic criteria for HCM(2). Patients were divided into genotype positive (pathogenic or likely pathogenic variants) and genotype negative (variant of unknown significance, likely benign, or benign variants) groups. Outcomes included a composite heart failure (HF) outcome and a composite major ventricular arrhythmia (MVA) outcome. Chi Square and Wilcoxon Testing were used for comparison analysis. Kaplan Meier curves with log-rank testing were used in time-to-event analysis.

Results/Findings: The study included an ethnically diverse cohort of 183 patients (61.2% male, 38.3% female, 53.1% non-white), with a median age of 50 years (IQR: 38-65 years). Compared with genotype(-) patients, genotype(+) patients had higher HF events (9.5% of genotype(-) patients and 33.3% of genotype(+) patients; p<0.0005) and MVA events (9.5% of genotype(-) patients and 28.1% of genotype(+) patients; p=0.001), with time-to-event analyses showing earlier median age of HF events (p<0.001) and MVA events (p<0.001) in the genotype(+) group (HF: 70 years; MVA: 75 years) vs the genotype(-) group (HF: 92 years). The prevalence of comorbid conditions in the total patient population was: 14.21% for diabetes mellitus (DM), 37.87% for hyperlipidemia, 31.15% for obesity, and 35.52% for hypertension. For genotype (+) patients, patients with DM had HF events at earlier ages with median age of HF event being 63 years versus 71 years in the non-DM group (p=0.0361). Comorbid conditions did not impact HF and MVA event rates in the negative genetics group.
Conclusions/Implications: Our analysis supports previous literature that severity of HCM is increased when patients have genotype(+) HCM. Additionally, the increased risk for HF outcome in those with DM in genotype(+) patients suggests additional epigenetic risk that warrants further research.

References:

Abstract Title: Rare Case of Lymphoma

Presenting Author: Gurvinder Kaur, MD

Abstract:
Case Presentation: 69 year old female presented with increased weakness, fatigue and overall generalized malaise with severe anemia, thrombocytopenia. On presentation hemoglobin 4.1 received at least 5 units of packed red cells. She has had anemia and thrombocytopenia for at least 2 years. She also had elevated indirect bilirubin. She was worked up for anemia and found to have autoimmune hemolytic anemia, warm IgG. Coombs test Direct as strongly positive. She was also found to have a non clinically significant cold antibody. Labs were significant for LDH 620, Haptoglobin < 10, Retic ct 10.65%, ARC 250,000, Antibody screen POSITIVE. Lab reported Cold agglutinins to be present in the blood specimen. Peripheral smear had a lot of polychromasia. Schistocytes were NOT present in the blood. Zn , Cu, B12, HIV, ANA, RF all were negative or Normal. In the serum we found her to have MGUS with IgM Kappa. Ig M was 732. She also had a mild thrombocytopenia. She was initially treated with 5 days of Solumedrol followed by Prednisone 80mg po every day. She had a bone marrow biopsy as recommended.

Final/working diagnosis: A bone marrow was ordered study showed a MYD88-lymphoplasmacytic lymphoma. MYD88-mutated lymphoplasmacytic neoplasm most consistent with lymphoplasmacytic lymphoma (10-15% involvement) involving a slightly hypercellular bone marrow for age (50%) with trilineage maturation. Flow cytometric immunophenotyping performed at Molecular Pathology Laboratory detected two abnormal populations, one lymphoid and one plasma cell. The abnormal B-cell population (13% of sample) expressed CD45, CD19, CD20, and surface kappa light chain. It was negative for CD5 and CD10. The aberrant plasma cell population (0.1%) expressed CD45, CD19, CD56-/+ and cytoplasmic kappa. The granulocytes demonstrated an increased proportion of mature forms indicative of hemodilution.

Management/Outcome: She was treated with CyBorD C1D1. She is currently treated with Velcade, Cytoxan D1,8 and 15 every 28 days with combination of Rituxan. Currently following up with Hem-Oncology closely.

References:
https://www.uptodate.com/contents/classification-of-hematopoietic-neoplasms?search=lymphoplasmacytic%20lymphoma&source=search_result&selectedTitle=5~32&usage_type=default&display_rank=5
https://journalgrid.com/view/article/rjms/12433469

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Learning Objectives:
Lymphoplasmacytic malignant lymphoma is an extremely rare neoplasm. In rare cases, it can become an aggressive immunoblastic variant or other high grade lymphoma. It is commonly associated with Waldenstron macroglobulinemia. It presents with symptoms related to bone marrow infiltration and IgM monoclonal gammapathy. It is diagnosed by identifying small malignant lymphocytes in the bone marrow that are usually admixed with plasma cells, plasmacytoid lymphocytes, and/or mast cells. Overall, lymphoplasmacytic lymphoma evaluation in the bone marrow and lymph node is a diagnostic challenge due to the variability of presentation and the wide differential diagnosis related to plasmacytoid differentiation. Lymphoplasmacytic lymphoma usually shows immunoglobulin gene rearrangement and somatic hypermutation. Although no specific chromosomal abnormality has been reported in lymphoplasmacytic lymphoma, the presence of an MYD88 L265P mutation can favor the diagnosis.

Abstract Title: Plasmapheresis as an Alternative Therapy for Thyroid Storm in the setting of Polypharmacy - Related Toxic Metabolic Encephalopathy

Presenting Author: Maria Vasileios Toustsoglou, RN, MD

Co-Authors: Sophia Navajas MD, PGY2 BHN Internal Medicine; John W MCDonald, Endocrinologist attending, Broward Health North Deerfield Beach; Lad Naji, intesivist, Broward Health North Deerfield Beach

Abstract: Thyroid storm, a life-threatening complication of thyrotoxicosis, can lead to toxic metabolic encephalopathy. Plasmapheresis, as an alternative intervention, can be considered when conventional treatment methods are contraindicated or ineffective. [1]

A 58-year-old female with a medical history of anxiety, body dysmorphic disorder and hypothyroidism presented with altered mental status. She was currently on psychotropic medications multiple and Levothyroxine. Upon arrival, the patient’s EKG showed sinus tachycardia, temperature of 37.3°C, heart rate of 129 bm, and blood pressure of 157/117 mmHg. Laboratory results indicated a suppressed TSH level (<0.01) and elevated levels of free T4> 20.00 nanog/d and free T3 free>5.00 pg/ml. A CT scan of the head and a chest X-ray did not reveal any acute abnormalities.

Patient was transferred to the intensive care unit. Endocrinology was consulted, and the patient was initiated on treatment including Precedex, Propranolol, Propylthiouracil, Solu Cortef, and Potassium Iodine. Due to the lack of improvement, third day, plasmapheresis was recommended. The patient underwent two sessions of plasmapheresis 1:1 with 5% albumin and fresh frozen plasma every other day. After the second session, there was clinical improvement. The patient was alert and oriented, no longer agitated or confused, and her vital signs had stabilized. Thyroid hormone levels had normalized. TSH level was found to be 1.65 uIU/ml. She was discharged the following days with continuity of care in the outpatient setting. The patient was provided with a detailed medication plan for continued care.

The case presented highlights the successful use of plasmapheresis as a therapeutic option in a patient with thyroid storm and polypharmacy. The half-life of thyroid hormones is so long that quick improvement is not always achieved even by sufficient doses of antithyroid drugs. Thus, plasma exchange in combination with conventional therapy appears to be effective in relieving the life-threatening state in our patient with thyroid storm precipitated by exogenous thyroid hormone use and polypharmacy.[2] [4] However, further research is needed to better understand the optimal timing, frequency, and long-term outcomes of plasmapheresis in the management of thyroid storm with polypharmacy. Early recognition and intervention are crucial to improve patient outcomes in such cases.

References:
Learning Objectives: The standard treatment of complicated thyrotoxicosis and thyroid storm with the concomitant use of antithyroid medication, iodine, beta-blockers, and corticosteroids is successful in most cases. However, treatment options are limited when anti-thyroidal drugs cannot be used or in cases that are refractory to standard treatment. Plasmapheresis provides a safe and effective strategy when initial treatment fails.

Abstract Title: A Rare Case of Primary Endobronchial Schwannoma: A Case Report

Presenting Author: Ferdusy Dia, MD

Co-Authors: Ferdusy Dia, MD, Internal Medicine, PGY2, Novant Health, Wilmington, NC; Katherine R. Ruiz, MD, Internal Medicine, PGY2, Novant Health, Wilmington, NC; Bhumi Patak, MD, Internal Medicine, PGY2, Novant Health, Wilmington, NC; Brian Legere, MD, Pulmonary Critical Care, Faculty, Novant Health, Wilmington, NC

Abstract:
Introduction: Endobronchial schwannomas are very rare and benign tumors that arise from the nerve sheath of the peripheral nervous system. They are usually seen as solitary masses and in rare cases, the first presentation are in the lungs. The incidence of primary neurogenic tumors of the lung sheath, are estimated to be 0 to 2% of pulmonary neoplasms. Here, we present a case of a primary endobronchial schwannoma in the lungs.

Case presentation: A 66-year-old female presented with weakness, chest pain, shortness of breath and hemoptysis. Her past medical history included hypertension and COPD. She is a current smoker with a 40-pack year history. On physical exam, she was noted to have decreased breath sounds over the right lung field, with otherwise normal examination. Bloodwork was unremarkable. Initial CT scan showed moderate to severe emphysema with a right middle lobe nodule measuring 8mm in size. A bronchoscopy was performed and it had evidence of inflammatory cells with a 8mm sessile mass in the right bronchus intermedius. Due to high risk factors for malignancy, a follow up CT scan was recommended. Over time, she continued to experience debilitating weakness, progressive shortness of breath and increased frequency of coughing spells. A repeat CT scan was performed and there was evidence of increase in mass size, which now measured 11mm, with significant airway compromise. A bronchoscopy with biopsies was performed again due to concerns for impending airway collapse.

Final diagnosis: Pathology from the biopsies revealed a diagnosis of benign endobronchial schwannoma. Immunohistochemical stains revealed spindle cells positive for S-100.

Management/follow-up: She was referred to Interventional Pulmonology for further treatment with endobronchial cryotherapy.

References:

Learning Objectives:
1. Understanding the importance of continued monitoring of pulmonary lesions found on initial bronchoscopy.
2. Recognizing the need for individualized management of rare lesions with progression of symptoms.

Abstract Title: Epilepsy Management in Familial Encephalopathy with Neuroserpin Inclusion Bodies Patients.

Presenting Author: Omid Taghavi, DO

Co-Authors: Victor Camba, DO, Internal Medicine, PGY3, Magnolia Regional Health Center, Corinth, MS; Omid Taghavi, Medical Student, OMS3, Magnolia Regional Health Center, Corinth, MS; Coty Maddox, DO, Internal Medicine, PGY2, Magnolia Regional Health Center, Corinth, MS; Justin Scobey, MD, Internal Medicine, PGY2, Magnolia Regional Health Center, Corinth, MS; Kyle Knight, DO, Internal Medicine, PGY3, Magnolia Regional Health Center, Corinth, MS; and Mary Avery Poole, DO, Associate Professor of Internal Medicine, Magnolia Regional Health Center, Corinth, MS

Abstract:
Familial encephalopathy with neuroserpin inclusion bodies (FENIB) is a rare, progressive, neurodegenerative disease presenting with early onset dementia, epilepsy, myoclonic seizures, and varied psychomotor deficits. With autosomal dominant inheritance, a point mutation in the SERPIN1 gene on chromosome 3 results in aberrant neuroserpin production. Neuroserpins are a family of serine protease inhibitors expressed by neurons throughout the CNS. Neuroserpins contribute to axonogenesis, synaptogenesis, synaptic plasticity, and control of emotional behavior. We present the case of a 20-year-old female with FENIB who presented with myoclonic status epilepticus and discuss how pathophysiology should guide management choices in patients with FENIB.

Patient presents with a history of FENIB epilepsy, seizures, learning delays, and suspected dementia. Patient’s chief complaint of sustained right-sided tremors after experiencing seizure-like activity. Patient has been having monthly seizures, but usually returns to her baseline after a few hours. The seizure started out like her normal seizures with diffuse myoclonic jerking but continued to have sustained myoclonic jerking and/or tremors of mostly the right upper extremity. Furthermore, her seizure medication was recently modified with the addition of ethosuximide 250 mg BID. Upon admission, the patient was continued on Levetiracetam 2000 mg in the morning and 1500 mg at bedtime. Patient was also started on Lorazepam 1 mg TID to decrease her sustained myoclonic jerks and tremors. A deeper dive into the patients’ medical history reveals that she has SERPIN1 gene mutation and thus suffers from familial encephalopathy with neuroserpin inclusion bodies which unfortunately is a progressively neurodegenerative disease. Patients’ symptoms did appear to respond well to the scheduled Lorazepam and continued anti-epileptic medications. Ultimately, the patient went home with hospice due to her poor overall prognosis from her disease and difficulty with controlling her symptoms.

Patient was discharged with ethosuximide, levetiracetam, cenobamate, and lorazepam. As the disease progresses multiple antiepileptics are often needed and targeting multiple receptors throughout the seizure propagation pathway may best counteract the uninhibited NMDA receptor propagation. There is currently no cure for FENIB. However, continued research proving the relationship between neuroserpins, tPA, and seizure activity provides the opportunity for research into novel, life-prolonging treatments.

References:

Learning Objectives:
Discuss how pathophysiology should guide management choices in patients with FENIB
Abstract Title: Assessing Risks of Aspiration During Enteral Feeding in the Trauma Patient Population

Presenting Author: Hannah Grant Hill, BS
Co-Authors: Dr. Nathan Polite, D.O., Associate Professor of Surgery, Trauma Surgery, University of South Alabama Frederick P. Whidden College of Medicine, Mobile, AL.

Abstract:

Background: Aspiration is one of the leading complications for patients receiving enteral nutrition. Patients who experience an aspiration event are vulnerable to developing aspiration pneumonia further complicating their stay and increasing the risk of mortality. Some known risk factors for aspiration include a decreased level of consciousness, supine position, and bolus feeding. Therefore, we hypothesized that additional risk factors exist in the trauma patient population that increase the chance of aspiration when receiving enteral feeding. The goal of this project was to identify any factors placing the patient at higher risk for aspiration that could indicate the need for modified approach to tube feeding administration.

Methods: After obtaining IRB approval, we retrospectively reviewed trauma patients charts at the Level 1 Fanny Meisler Trauma Center over a two-year span who received tube feeds while being monitored in a non-ICU level of care. Using this patient database we recorded route and method of tube feeding, spinal fractures, spinal cord injury, if the patient had prolonged need for a cervical collar, and age. Univariate analysis was then performed looking for statistical significance of the above factors (p value < 0.05)

Results: A query of the trauma patient database for the two-year span resulted in 742 patients for us to assess. Out of these patients, 154 (21%) were found to have been on tube feeds while in a non-ICU level of care. From that group, 19 (12%) patients were found to have experienced an aspiration event. The results for the other criteria assessed are listed below.

Route of Feeding: 56% of Non-ICU Tube Fed patients receiving PEG tube feeds experienced an aspiration event. 27% of Non-ICU Tube Fed patients receiving either NGT or OGT feedings experienced an aspiration event. 42% of Non-ICU Tube Fed patients receiving Duotube feeds experienced an aspiration event.

Method of Feeding: 141 (88%) non-ICU Tube Fed patients were strictly on Continuous feeds. 20 (12%) non-ICU Tube Fed patients were strictly on Bolus feeds. 1 (0.6%) non-ICU Tube Fed patient was on a mix of Continuous and Bolus feeds. 15 (10%) patients on Continuous feeds experienced an aspiration while 3 (15%) of patients on Bolus feeds experienced an aspiration. 1 (100%) patient on a mixture of Continuous and Bolus feeds aspirated.

Spinal Fracture: 50 (32%) non-ICU Tube Fed patients experienced a spinal fracture. 7 (37%) of patients experienced an aspiration event also had a spinal fracture.

Spinal Cord Injury: 14 (10%) non-ICU Tube Fed patients experienced a spinal cord injury. 2 (11%) of patients who experienced an aspiration event had a spinal cord injury.

Prolonged Use of Cervical Collar: 53 (34%) Non-ICU Tube Fed patients had prolonged Cervical Collar use during their stay. 10 (53%) of the patients who experienced an aspiration event had prolonged use of a cervical collar during their stay.

Geriatric Age (34%) Non-ICU Tube Fed patients were of geriatric age. 7 (37%) of those patients experienced an aspiration event.

Conclusion: Based on these results, further evaluation needs to be done with a larger population to assess. Our study was limited by the two-year time span we decided to use and number of patients we reviewed.
Conclusions:

Results: distributed screenings. screening shows exposure to lead can lead to developmental delays and many other serious health consequences. However, research shows that clinics face difficulty carrying out lead screening recommendations. This project evaluated rates of lead screening at the UT St. Francis Family Medicine Residency clinic according to the Tennessee Department of Health (TN DOH) guidelines and proposed quality improvement strategies based on several factors that potentially prevent routine screenings.

Methods: A retrospective chart review was conducted using a random sample of 353 pediatric patients aged 12 to 72 months who had established UT-St. Francis as their primary care clinic. We utilized a retrospective chart review to determine if patients had 12- and 24-month well-child appointments, if lead screenings were completed at these times, and blood lead levels reported at each screening. We also investigated whether any acute medical issues were coded in patient charts for these well-child encounters and rates of “catch-up” screenings among patients who had never been screened for lead. To assess physician awareness of lead screening recommendations, an anonymous questionnaire was distributed to the UT St. Francis Family Medicine residents, attendings, and fellows.

Results: 47% of the sampled patients were screened for lead at 12-month well-child appointments, and 26% were screened at 24 months. This study identified several likely clinical barriers to the completion of the TN DOH recommended lead screenings, which included clinical workflow and few systems-based reminders but excluded physician awareness. Based on these results, we developed several suggestions for future quality improvement projects.

Conclusions: Our recommendations directly address the identified causes of missed screenings from this study’s analyses and hold potential to increase future lead screening rates based on the clinic’s specific needs. Our primary recommendation is to introduce automated EHR alerts to notify physicians about needed lead screenings beginning at 12 months with recurring alerts when patients require a catch-up screening. In September 2023, this recommendation was integrated into the clinic EMR system. Future study should investigate the short- and long-term effects of these recommendations on subsequent lead screening rates.
Learning Objectives:
Upon completion of this poster presentation, learners should be better prepared to: describe systems-based reasons for why patients miss lead screenings, and identify measures that can improve lead screening rates in clinic.

Abstract Title: Exploring Influence of SARS-Cov-2 in Gout Patients

Presenting Author: Hemangi Patel, MS

Co-Authors: Hemangi Patel, BS, MS3, Nova Southeastern University, KPCOM, Davie, FL Marc M. Kesselman, D.O, Internal Medicine, Nova Southeastern University, KPCOM, Davie, FL

Abstract:
Background/Purpose: SARS-Cov-2 is an acute viral respiratory illness that has several symptomatic manifestations ranging in severity from asymptomatic infection to debilitating disease. Poor prognosis and increased incidence has been seen in patients with underlying comorbidities such as diabetes, gout and heart disease. Gout patients frequently present with various comorbidities, thus making them more susceptible to SARS-Cov-2 infection, predisposing them to poorer outcomes. The purpose of this review is to analyze the correlation, incidence, outcomes and risk factors pertaining to SARS-Cov-2 patients with gout.

Methods/Design: The search strategy was constructed by an analysis of key terms from relevant articles in MEDLINE ProQuest, EMBASE, and PubMed. The key terms used to search for these articles were “gout,” “gouty arthritis,” “uric acid”, “inflammatory arthritis”, “coronavirus”, “COVID” and “SARS-COV”. A total of 685 articles published in English between January 1, 2003-November 2, 2023 were identified and screened for eligibility by members of the research team, which resulted in 22 total articles selected for the final review.

Results/Findings: In most patients diagnosed with gout, it is evident there is a high level of serum uric acid. Serum uric acid is a biomarker that can be useful in determining the outcome of disease severity in gout patients infected with SARS-Cov-2 as well as estimates the mortality rate in ICU patients. Studies have shown that at both lower levels of uric acid as well as higher levels of uric acid levels in patients lead to hospitalization with worse outcomes in a “U-shaped” distribution. Patients hospitalized with SARS-Cov-2 and gout were more likely to require ventilator support. Other risk factors contributing to longer disease duration and severe SARS-Cov-2 infection included older age, female gender, and comorbidities such as hypertension and diabetes. Additionally, studies have found that those who were vaccinated against SARS-Cov-2 had a lower risk of hospitalization.

Conclusions/Implications: SARS-Cov-2 has several symptom manifestations that range in each individual in regard to severity. Patients experiencing comorbidities, such as gout, have worse outcomes. Uric acid is a useful biomarker to determine severity in gout patients. Future studies should focus on a treatment approach to decrease mortality in patients with gout and SARS-Cov-2 infection.

References:
Article Titles Used:
Association of Serum Calcium and Serum Uric Acid Level with Inflammatory Markers to Predict the Outcome of COVID-19 Infection: A Retrospective Study
Association of serum uric acid levels with COVID-19 severity
Characteristics and Outcomes of People With Gout Hospitalized Due to COVID-19: Data From the COVID-19 Global Rheumatology Alliance Physician-Reported Registry
Clinical outcomes of COVID-19 patients with rheumatic diseases: a retrospective cohort study and synthesis analysis in Wuhan, China
Coronavirus disease 2019 (COVID-19) infection in patients with rheumatic diseases: Clinical characteristics and relation to anti-rheumatic therapy
Death due to COVID-19 in a patient with diabetes, epilepsy, and gout comorbidities
Effect of Serum Uric Acid Level on Severity of Respiratory Failure and Mortality in COVID-19 Critical Patients
Gout and Excess Risk of Severe SARS-CoV-2 Infection Among Vaccinated Individuals: A General Population Study
Gout and the risk of COVID-19 diagnosis and death in the UK Biobank: a population-based study
Gout during the SARS-CoV-2 pandemic: increased flares, urate levels and functional improvement
Gout incidence and management during the COVID-19 pandemic in England, UK: a nationwide observational study using OpenSAFELY
Gout, Rheumatoid Arthritis, and the Risk of Death Related to Coronavirus Disease 2019: An Analysis of the UK Biobank
Hyperuricemia and Adverse Outcomes in Patients Hospitalized for COVID-19 Disease
Incidence of rheumatic diseases during the COVID-19 pandemic in South Korea
Omicron variant infection in inflammatory rheumatological conditions – outcomes from a COVID-19 naive population in Aotearoa New Zealand
Outcomes of COVID-19 in people with rheumatic and musculoskeletal disease in Ireland over the first 2 years of the pandemic
Outcomes of Filipinos with inflammatory rheumatic diseases developing COVID-19 prior to vaccinations and new variants: a historical perspective
Serum Uric Acid Concentrations and Risk of Adverse Outcomes in Patients With COVID-19
Serum uric acid, disease severity and outcomes in COVID-19
URIC ACID AND MORTALITY RELATIONSHIP IN COVID-19
Uric acid as a prognostic predictor in COVID-19
U-shaped association between abnormal serum uric acid levels and COVID-19 severity: reports from the Japan COVID-19 Task Force

Learning Objectives:
Discuss uric acid levels and association with mortality in SARS-CoV-2 patients

Abstract Title: The Role of Tumor-Derived ANGPTL4 on Glioma Tumor Cells and Stromal Cells

Presenting Author: Peyton Coady, BS

Co-Authors: Meiyun Fan, PhD, Department of Pathology, Associate Professor, UTHSC College of Medicine, Memphis, TN; Lawrence Pfeffer, PhD, Department of Pathology, Professor of Pathology, UTHSC College of Medicine, Memphis, TN.

Abstract:
Background/Knowledge Gap: Glioblastoma multiforme (GBM) exhibits the highest incidence rate among malignant brain and central nervous system tumors, displaying genotypic heterogeneity and presenting a five-year post-diagnosis survival rate of approximately 5% [1]. Despite advancements in surgical and radiotherapeutic interventions, the persistently low overall survival is primarily attributed to frequent recurrence [2]. Notably, a crucial subgroup within GBM, known as brain tumor-initiating cells (BTICs), significantly influences treatment outcomes [3-4]. ANGPTL4, a secreted glycoprotein, demonstrates high expression in GBM BTICs [5]. Activated under hypoxic conditions, ANGPTL4 is hypothesized to govern key characteristics of GBM, including cell proliferation, migration, invasion, and tumorigenic potential [6-8]. This study aims to elucidate the nuanced role of tumor-derived ANGPTL4 in both tumor and stromal cells using in vivo and in vitro models.

Methods/Design: The established glioma cell line U87 was employed, and the impact of modulating ANGPTL4 expression levels on cell doubling time and migration/invasion dynamics was investigated using a lentivirus transfection vector and short hairpin RNA. An orthotopic xenograft model was utilized to explore ANGPTL4’s effects on marker gene expression in diverse stromal cells, including endothelial cells, monocytes, and microglia.

Results/Findings: In vitro, ANGPTL4 knockdown heightened tumor cell migration and invasion activities. In the orthotopic xenograft model, ANGPTL4 knockdown led to a significant upregulation in markers associated with tumor-associated monocytes, notably Trem2 and Flor2.
Conclusions/Implications: This study advances our understanding of ANGPTL4’s role in GBM, shedding light on its impact on tumor cell behavior and stromal cell marker expression. The findings underscore the potential therapeutic relevance of targeting ANGPTL4 to refine GBM treatment modalities in clinical settings.

References:

Learning Objectives: Utilize knowledge gained on ANGPTL4 modulation to enhance their approach in studying and addressing complexities related to glioma cells and stromal gene expression, contributing to a more versatile skill set in their field.

Abstract Title: Low Platelets, Mouth Ulcers, and Petechiae: A Case of Herpangina and ITP

Presenting Author: Wesley Tanner Cole, DO

Co-Authors: Courtney Rich, MD BCh BAO, MPH | Research Chair/ MRHC Emergency Medicine Residency | Magnolia Regional Health Center, Corinth, MS

Abstract:
Introduction: Immune Thrombocytopenic Purpura (ITP) is an autoimmune disease that results in the destruction of platelets. ITP can be caused by a wide array of factors, including but not limited to viral illnesses. Herpangina is similar to Hand, Foot, and Mouth disease, with vesicles in the oropharynx but lacks the involvement of the hands and feet. This report will detail a case of ITP that resulted from a classic coxsackie virus infection: herpangina.

Case Presentation: A 3-year-5-month-old male patient was sent to the emergency room by their primary care provider for a finding of low platelets. Review of systems pertinent for 4 days of fever, sore throat, and later development of ulcers in the oropharynx. The patient had been previously seen at urgent care and tested negative for strep, but was started on amoxicillin secondary to a high Centor score of 5. The mother felt mouth ulcers were worsening despite antibiotics, which is what prompted a visit to the patient’s primary care provider. The patient’s platelets were found to be 21,000 and he was sent to the emergency room for further evaluation. On physical exam, the patient was noted to have small ulcerated vesicles on the soft palate/ posterior pharynx consistent with herpangina, as well as small petechiae on the volar hands and feet with no mucosal signs of bleeding. Repeat platelets 23,000 with no other blood cell count abnormalities. The patient’s activated Partial Thromboplastin Time was slightly low at 21.1 sec, with a normal Prothrombin/International National Ratio, normal liver function tests, electrolytes, renal function, and a negative Monospot test.

Final Diagnosis & Follow-up: Given isolated thrombocytopenia, it was felt that the most likely diagnosis is ITP secondary to herpangina. Upon consultation with hematology, the patient was discharged home with a hematology/oncology follow-up in 1 week with precautions to prevent trauma to the patient that could cause bleeding.
Learning Objectives:
The learner will become more familiar with Immune Thrombocytopenic Purpura and one of its many causes.
The learner will be able to better identify herpangina.

Abstract Title: A Rare Methamphetamine Triad: Compartment Syndrome, Rhabdomyolysis, and Severe Renal Failure

Presenting Author: Matthew Fry, DO

Co-Authors: Matthew Fry, DO, Family Medicine, PGY3, Kettering Health Dayton, Dayton, OH; Emana Sheikh-Kapadia, DO, Family Medicine, PGY1, Kettering Health Dayton, Dayton, OH

Abstract:
Introduction: Methamphetamine (MA) abuse resulting in rhabdomyolysis and acute kidney injury (AKI) are well-documented patient stories, typically following a more mild course to recovery, from same day discharge to short hospital stays, and minimal renal sequela. Only two published reports present MA-induced compartment syndrome, resulting in severe rhabdomyolysis, fulminant kidney failure, and need for hemodialysis.1

Case Presentation: A 48-year-old male with known polysubstance abuse including intravenous drug-use presents to the emergency department (ED) with complaint of severe right lower and left upper extremity pain after recent intramuscular (IM) MA use. While in ED, diagnosis of compartment syndrome of right leg and left forearm prompts emergent fasciotomy of both extremities and subsequent admission. Rising creatine phosphokinase (CK) levels to >100,000, believed to be rhabdomyolysis-induced and secondary to muscle ischemia from compartment syndrome, necessitates right below-knee amputation. During patient stay, kidney function shows little improvement, spurring nephrology decision for aggressive renal stabilization by hemodialysis, resulting in improvements to creatinine, electrolyte, and CK levels. As the patient reached goal medical milestones, he is discharged to a long-term care facility for continued optimization.

Final Diagnosis: We present a patient whose initial presentation of upper and lower extremity pain after recent IM MA use was found to have two, simultaneous compartment syndrome sites prompting fasciotomy and lower extremity below-knee amputation. The patient’s rhabdomyolysis was complicated by fulminant kidney failure.

Management and Outcome: Though the patient reached successful inpatient medical stabilization, he received thorough education on the road to recovery ahead, complicated by his chronic conditions including diabetes mellitus and chronic obstructive pulmonary disease. Soon after discharge, non-healing wounds and soft tissue infection in his right leg stump necessitated re-admission for right leg stump revision and irrigation. A five-year study following MA and rhabdomyolysis accounts a growing number of cases presenting with MA toxicity annually. Thus, practitioners must carry high suspicion for the rare yet severe MA toxicity side effects to better facilitate reduced risk of long-term complications in high mortality patients.2 Our patient’s story, similar to the very few previously reported, opens a significant area of future study.

References:

Learning Objectives:
(1) Discuss the rare, yet high mortality effects of methamphetamine (MA) toxicity, especially in absence of the more common MA-use symptoms like hyperthermia, psychomotor agitation, and hallucinations.
(2) Identify the steps in management of a severe MA-induced case of compartment syndrome, rhabdomyolysis, and kidney failure.
(3) Recognize that delayed management of reversible MA-induced conditions can result in potentially permanent, even fatal complications.
Abstract Title: Imposter syndrome: A case of isolated Actinomycosis mimicking hepatocellular carcinoma

Presenting Author: Blake Bauer, MD

Co-Authors: Pranayraj Kondapally, MD, Internal Medicine, PGY2, UAB Heersink School of Medicine, Huntsville, AL; Farrah Ibrahim, MD, Internal Medicine, Program Director, UAB Heersink School of Medicine, Huntsville, AL;

Abstract:
Introduction: Actinomycosis are a rare cause of the intra-abdominal infection that results in chronic suppurrative and infectious granulomatous disease. Diagnosis of hepatic actinomycosis is often difficult because of its indolent clinical course and nonspecific radiological findings, which can be easily misdiagnosed as a primary liver cancer if it is solitary or as a metastatic tumor if it is multiple with imaging features.

Case Presentation: Here we present an interesting case of a 61-year-old female with history of uncontrolled diabetes mellitus type 2 who presented with hyperbilirubinemia, elevated international normalized ratio (INR), ascites and abdominal pain. Labs were revealing for Na 134, K+ 2.9, Total bilirubin 2.5, AST 80, ALT 50, CRP 1.5, AFP negative, INR 1.6, Hgb 9.7, and platelets 93. Workup for worsening liver function was non-revealing and patient denied any prior history of liver disease, IV drug use, viral hepatitis, alcohol abuse, or family history of liver disease. Hepatitis panel was non-reactive. A CT Abdomen & Pelvis was done which showed mesenteric abscesses measuring 5.2 x 4.5 cm enhancing, and multiple ill-defined masses within the right and left hepatic lobes, suggesting liver metastases. General surgery was consulted, and patient underwent right hemicolectomy for resection of mesenteric mass and liver biopsies were sent for pathology which was revealing for Actinomycosis. Infectious disease was consulted, and patient was treated with Penicillin G as an outpatient with close follow up of 12 months.

Final Diagnosis: Isolated hepatic actinomycosis is an uncommon infectious disease that can mimic multiple disease processes. It may present as a malignant disease, with symptoms of abdominal pain, asthenia, and weight loss. High index of suspicion is needed to avoid delay in diagnosis.

Management/Outcome: Confirmation is done by FNA or core biopsy by surgical exploration or radiological guided biopsy. The exclusion of malignancy is one of the main purposes of investigation, especially when patients present with liver masses associated with other hepatic symptomatology. In many patients prolonged treatment of high dose penicillin is required to be cured such as in this patient.

References:
2. https://www.scopus.com/record/display.uri?eid=2-s2.0-0025318921&origin=inward&txGid=13926ecd4c9202d1dd3a6afbd684da8a

Learning Objectives:
1. Review the etiology and clinical features of Actinomycosis
2. Understand how isolated hepatic Actinomycosis can present like hepatocellular carcinoma

Abstract Title: Lesion Density is a Novel Pre-Biopsy Predictor of Clinically Significant Prostate Cancer Detection

Presenting Author: Tivoli Nguyen, BA

Co-Authors: Tivoli Nguyen, Urology, MS2, Tulane University School of Medicine, New Orleans, LA; Christine Lightfoot, Urology, MS2, Tulane University School of Medicine, New Orleans, LA; Jacob Greenberg, MD, Urology, PGY1, Tulane University School of Medicine, New Orleans, LA; Garrett Brinkley, MD, Urology, PGY2, Tulane University School of Medicine, New Orleans, LA; L. Spencer Krane, MD, Chief of Urology, Urology, New Orleans VA Medical Center, New Orleans, LA
Abstract:

Background/Knowledge Gap: The likelihood that a suspicious lesion on MRI is associated with clinically significant prostate cancer (csPCa) is currently assessed using the Prostate Imaging Reporting and Data System (PIRADS). However, there is disagreement over whether it is useful to biopsy particular lesions due to inconsistent diagnostic sensitivity. Patient selection for MRI-transrectal ultrasound (MRI-TRUS)-guided biopsy can be assisted by other supporting MRI predictors, thereby reducing the number of unnecessary biopsies. The aim of this study is to investigate whether lesion density, defined as lesion size divided by overall prostate volume, is clinically useful as a pre-biopsy predictor of csPCa detection.

Methods/Design: A prospective chart review study was completed between October 2017 and June 2023. This study enrolled men who underwent MRI-TRUS biopsy to identify csPCa, defined as Gleason Grade ≥ 2. Statistical analysis and generation figures was performed through R. All tests were two-sided with significance bar set to 0.05.

Results/Finding: 753 total MRI-TRUS biopsies were performed. 313 (41.57%) yielded csPCa. 479 patients were African American (63.6%). The median BMI, age, PSA, and TRUS volume were 28.4 (25.3-32.1), 68 (IQR 63-72), 6.04 (IQR 4.52-8.94), and 43.0 (IQR 32.0-61.6), respectively. Patients had 11(1.5%) PIRADS 2, 237(32.2%) PIRADS 3, 318(43.2%) PIRADS 4, and 237(32.2%) PIRADS 5 lesions. An ROC curve was generated to determine the accuracy of lesion density for predicting csPCa showing AUC = 0.66 (95% CI 0.61-0.66) and a cutoff value of 0.0174. For lesion densities above the cutoff, a higher percentage of clinically significant cases was detected (54.9% [359 cases] vs 29.4% [309 cases]). When compared to PSA and PIRADS, lesion density was a statistically better predictor of csPCA than PSA (p=0.0012) and comparable to PIRADS (p=0.86).

Conclusions/Implications: Multimodal MRI lesion density with a cutoff determined to be 0.0174 was found to be a useful pre-biopsy predictor of csPCA detection. In fact, lesion density performed better at predicting csPCA than PSA and was comparable to PIRADS. Applying this to a clinical setting, lesion density can assist patient selection by differentiating patients to reduce the number of unnecessary biopsies that lead to overdiagnosis of low-grade prostate cancer.

Learning Objectives:
1) identify the limitations of PIRADS for predicting csPCA detection
2) describe the consequences of overdiagnosis of low-risk prostate cancer
3) discuss the clinical utility of lesion density as a new pre-biopsy predictor of successful csPCA detection

Abstract title: The psychological it of the COVID-19 pandemic on the wellness and work-related burnout among oncological healthcare workers at an academic center

Presenting Author: Aliya Khan, MD

Co-Authors: Kunal Gawri|INTERNAL MEDICINE|UNIVERSITY OF MIAMI; Khadeja Khan|INTERNAL MEDICINE|UNIVERSITY OF MIAMI; Ana De Diego|INTERNAL MEDICINE|UNIVERSITY OF MIAMI; Deukwoo Kwon|INTERNAL MEDICINE|UNIVERSITY OF MIAMI; Sophia Navajas|INTERNAL MEDICINE|BROWARD HEALTH NORTH; Estelamari Rodriguez|HEMATOLOGY/ONCOLOGY|UNIVERSITY OF MIAMI; Richa Dawar|HEMATOLOGY/ONCOLOGY|UNIVERSITY OF MIAMI|

Abstract: The COVID-19 pandemic has imposed unprecedented challenges on healthcare workers (HCWs), leading to a substantial rise in burnout rates. This study, conducted at the University of Miami Hospital system, aims to understand the implications of the pandemic on HCWs' well-being and job satisfaction. A survey, utilizing the Maslach Burnout Inventory (MBI) and logistic regression analysis, was administered to 180 HCWs. Results revealed increased workload, job insecurity, and adverse effects on personal life. Among physicians, 47.1% reported high burnout symptoms. Logistic regression analysis did not show significant differences based on variables like gender and marital status. The study underscores the need for multifaceted interventions, including organizational support, self-care practices, and addressing systemic factors, to mitigate burnout and ensure sustained high-quality healthcare delivery. Despite study limitations, these insights are crucial for developing strategies to support HCWs during and beyond public health crises.
Learning Objectives:
Our research highlights the extraordinary physical and psychological toll of the COVID-19 pandemic on healthcare workers, with both personal and work-related implications. The surveyed healthcare workers in our study further confirm our theory that burnout rates increased during and after the pandemic. In previous studies, burnout has been identified as a primary cause for the increasing prevalence of substance abuse, depression, and suicide in healthcare workers, especially physicians. [8, 9] Burnout has also been shown to increase medical errors (a leading cause of mortality in the US) and decrease the quality of care provided, further impacting our fragile healthcare system. Given that most of our respondents were physicians, this survey data provides a rare glimpse into the daily struggles that often lead to burnout.

Nearly 60% of respondents reported experiencing an increased workload and a similar number struggle with maintaining a work-life balance. When looking deeper into the survey day, we notice a confluence of responses regarding difficulties with home care, childcare, adequate exercise, and sufficient sleep. [10] These particular aspects of daily life have been impacted by the increased workload faced by physicians during the COVID-19 pandemic, all the while feeling a sense of employment insecurity and decreased opportunities for leadership. This complex interplay of work and home-related stresses is where burnout thrives. Efforts should be made to target these aspects and curb the effect of burnout on our frontline/healthcare workers. A few potential options include subsidizing or providing childcare services for healthcare workers in dual-income or single-parent households, subsidizing gym membership or providing access to athletic facilities nearby/on site, and lastly, providing work-related incentives (financial or otherwise) to those employees who increased their working hours to meet the demands of the pandemic-ridden healthcare system.

In addition to the potential solutions mentioned, it is also important to address the root causes of burnout among healthcare workers, including the culture of overwork and the pressure to prioritize work over personal life. Healthcare organizations should prioritize the well-being of their staff and promote a healthy work-life balance by implementing policies that limit excessive work hours and offer flexible scheduling options. Moreover, providing mental health support and counseling services for healthcare workers can help them cope with the stress and emotional toll of their work during the pandemic and beyond. It is crucial to recognize the sacrifices and hard work of healthcare workers and provide them with the resources they need to maintain their physical and mental health while still being able to provide high-quality care to their patients. Finally, it is essential to involve healthcare workers in decision-making processes that affect their work and the healthcare system as a whole. This can help to improve their job satisfaction and overall well-being, while also improving the quality of care provided to patients.

The high workload experienced by healthcare workers during the COVID-19 pandemic has been widely documented and is a major contributor to burnout. Studies have shown that increased workload and long working hours are associated with higher levels of burnout among healthcare professionals. Our findings align with these studies, as a significant number of respondents reported an increased workload during the pandemic. This increased workload is likely due to the surge in COVID-19 patients, the need for additional staff, and the implementation of new protocols and procedures. The overwhelming demands placed on healthcare workers have stretched their physical and emotional capacity, leading to exhaustion and a higher risk of burnout.

In addition to workload, the fear and anxiety of contracting COVID-19 and the potential transmission to family members have had a profound psychological impact on healthcare workers. Research has shown that fear of infection is associated with increased stress levels and mental health problems among healthcare workers. Our survey also revealed a significant proportion of respondents expressing fear and anxiety related to COVID-19 exposure. This fear adds an extra layer of stress and psychological burden on healthcare workers, further contributing to burnout and overall well-being.

The importance of addressing burnout among healthcare workers extends beyond their personal well-being. Burnout has been linked to decreased patient satisfaction and compromised quality of care. The emotional exhaustion and depersonalization associated with burnout can lead to decreased empathy and communication, ultimately affecting the patient-provider relationship. It is crucial to recognize that healthcare workers’ well-being is directly linked to the quality and safety of patient care. Therefore, interventions targeting burnout and promoting well-being among healthcare workers are essential for maintaining high-quality healthcare delivery.

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The implementation of comprehensive support programs and interventions can help mitigate burnout and support the well-being of healthcare workers. These programs should encompass various components, such as organizational support, self-care practices, and mental health resources. Organizational support includes policies and practices that prioritize work-life balance, provide adequate staffing levels, and promote a positive work environment. Self-care practices involve encouraging healthcare workers to prioritize their physical and mental health, engage in stress-reducing activities, and seek support when needed. Mental health resources should be readily available, including access to counseling services, support groups, and resilience training programs.

It is also important to address systemic issues and promote a culture shift within healthcare organizations. This includes challenging the "culture of overwork" and unrealistic expectations placed on healthcare professionals. Implementing policies that limit excessive work hours, promote breaks and rest periods, and provide opportunities for self-care can contribute to reducing burnout and improving work-life balance. Furthermore, involving healthcare workers in decision-making processes and fostering a supportive and collaborative work environment can enhance job satisfaction and well-being.

By recognizing the multifaceted nature of burnout and implementing targeted interventions, healthcare organizations can support and protect their healthcare workers, ultimately improving patient outcomes and the resilience of the healthcare system as a whole.

In light of the challenges posed by the COVID-19 pandemic, it is crucial to acknowledge the invaluable role of healthcare workers as essential frontline responders. Their unwavering dedication, resilience, and sacrifices have been at the forefront of the battle against the virus. Recognizing and celebrating the heroism of healthcare workers can have a profound impact on their morale and well-being. Public displays of gratitude, community support, and initiatives such as "Healthcare Heroes" campaigns can uplift their spirits and remind them of the profound impact they have on individuals and communities. By fostering a culture of appreciation and support, we can help mitigate the negative effects of burnout and enhance the overall well-being of healthcare workers.

Additionally, it is essential to consider the broader systemic factors that contribute to burnout and address them holistically. This includes examining healthcare policies, resource allocation, and the organizational culture within healthcare settings. Adequate staffing levels, appropriate workload distribution, and efficient use of resources can alleviate the burden on healthcare workers and create a more sustainable environment. Furthermore, fostering interdisciplinary collaborations and teamwork can enhance communication, reduce silos, and promote a sense of collective responsibility, which in turn can mitigate burnout and improve patient care outcomes.

It is worth mentioning that the COVID-19 pandemic has also shed light on the need for a comprehensive approach to healthcare that emphasizes prevention and well-being. By shifting the focus from solely treating illness to promoting holistic health and wellness, we can reduce the burden on healthcare workers and the healthcare system as a whole. Investing in preventive care, promoting healthy lifestyle behaviors, and supporting community-based initiatives can contribute to the well-being of both healthcare workers and the general population.

In conclusion, addressing the impact of the COVID-19 pandemic on healthcare workers’ well-being and burnout requires a multifaceted approach. It involves recognizing their contributions, implementing strategies to support their mental and emotional health, involving them in decision-making processes, and addressing systemic factors that contribute to burnout. By prioritizing the well-being of healthcare workers and fostering a supportive and resilient healthcare system, we can ensure their sustained ability to provide high-quality care, not only during times of crisis but also in the long run. The COVID-19 pandemic has highlighted the urgent need for better support and resources for healthcare workers, who are at the forefront of the pandemic response. Understanding the implications of this pandemic on HCWs’ rates of burnout and overall well-being is crucial to developing a healthcare system that is better prepared for future public health crisis, and that can provide adequate support to HCWs to prevent or mitigate the effects of burnout on this critical population.
References:

Abstract Title: Unraveling the Complexity of Malignant Peritoneal Mesothelioma: A Comprehensive Case Study of Diagnosis, Clinical Features, and Therapeutic Challenges in a 75-Year-Old Male

Presenting Author: Aliya Khan, MD

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Abstract:
Introduction Malignant Mesothelioma is an exceptionally rare and aggressive neoplasm originating from the mesothelial cells lining the peritoneum, exhibiting an inclination to extensively spread within the abdominal cavity. The predominant morbidity and mortality associated with this malignancy arise from the progression of the disease within the peritoneum, with metastatic spread beyond the abdominal cavity being uncommon. Approximately 3300 cases of mesothelioma are diagnosed annually in the United States, with only 10-15 percent manifesting as the peritoneal variant. Pleural involvement is more prevalent, positioning the peritoneum as the second most frequent site of origin. While asbestos exposure is a well-established link to mesothelioma, the association with Malignant Peritoneal Mesothelioma (MPM) is not as robust as it is for its pleural counterpart. The underrepresentation of MPM in molecular and clinical studies is attributed to its lower incidence compared to pleural mesothelioma, rendering it an understudied disease. Despite the commonality in asbestos exposure between pleural and peritoneal mesothelioma, disparities in their gene expression profiles suggest distinct molecular pathogenesis.

Case Presentation A 75-year-old male, with a medical history encompassing glaucoma, COPD, benign prostatic hyperplasia (BPH), and recently diagnosed mesothelioma, presented to the emergency department. He reported a two-week progression of abdominal distension, early satiety, and dyspnea aggravated by activity. One year prior, he initiated a medical evaluation for fluid retention and abdominal distension. A recent omental biopsy, conducted a month before presentation, confirmed the diagnosis of mesothelioma, prompting the initiation of chemotherapy every three weeks. Despite paracentesis performed monthly, the patient experienced worsening shortness of breath and early satiety post-chemotherapy. Generalized weakness, a four-day lapse in bowel movements attributed to reduced food intake, and the absence of fever, chills, palpitation, cough, chest pain, headache, nausea, or vomiting were reported. Clinical Features Malignant Peritoneal Mesothelioma poses a diagnostic challenge due to the absence of specific signs.
or symptoms. Common manifestations include abdominal distension, pain, early satiety, weight loss, dyspnea, chest pain, and fatigue. Rare symptoms encompass new-onset hernia, fever of unknown origin, night sweats, or incidental findings during physical examinations or laparoscopy. Delays in presentation and diagnosis contribute to the advanced stage of diagnosis, with most cases having already spread throughout the abdominal cavity.

Three distinct presentations of MPM include the Dry Painful Type, characterized by abdominal pain with minimal ascites; the Wet Type, presenting with abdominal distension and ascites; and the Mixed Type, combining abdominal pain and distension. Paraneoplastic phenomena, such as fever, thrombocytosis, malignancy-related thrombosis, hypoglycemia, hypoalbuminemia, paraneoplastic hepatopathy, and rarely, Coombs-positive Hemolytic anemia, further complicate the clinical picture.

**Investigations** Surgical gross and microscopic descriptions of liver biopsies indicated chronic hepatitis with mild portal inflammation, grade 1, and no fibrosis, stage 0. Notably, the omental biopsy performed on confirmed Malignant Mesothelioma of the epithelioid type. Immunohistochemical stains supported the diagnosis, revealing positivity for CK AE1/AE3, calretinin, WT1, CK7 (focally), and GATA3 (focally), while testing negative for BAP1, CDX2, chromogranin, CK20, hepatocyte antigen, PAX8, PSA, synaptophysin, and TTF1.

**Treatment** Due to the rarity of MPM, no standardized treatment protocols exist. Cytoreductive surgery (CRS) and hyperthermic intraoperative peritoneal perfusion with chemotherapy (HIPEC) are recommended for selected patients without extraperitoneal disease spread, possessing a good performance status and potential for complete surgical cytoreduction. Systemic chemotherapy, particularly pemetrexed-based regimens, is advocated for patients ineligible for CRS/HIPEC.

**Discussion** The absence of randomized controlled trials for MPM treatment underscores the challenges in guiding therapeutic decisions. While systemic chemotherapy with pemetrexed has shown promise, the lack of comprehensive studies specific to MPM necessitates a nuanced approach to treatment planning. Immunotherapy's role in MPM management remains an evolving area, with ongoing research aiming to elucidate its potential benefits.

**References:**
UpToDate. Malignant peritoneal mesothelioma: Epidemiology, risk factors, clinical presentation, diagnosis, and staging.

**Learning Objectives:**
Malignant Peritoneal Mesothelioma, characterized by aggressive intra-abdominal spread, poses significant diagnostic and therapeutic challenges. The scarcity of standardized treatment guidelines accentuates the importance of ongoing research to enhance our understanding of this rare neoplasm, paving the way for improved diagnostic modalities and targeted therapeutic interventions.

**Abstract Title: Dystrophinopathy vs. Idiopathic Inflammatory Myopathy: A Winding Road to Neuromuscular Diagnosis**

**Presenting Author:** Emana Sheikh-Kapadia, DO

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**Abstract:**
Introduction: Diagnosis of neuromuscular disorders like inflammatory myopathy (IM) and muscular dystrophy (MD) often entails a long-winded road. Many cases remain dormant until vague prodromal symptoms surface into significant muscle weakness. This prompts a myriad of diagnostic work-ups until some route to clarity is achieved. Our patient's story continues to be a working diagnosis and here, we describe her unusual course of events in her late age of onset.

**Case Presentation:** A 71-year-old patient with chronic conditions comes to the emergency department with inability to swallow her medications. In the same year, she reports multiple admissions for worsening proximal shoulder-hip girdle
weakness and dysphagia. We begin a multidisciplinary approach to diagnosis starting with thorough patient history, family history, and labs to exclude more common and treatable neuromuscular disorders before considering IM and MD. Elevated antinuclear antibody (ANA) titer of 1:1180 and aldolase indicate signs of immune-mediated inflammation and muscle damage, and bedside electromyography appreciates critical illness myopathy. We decide on muscle biopsy as an imperative step in myopathy categorization: limb girdle syndrome (LGS) secondary to autoimmune etiology vs. MD possibly limb girdle-type (LGMD). By day 17, the patient reaches medical and physical milestones satisfying discharge to a long-term care facility. Since biopsy would take two weeks to result, the team's initial suspicion for IM influences decision for discharge on high-dose prednisone taper until further evaluation. Unexpectedly, the patient's muscle biopsy argues against autoimmune etiology, and rather, increased endomyosial fibrosis, fatty replacement, and significant muscle degeneration suggests dystrophy. The absence of MHC-1 sarcolemmal upregulation further invalidates inflammatory myopathy.

**Working Diagnosis:** Our initial suspicion leans towards possible IM. However, return of tissue biopsy suggest MD. Management and Outcome and/or Follow-up: Following discharge, the patient begins to establish care with specialized care teams. We still recommended rheumatologic support for possibility of an undiagnosed autoimmune condition, and MD genetic testing to better understand the prognosis of her condition. There are LGMD case reports documenting subtypes with late age of onset, dysphagia, and diaphragmatic dysfunction. Though we are still hopeful in establishing a definitive diagnosis, the results to our step-by-step approach heeds a promising path to diagnosis.

**References:**

**Learning Objectives:**
(1) Exemplify and detail the step-by-step and interdisciplinary approach to neuromuscular disease diagnosis by case presentation.
(2) Increase awareness of the often long road to neuromuscular disease diagnosis, involving an integrated approach, neurophysiological clinical expertise, nonspecific and specific laboratory markers, imaging, and tissue pathology, which may result negative during disease latency.
(3) Patient continuity with both outpatient primary and specialist care are essential in neuromuscular disease diagnosis, understanding disease progression, and building adherence to treatment, especially after acute hospitalization.

**Abstract Title:** Sensitivity of History-Taking in Diagnosing Ehlers-Danlos Syndrome

**Presenting Author:** Nashwash Qamar, BS

**Co-Authors:** Nashwash Qamar, B.S., Research Student, Cardiology, The Heartbeat Clinic, McKinney, TX; Amna Butt, MBBS, MPH, Research Coordinator, Cardiology, The Heartbeat Clinic, McKinney, TX; Kazma Kulsoom, MPH, Biostatistician, Cardiology, The Heartbeat Clinic, McKinney, TX; Ishaan Mehta, Research Student, Cardiology, The Heartbeat Clinic, McKinney, TX; and Amer Suleman, MD, Physician, Cardiology, The Heartbeat Clinic, McKinney, TX

**Abstract:**
**BACKGROUND:** Ehlers-Danlos syndrome (EDS) is a genetic disorder affecting connective tissue in the joints and skin, resulting in increased laxity. While genetic testing is the primary diagnostic method, the Beighton Score, a 9-point scale measuring joint flexibility, is essential for identifying potential EDS cases. A Beighton score exceeding 4 suggests generalized joint hypermobility, while a score below 4 rules it out. The aim of our study is to assess the diagnostic sensitivity of history-taking in identifying EDS through the use of the Beighton Score.

**METHODS:** A retrospective study design was employed. A random dataset was obtained comprising 273 patients from The Heartbeat Clinic. Patients' responses regarding joint hypermobility were categorized as “yes” or “no” based on their
medical history and respective Beighton scores were documented based on clinical examination findings. Data organization and result generation were performed using SPSS Statistics 29.

**RESULTS:** Among the 273 patients in our study, 9 (7%) were male and 254 (93%) were female. 38 (13.9%) had a Beighton score <4, while 235 (86.1%) had a score >4. Regarding self-diagnosis, 99 (36.3%) patients answered “yes”, while 174 (63.7%) patients answered “no”. Notably, 7 (18.4%) patients who responded “yes” to self-diagnosis had a Beighton score <4, a false positive result, whereas 31 (81.6%) patients who answered “no” also had a score <4, a true negative result. Furthermore, 92 (39.1%) patients who responded “yes” to history taking had a Beighton score >4, a true positive result, whereas 143 (60.9%) patients who answered “no” also had a score >4, a false negative result.

**CONCLUSION:** Our study revealed that history-taking exhibited a sensitivity of 39.1%, whereas its specificity was higher at 81.6%. The higher incidence of false negatives, contrary to true positives, contributed to the reduced sensitivity. Nonetheless, the positive predictive value (PPV) of self-diagnosis was 92.9%, signifying that individuals who self-reported hypermobility indeed had a Beighton score >4 during examination, thus elevating their EDS risk. Although history-taking’s sensitivity for EDS diagnosis is limited, its strong PPV underscores its significance and need for further assessments to classify EDS.

**Learning Objectives:**
1. Assess the diagnostic sensitivity and specificity of history-taking for identifying Ehlers-Danlos syndrome (EDS) by critically analyzing study results, understanding sensitivity and specificity concepts, and distinguishing between true positive, false positive, true negative, and false negative outcomes.
2. Apply the Beighton Score as a diagnostic tool for EDS: Demonstrate the practical application of the Beighton Score in clinical settings, including the interpretation of scores exceeding 4 as indicative of generalized joint hypermobility and scores below 4 ruling out EDS.
3. Analyze the positive predictive value (PPV) of self-diagnosis in the context of EDS, emphasizing its role in identifying individuals at risk and understanding its implications for clinical practice, as well as evaluate the strengths and limitations of history-taking in EDS diagnosis, emphasizing the importance of further assessments to enhance diagnostic accuracy.

**Abstract Title:** The Impact of Participating in American Orthopaedic Association (AOA) Leadership Training Programs

**Presenting Author:** Chista R. Irani, BS

**Co-Authors:** Chista R. Irani, BS, Medical Student, Tulane University School of Medicine, New Orleans, LA; Rithvik Vutukuri, MS, Medical Student, Tulane University School of Medicine, New Orleans, LA; Mia Rumps, MS, Research Assistant, Department of Orthopaedic Surgery and Rehabilitation, Loyola University Medical Center; Mary K. Mulcahey, MD, Department of Orthopaedic Surgery and Rehabilitation, Loyola University Medical Center.

**Abstract:**

**Introduction** – Leadership is a critical skill for all surgeons to ensure high quality patient care and reduce surgical harm. Within orthopaedic surgery, there is a growing number of leadership training programs. However, no studies analyze the quality of these programs and their impact on advancing leadership development. The purpose of this study was to investigate the impact of participating in four prominent leadership programs offered by the AOA, understand why orthopaedic surgeons participate in these programs, and in what ways leadership training can further improve.

**Methods** – Online survey was distributed by the AOA to 2,500 orthopaedic surgeons who participated in the Resident Leadership Forum, Emerging Leaders Program, AOA-Kellogg Leadership Series from 2012-2022, and/or AOA-USC Apex Leadership Certificate Program from 2019-2022. The survey included multiple-choice and open-ended questions on participant demographics, leadership roles, motivations to attend AOA programs, perceived benefits of AOA programs, and recommendations for improvements. Data was collected between July 10-31, 2023. Responses were anonymous and recorded by Qualtrics. Descriptive and graphical representations were used to analyze survey responses.
Results – One hundred and twenty-five responses were received. Ninety-one (72.8%) identified as man and 26 (20.8%) identified as woman. Ninety-four (75.2%) were White/Caucasian. Majority (109, 87.2%) were orthopaedic surgery attendings. Eighty-six (68.8%) held one or more leadership positions after participating in at least one AOA program. Ninety-seven (77.6%) had a personal desire to seek leadership training. Seventy-four (59.2%) received recommendations from their mentors to attend an AOA program. AOA programs strengthened leadership skills of “vision planning” (106, 84.8%), “organizational management” (102, 81.6%), and “mentorship” (102, 81.6%). Fewer participants strengthened their leadership skills on “emotional intelligence” (101, 80.8%) and “inclusion” (97, 77.6%). Ninety-one (72%) expanded their professional network and 71 (56.8%) built new mentorship relationships. Seventy-six (60.8%) recommended future programs to include a formal leadership curriculum that taught non-clinical and management-based leadership skills.

Conclusions – AOA leadership programs positively impact leadership development in orthopaedics and support the career success of its participants. However, mentors and program directors should encourage more female surgeons and those of color to apply to leadership training opportunities which can in turn improve leadership diversity in orthopaedic surgery.

References:
10. https://orthosurgery.ucsf.edu/outreach/global/jgot_leadership
Learning Objectives:
1) Describe specific ways in which leadership training programs offered by the American Orthopaedic Association impact and improve leadership skills of its participating orthopaedic surgeons.
2) Identify the motivations of surgeons to attend and participate in leadership training programs.
3) Discuss how different surgical specialties can draw inspiration from leadership training programs offered by the American Orthopaedic Association.

Abstract Title: Asymptomatic gangrenous cholecystitis in a diabetic patient, a Case Report

Presenting Author: Maryam Ahmed, MD

Co-Authors: Nguyen, A.; Daoud, A., Barmanwalla, A., Turken, M., Malkoc, A., Woodward, B. Alexandra Nguyen, MD, General Surgery PGY3, Arrowhead Regional Medical Center, Colton, CA; Maryam Ahmad BS, MS3, California University of Science and Medicine, Colton, CA; Amanda Daoud, DO, General Surgery PGY4, Arrowhead Regional Medical Center, Colton, CA; Amira Barminwalla, MD, General Surgery PGY5, Arrowhead Regional Medical Center, Colton, CA; Aldin Malcok, MD, General Surgery PGY3, Arrowhead Regional Medical Center, Colton, CA; Brandon Woodward, MD, Trauma Surgery Director, Arrowhead Regional Medical Center, Colton, CA

Abstract:
Introduction: Gangrenous cholecystitis (GC) represents a severe complication of acute cholecystitis, characterized by full-thickness necrosis of the gallbladder wall. This condition arises from persistent cystic duct obstruction, causing local ischemia and inflammation. Its incidence, ranging from 2% to 29.6% of acute cholecystitis cases, is associated with risk factors such as diabetes mellitus (DM), where microvascular disease is believed to increase the likelihood of gangrenous transformation. Diagnosing GC preoperatively remains challenging due to its infrequency and nonspecific symptoms. This report details the case of a 56-year-old male with DM, initially diagnosed with diabetic ketoacidosis (DKA) and later found to have GC despite non-elevated liver function tests, no leukocytosis, and no history of or current right upper quadrant pain on presentation.

Case Presentation: A 56-year-old male, with a history of uncontrolled DM without known neuropathy, presented with shakiness, fever, and chills which began the morning of admission. He reported a 9 month history of non-radiating epigastric abdominal pain now with 1 week worsening and nausea and vomiting. He denied history of or current right upper quadrant pain and post-prandial abdominal pain. On exam, he had moderate epigastric tenderness and negative Murphy's sign. Ultrasound and CT showed evidence of gallbladder wall thickening, sludge, and cholelithiasis. Given normal white blood cell count, liver function tests (LFTs), and lipase levels, the suspicion for acute cholecystitis was initially low. Patient was found to be hyperglycemic with an anion gap of 19, consistent with DKA, and was admitted.

Final Diagnosis: Several days after admission, patient developed post-prandial right upper quadrant pain. He continued to have no leukocytosis, and non-elevated LFTs and lipase. A HIDA scan was performed, which showed evidence of cystic duct obstruction. Decision was made to perform a laparoscopic cholecystectomy, which found GC.

Management/Outcome: The patient's post-operative course was uneventful, and he was discharged home shortly after. This case underscores the importance of heightened suspicion for GC in diabetic patients, who may lack classic symptoms of acute cholecystitis, such as Murphy's sign and lab abnormalities. This highlights the importance of a comprehensive diagnostic approach and early operative intervention.

References:
Objectives: Although the study is ongoing, it is evident there is a consensus among our cohort that using POCUS during residency would be beneficial. These data hopefully will inform our strategies for improving the curriculum and building a framework to ensure residents are using POCUS accurately to improve patient outcomes.

References:

Learning Objectives: Upon completion of this presentation, learners should be better prepared to implement their own point-of-care ultrasound (POCUS) curriculum at their institutions. We also aim to demonstrate how incorporating POCUS training will enhance internal medicine resident training.
Abstract Title: When There's More Than Meets The Eye: A Case Report of Rare Facial Necrotizing Fasciitis

Presenting Author: CJ Stegall, MD

Co-Authors: CJ Stegall, MD, Internal Medicine, PGY-1, UTHSC, Memphis, TN; Christopher Jackson, MD, Internal Medicine, APD, UTHSC, Memphis, TN.

Abstract:
Facial necrotizing fasciitis (FNF) is an uncommon presentation of this rapidly progressive soft tissue infection, attributed to the face’s excellent blood supply, accounting for approximately 10% of cases. Limited skin involvement is typical in FNF as a deep tissue source is a common culprit. A FNF infection involving skin caused by a deeper source indicates an advanced disease presentation, requiring clinicians to have a high suspicion for FNF.

A 66-year-old man with type 2 diabetes came to the Emergency Department for facial swelling and purulent mouth drainage for five days after a right mandibular 2nd molar extraction. Vital signs were normal. On exam, he had right facial edema with crepitus around the zygoma. (see Figure 1) Initial labs revealed a leukocyte count of 16K/uL, sodium of 132mEq/L, and glucose of 237mg/dl. Computed tomography (CT) of the head showed swelling in the right infraorbital area, cheek, and peri-mandibular area with extension to the mandible and air-fluid collections around the inner margin of the right mandible. (see Figure 2)

He received intravenous vancomycin, piperacillin/tazobactam, and clindamycin for empiric therapy. ENT quickly took the patient for debridement and irrigation of the abscess. Blood cultures remained negative and intraoperative cultures grew polymicrobial aerobic microbiota.

Most often, intraoperative cultures are polymicrobial, with group A streptococcus (GAS), staphylococcus spp., and anaerobes being common isolates. The definitive treatment for FNF is urgent surgical debridement by a specialist familiar with surrounding anatomy. Broad antibiotic coverage is vital to controlling disease before and after surgery. The IDSA recommends clindamycin if GAS is suspected.


Learning Objectives:
1. Clinicians need to have a high suspicion for FNF as physical exam findings can be subtle.
2. Cultures isolates of FNF are usually polymicrobial, with group A streptococcus, staphylococcus spp., and anaerobes being common isolates. Broad spectrum antibiotics, in addition to clindamycin, that cover these pathogens given promptly are important for patient outcomes.
3. Definitive treatment is surgical debridement with a specialist familiar with surrounding anatomy.

Abstract Title: An Interesting Case of Disseminated Histoplasmosis Presenting with Infection of the Eyelid with Complete Recovery

Presenting Author: Nupur Singh, BA

Co-Authors: Nupur Singh, BA, Medical Student 3rd year, University of Tennessee Health Science Center, Memphis, TN; Shirin Mazumder, MD, Internal Medicine-Infectious Disease, University of Tennessee Health Science Center, Memphis, TN.
Abstract:
Introduction: Histoplasmosis is an endemic mycosis most commonly seen around the Ohio and Mississippi River Valleys, particularly in the state of Tennessee. Patients are exposed to the dimorphic fungus, Histoplasma capsulatum, through inhalation of fungal spores from the soil. Exposure to bird habitats, bat caves, demolition, outdoor gardening, and old buildings can increase the risk of acquisition. In immunocompromised patients, disseminated histoplasmosis can result in a complicated, life-threatening course of infection with high morbidity and mortality. Disseminated Histoplasmosis most commonly presents with pulmonary infection. It is not unusual for infection to present in the eye, characterized by involvement of the retina and choroid with scarring and peripapillary atrophy. However, what is particularly rare, is the presentation of histoplasmosis in an immunocompromised patient only involving the eyelid, with no ocular infection or deficits.

Case Presentation and Final Diagnosis: A 74-year-old Caucasian woman with a history of rheumatoid arthritis presented to clinic with an acute onset of eyelid swelling and redness. At the time of presentation, the left eye lesion appeared as an erythematous mass surrounding the entire eyelid, which was tender and warm to touch. She denied any eye pain, blurry vision, proptosis, or ophthalmoplegia symptoms. An eyelid biopsy with Grocott’s methenamine silver(GMS) stain returned positive for histoplasmosis. She also had a positive urine histoplasma antigen, confirming the diagnosis of disseminated histoplasma infection. She denied other symptoms including fever or respiratory complaints. Her RA was previously controlled with infliximab, which was promptly discontinued. Other daily medications included methotrexate, folic acid and prednisone. HIV testing was negative.

Management and Outcome: Treatment was promptly initiated with itraconazole for 12-months with close monitoring. By treatment discontinuation, the symptoms involving her left eyelid were completely resolved and urine histoplasma antigen was negative. 12-month follow up confirmed no long-term complications.

Outcome/Conclusion: Disseminated histoplasmosis can be a challenging diagnosis due to its variety of presentations. It requires a high index of suspicion in order to confirm the diagnosis and initiate treatment immediately. This patient presents a unique and delicate case of controlled, localized infection of the eyelid that was appropriately treated without any long-term complications.

References:

Learning Objectives:
- Highlight the need for clinicians, particularly those practicing in an endemic area, to remain vigilant for potential Histoplasma infection
- Discuss the variety of presentations of disseminated Histoplasma infection, particularly in actively immunocompromised patients

Abstract Title: Factors Affecting COVID-19 Vaccine Uptake in People Living with HIV

Presenting Author: Nupur Singh, BA

Co-Authors: Victoria Kunkel, MD, Internal Medicine, PGY3, University of Tennessee Health Science Center, Memphis, TN; Nupur Singh, BA, Medical Student, 3rd Year, University of Tennessee Health Science Center, Memphis, TN; Nathan Summers, MD, Internal Medicine-Infectious Disease, University of Tennessee Health Science Center, Memphis, TN.
Abstract:

Background: There is a lack of available data regarding COVID-19 vaccination rates in people living with HIV (PLWH). We examined a group of PLWH to evaluate the association between specific demographics and COVID-19 vaccine uptake.

Methods: This retrospective observational study included PLWH who were seen in an HIV clinic at an academic medical center in Memphis, TN. 300 randomly selected PLWH who had been seen at least once in the clinic within an 18-month study period during the COVID-19 pandemic were included. Univariate analysis using Chi Square and T-tests followed by multivariable regression including significant results from univariate analysis identified factors associated with COVID-19 vaccine uptake.

Results: 300 PLWH between January 2021 to June 2022 were included in the study. 248(82.67%) were Black, 27(9%) were White, 2(0.67%) were Asian, and 23(7.67%) were of multiracial/other races. The average age was 47 years old. 243(81%) were retained in care, defined as 3 visits within the 18-month period with 2 visits being at least 6 months apart. 239(81.29%) of the participants had a suppressed HIV viral load, defined as HIV RNA < 200 copies/mL. The mean number of total vaccinations in the previous 3 years was 4.61 and the mean number of influenza vaccinations in the past 3 years was 1.64. 207(69%) of the participants received at least one COVID-19 vaccine, with 187(62.33%) being fully vaccinated, defined as 2 mRNA vaccines or 1 Johnson & Johnson vaccine. Age, number of attended clinic visits, retention in care, viral suppression, and number of previous vaccinations were associated with receiving at least one COVID-19 vaccine in univariate analysis, while only age (odds ratio(OR) 1.07, p<0.0001), number of influenza vaccinations (OR 0.58, p=0.03), and total number of vaccinations in the prior 3 years (OR 2.29, p<0.0001) were significant in multivariable analysis.

Conclusions: Age and total number of vaccinations in the past 3 years were positively correlated with having at least one COVID vaccine. Number of influenza vaccinations in the past 3 years was negatively correlated with having at least one COVID vaccine. Further studies should identify targeted interventions to improve vaccine uptake in the PLWH population.

Learning Objectives:
- Demonstrate the relationship between outpatient followup for PLWH who were seen in an HIV clinic with COVID-19 Vaccine uptake
- Identify notable factors and tangible steps that can improve COVID-19 vaccination uptake for PLWH

Abstract Title: Internal Iliac Artery: Embryology, Anatomy, Variations, and Clinical Significance

Presenting Author: Mahant Malempati, BS

Co-Authors:
Leila Kataři, BS, Medical Student, New Orleans, Louisiana

Abstract: This review delves into the embryology, anatomy, variations, and clinical importance of the internal iliac artery (IIA), a vital vessel crucial for pelvic blood supply. The embryological journey of the IIA originates from the dorsal aorta, with key contributions from ventral segmental and dorsolateral intersegmental branches. The anatomical landscape involves the bifurcation of the abdominal aorta into common iliac arteries, with the IIA assuming a pivotal role in pelvis vascularization. Its branches include the iliolumbar, lateral sacral, superior gluteal arteries, and various arteries on its anterior aspect. Variations in IIA branching patterns impact surgical procedures and clinical diagnoses, necessitating a thorough understanding for optimal outcomes. Notably, variations in internal iliac branches, especially involving the superior and inferior gluteal arteries, internal pudendal artery, and obturator artery, require attention for surgical planning. In clinical contexts like lower extremity artery disease (LEAD), isolated internal iliac artery stenosis (IIS) poses diagnostic challenges, often resembling other conditions. Diagnostic techniques, including duplex ultrasound and advanced imaging, are crucial in identifying IIS.

The clinical relevance of IIA extends to conditions like buttock claudication in LEAD. Various non-invasive diagnostic tools aid in detecting IIS, while innovative assessments like exercise transcutaneous oxygen pressure and near-infrared
spectroscopy show promise in evaluating pelvic ischemia. Management of IIS spans medical interventions with medications like aspirin and clopidogrel, alongside revascularization procedures such as angioplasty and stent placement. Internal iliac artery ligation proves vital in preventing hemorrhage during pelvic surgeries.

In summary, exploring the IIA's developmental origins, anatomical intricacies, variations, and clinical implications emphasizes its pivotal role in medicine. Insight into IIA nuances guides diagnosing and managing conditions like IIS, facilitating effective medical and surgical interventions in the pelvic region. Ongoing research is essential for advancing medical knowledge and enhancing patient care.

References:
1. Accueil, Universities of Fribourg, Lausanne and Bern (Switzerland), https://embryology.ch/.

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Learning Objectives:
Embryological Development: Understand the embryonic origins of the internal iliac artery (IIA), emphasizing the role of ventral segmental and dorsolateral intersegmental branches and the significance of caudal displacement of umbilical arteries in IIA formation.
Anatomical Proficiency: Gain a comprehensive grasp of IIA’s anatomy, including branching patterns, contributions to pelvic vascularization, and variations impacting surgical procedures and clinical diagnoses.
Clinical Relevance and Management: Explore the clinical significance of IIA in lower extremity artery disease (LEAD) and isolated internal iliac artery stenosis (IIS). Learn non-invasive diagnostic techniques, such as duplex ultrasound, and understand treatment modalities, including medical interventions, revascularization procedures, and the role of internal iliac artery ligation in preventing hemorrhage during pelvic surgeries.

Abstract Title: Opioid Use Disorder (OUD) in Pregnancy: How OUD affects Peripartum Management and Obstetric Analgesics

Presenting Author: Kennedi Wilson, MPH, BSE

Co-Authors: Kennedi Wilson, MPH, Medical Student Year 4, University of Houston TJFF College of Medicine, Houston, TX; Summer Chavez, DO, MPH, M.P.M., PPP/ Director of Department of Student Research, University of Houston TJFF College of Medicine, Houston, TX.

Abstract:
Introduction Opioid use disorder (OUD) continues to increase in pregnant women, a population considered at high risk due to potential complications in labor and delivery as well as the lasting effects left on both the mother and neonates (Rizk et al, 2019). The prevalence of opioid substance use spiked by 127% in this population across a 14-year span and continues to escalate in the U.S. (Maeda et al, 2014). Pregnancies associated with OUD have worse outcomes in...
comparison to those without OUD; maternal death, maternal ACS events, preterm labor, stillbirth, and placental abortion are proven to have increased odds (Maeda et al, 2014).

Methods In conducting the literature review, four databases for selected for the scoping review: Cochrane Library, PubMed, JSTOR and Academic Research Complete. Within each database search (MeSH) terms were identified and included in an advanced search. This yielded 143 resources all evaluated based on inclusion and exclusion criteria (directly answers research question, must be from year 2013 forward, must be conducted or contained in United States studies/ records, must include adult women only) then assessed for duplications and crossovers, leaving a total of 50 resources for the literature review analysis.

Results The research brought forth main themes in peripartum management and obstetric analgesic care: (1) a multidimensional approach is optimal for success in addressing OUD in pregnancy (e.g. policy, interdisciplinary teams), (2) best practice management for OUD includes buprenorphine and methadone, (3) techniques for pain analgesics during labor and delivery for pregnant patients with OUD require both pharmacology and pain scale assessments, (4) access and affordability are necessary components to be evaluated for adequate care.

Conclusions Understanding the effects on opioid use in antepartum, intrapartum, and postpartum on pain and labor management, as well as the ultimate effects on the neonate and maternal health is pivotal to drive patient centered care, reduce morbidity and mortality, and optimize best patient outcomes. Thematic analysis is still in progress with anticipated completion in December 2023.

References:


**Learning Objectives:** To further identify therapies and interventions, we must evaluate current protocols and treatment avenues for those who are pregnant with OUD, as presented by this piece of work.

**Abstract Title:** Pancreatic Mass: Cancer or Blastomycosis?

**Presenting Author:** Tina Phan, MD

**Co-Authors:**
Gabrielle Howard, MD, Rheumatology, The Bone and Joint Center, Springfield, MO; Nayna Riyat, MD, Gastroenterology, Stanford, Stanford, CA; Thomas Wells, MD, Gastroenterology, Graves Gilbert Clinic, Bowling Green, KY, Christopher Jackson, MD, Associate Professor, Internal Medicine, University of Tennessee Health Science Center, Memphis, TN; Neena Thomas-Gosain, MD, Infectious Disease, University of Wisconsin Medical School, Madison, WI, Vickie Baselski, MD, Professor, Pathology, University of Tennessee Health Science Center, Memphis, TN; Ilya Stone, MD, Pathology, University of Tennessee Health Science Center, Memphis, TN; Bradford Waters, MD, Gastroenterology, University of Tennessee Health Science Center, Memphis, TN; Claudio Tombazzi, MD, Associate Professor, Gastroenterology, University of Tennessee Health Science Center, Memphis, TN

**Abstract:**
**Introduction** Disseminated blastomycosis is known to have pulmonary and cutaneous manifestations, but gastrointestinal involvement is rare. We present a case of pancreatic blastomycosis in an immunocompetent patient.

**Case** A 67-year-old male with a history of hepatitis C and type 2 diabetes mellitus presented with anorexia, a twenty-five pound weight loss, right shoulder and flank pain, weakness, and dyspnea over the last three months. On physical examination, he had multiple cutaneous masses over his right post-auricular region, right shoulder, and right flank, with the largest one measuring four centimeters. A computed tomography scan of the chest, abdomen, and pelvis showed a cystic lesion in the pancreatic head, a right lower lobe mass with adjacent airspace disease, and a soft tissue mass in the right flank.

We were most concerned for sepsis secondary to a post-obstructive pneumonia and metastatic pancreatic cancer, but we also considered infiltrative and infectious processes. Despite empiric antibiotics, the patient’s condition worsened with new fevers and persistent tachycardia. Repeat imaging one week later showed a growing pancreatic lesion. The pancreatic mass was then biopsied, but pathology was negative for malignancy and fungal components on special
stains. Pathology from a bronchoalveolar lavage demonstrated broad-based budding yeast. The patient was diagnosed with disseminated blastomycosis, supported by a positive urine blastomycosis antigen test.

**Diagnosis** Blastomyces dermatitidis, a fungal mycosis endemic to the Mississippi and Ohio River valleys, is rarely identified in the gastrointestinal tract. To our knowledge, there are fewer than five documented cases with pancreatic involvement. In recognized cases of pancreatic blastomycosis, all patients were immunocompetent, emphasizing the observed fact that blastomycosis does not only cause metastatic disease in immunocompromised patients. Our case was unique since the pancreatic biopsy was negative for budding yeast. However, pancreatic blastomycosis remained the likely diagnosis given the mass resolution with treatment and a negative biopsy for malignancy. This case highlights that disseminated blastomycosis should be considered in immunocompetent patients from endemic areas with a rapidly growing pancreatic mass, even though pancreatic involvement is atypical.

**Outcome** The patient was started on amphotericin B with symptom improvement. Repeat imaging demonstrated complete resolution of the pancreatic mass.

**References:**

**Learning Objectives:**
1. Blastomycosis dermatitidis, a fungal mycosis endemic to the Mississippi and Ohio River valleys, that presents with nonspecific symptoms, including cough, fever, nights sweats, and weight loss.
2. Disseminated blastomycosis should be considered in immunocompetent patients from endemic areas with a rapidly growing pancreatic mass, even though pancreatic involvement is atypical.

**Abstract Type:** Analyzing Diversity, Equity, and Inclusion Content on Dermatology Fellowship Program Websites

**Presenting Author:** Forrest Bohler, BS

**Co-Authors:** Forrest Bohler, BS, MS2, Oakland University William Beaumont School of Medicine, Rochester, MI; Allison Garden, BS, OMS3, Edward Via College of Osteopathic Medicine - Carolinas Campus, Spartanburg, SC; Varna Taranikanti, MD, MS, PhD, Oakland University William Beaumont School of Medicine, Rochester, MI

**Abstract:**
**Background** Efforts to prioritize diversity, equity, and inclusion (DEI) to address healthcare disparities has become a central focus in medical school, residency, and fellowship programs. One way to diversify the workforce is to highlight diversity initiatives through their website by providing detailed information about DEI content so that prospective applicants can evaluate a program’s training, culture, and overall fit. Prior studies show that dermatology residency programs’ websites have a dearth of DEI content.1,2 Little is known, however, if similar findings are to be expected for dermatology fellowship programs. The American Board of Dermatology recognizes three dermatology subspecialties: Dermatopathology, Pediatric Dermatology, and Micrographic Surgery and Dermatologic Oncology (Mohs). The aim of this study is to analyze the presence and characterize the content of DEI information on fellowship websites.

**Methods** Fellowship programs were identified using the Accreditation Council for Graduate Medical Education’s online database of fellowship programs. Programs that did not have websites were excluded from this study. A total of 147 programs were analyzed. Programs were evaluated on a standardized scoring system for five equally weighted criteria:
fellowship-specific DEI webpage, DEI commitment statement, DEI initiatives (summer research opportunities for under-represented minorities, DEI council, etc.), link to the institution’s DEI homepage, and information about bias training. Data was collected independently by two separate individuals for consistency. Any discrepancies between programs’ scores were discussed and reconciled.

Results The mean score among all programs was 12.5 (out of a maximum of 100). Pediatric dermatology ranked the highest among all specialties (mean score of 16.8), while Mohs ranked the lowest (mean score of 10.1). A link to the institution’s DEI homepage was the most prevalent factor accounting for 42.1% of all programs collected, whereas information about bias training and fellowship-associated DEI webpage were the least prevalent (3.3%). The remaining factors had a prevalence of 5.9% (DEI initiatives) and 7.9% (DEI commitment statement).

Conclusion/Implications The results of this study reveal an overall lack of DEI content across all dermatology subspecialties’ webpages and represent an actionable area of improvement for fellowship directors to increase their DEI efforts to attract a diverse pool of applicants to their program.

References:

Learning Objectives:
1.) identify shortcomings in DEI initiatives on dermatology fellowship program websites
2.) recognize ways in which improvements can be made across dermatology fellowship programs to attract a diverse pool of applicants

Abstract Title: Laparoscopic Morgagni Hernia Repair with Mesh: Case Report

Presenting Author: Meghana Kumar, BA, MD

Co-Authors: Meghana Kumar, MD, General Surgery, PGY3, UMKC, Kansas City, MO; Sharan Mangat, BA, Medical Student, UMKC, Kansas City, MO; Stanley Augustin, MD, General Surgery and Critical Care, Surgery, UMKC, Kansas City, MO.

Abstract: Introduction: A Morgagni hernia is a rare form of congenital diaphragmatic hernia that is often diagnosed in early childhood. However, the defect can go undetected in asymptomatic adults until they present with frank incarceration and strangulation of bowel contents. To prevent such life-threatening sequelae, it is proposed that all adult Morgagni hernias be surgically repaired when diagnosed, yet there is no agreed-upon standard approach to repair. Discussions have centered around whether an abdominal or thoracic approach is preferred, as well as the efficacy of open or minimally invasive methods. In this case report we discuss a laparoscopic abdominal repair with mesh reinforcement in an adult male presenting with a Morgagni hernia.

Case Presentation: This is a 25-year-old Caucasian male who presented to the emergency department multiples times in at a local primary safety-net hospital for progressively worsening abdominal pain, nausea, vomiting, constipation and bloating in 2023. He had a known history of a diaphragmatic hernia diagnosed at 18-years-old along with chronic alcohol use disorder. Had no prior surgical history. His BMI was normal and had prior EGDS revealing mild gastritis and esophagitis. CT scan of his abdomen/pelvis revealed a Morgagni hernia containing transverse colon without signs of obstruction. He was evaluated in surgery clinic and underwent a scheduled laparoscopic Morgagni hernia repair with mesh in July of 2023. During surgery, four ports were placed, a defect approximately 4x7cm was noted, chronically incarcerated colon was reduced but the sac was not completely reduced, the defect was primarily repaired with percutaneous interrupted 0-nonabsorbable braided polyester suture, and was reinforced with a 10.2x15.2cm elliptical
shaped one-sided coated medium weight monofilament polypropylene mesh that was both sutured and tacked in place.

**Final Diagnosis:** Morgagni Hernia

**Management/Follow-up:** Laparoscopic Morgagni Hernia Repair with Mesh
Patient has been seen in clinic post-operatively and his symptoms have drastically improved. As the hernia sac was not resected, post-operative imaging does reveal an expected simple fluid collection near the pericardium. The hernia has not recurred.


**Learning Objectives:**
- Describe what Morgagni hernias are and that it is recommended to repair them due to risk of incarceration.
- Identify that while it is recommended to repair all Morgagni defects, there is no standard first-line approach to repair.
- Discuss how the previous approaches were usually open thoracotomies or laparotomies, however minimally invasive approach has had successful outcomes.
- Be able to cite that similar to most hernia repairs, a tension-free repair is ideal
- Primary repair with mesh reinforcement theoretically is a stronger repair
- While there are set recommendations for when abdominal wall repairs can be closed just primarily, this is not applicable to Morgagni hernias
- There is no set recommended size of defect to size of mesh ratio.

**Abstract Title:** Disseminated Blastomycosis Meningitis in an Immunocompetent Young Male

**Presenting Author:** Grace Tanguilig, BS

**Co-Authors:** Grace Tanguilig, BS, MS3, Tulane University School of Medicine, New Orleans, LA; Reema Kumari, MD, Neurology, PGY4, Tulane University School of Medicine, New Orleans, LA; Neda Hidarilak, MD, Assistant Professor, Neurology, Tulane University School of Medicine, New Orleans, LA

**Abstract:**
**Introduction:** Blastomycosis is a fungal disease most commonly caused by the dimorphic fungi Blastomyces dermatitidis, endemic to the Ohio and Mississippi River Valleys, Great Lakes region, and Southeastern United States. Dissemination occurs in 25-40% of symptomatic infections, and the most common extrapulmonary sites are skin, bone, the genitourinary tract, and the central nervous system. We present a case of blastomycosis meningitis in a 38-year-old immunocompetent male.

**Case Presentation:** A 38-year-old African American male with no past medical history was transferred from an outside hospital for concern of hydrocephalus on recent CT scan. This was following 5-6 months of diffuse headaches and generalized weakness, fever and chills, and multiple 3-5cm verrucous ulcerative lesions. His social history was significant only for working on a river barge in his home state of Mississippi; no recent travel or sick contacts. On physical exam, the patient was somnolent but arousable, with generalized weakness, pain with lateral movements of eyes, photophobia, and skin lesions. Lumbar puncture on admission revealed elevated opening pressure, elevated white blood cell count with lymphocytic predominance, elevated protein, and low glucose. He was started on RIPE therapy and dexamethasone for an initial differential diagnosis of disseminated tuberculosis versus neurosarcoïdosis.
Final Diagnosis: Laboratory testing, including HIV, was persistently unremarkable. Finally, skin biopsy revealed broad budding yeast, confirming a diagnosis of blastomycosis, and he was started on liposomal Amphotericin B.

Management/Outcome: Management was complicated and involved frequent multidisciplinary discussions between infectious disease, neurology, the intensive care unit, and neurosurgery. Following initiation of amphotericin he experienced seizures and acute worsening of mental status, and was started on levetiracetam and lacosamide. He underwent serial lumbar punctures with the addition of acetazolamide for concern for increased cerebrospinal fluid pressure. Imaging was concerning for ischemic infarcts and potential vasculitis, and he completed a course of intravenous steroids. He also underwent multiple cerebral angiographies for worsening vasospasms, treated with intra-arterial verapamil, nicardipine, and balloon angioplasty. Unfortunately, he developed severe shock requiring intubation, four vasopressors, and an external ventricular drain. Sadly, he continued to decompensate, developed a brain herniation, and passed away on his 29th day of hospitalization.

References:

Learning Objectives:
1. Test for and keep fungal infections in their differential diagnosis for infectious presentations.
2. Treat possible fungal infections early to prevent disseminated disease.

Abstract Title: Communicating Hydrocephalus in Neurosarcoidosis, a Case Report and Review of Current Literature

Presenting Author: Preston M Terle, BS

Co-Authors: Preston M. Terle, BS, MS3, Tulane University School of Medicine, New Orleans, LA; Dylan R. Gonzales, MD, PGY3, Neurology, Tulane University School of Medicine, New Orleans, LA; Justin A. Salerian, MD, Assistant Professor, Director of Tulane Comprehensive Stroke Center, Neurology, Tulane University School of Medicine, New Orleans, LA.

Abstract:
Introduction: Sarcoidosis is a rare granulomatous, systemic disease of unknown origin that commonly affects the lungs. Neurosarcoidosis typically affects 5% of sarcoid patients and is associated with a high mortality rate. Diagnostic criteria are based upon clinical syndrome, histopathological imaging, laboratory testing, and the exclusion of other diagnoses. Neurosarcoidosis can lead to non-communicating or communicating hydrocephalus in 5-7% of cases. Treatment varies but typically involves corticosteroids, immune-modulating/cytotoxic agents, chloroquine/hydroxychloroquine, or radiotherapy.
Case Report: A 39-year-old man with a past medical history of autism, bipolar disorder, and schizophrenia was transferred to Tulane Medical Center from an outside hospital. The patient presented with a three-month history of progressively worsening altered mental status, ataxia, fatigue, nausea, and urinary incontinence. On examination he was oriented to self; however unable to walk, hypokinetic, and significantly hyperreflexic with clonus at bilateral patella. Completed metabolic panel revealed a serum sodium level of 120mEq/L and computed tomography (CT) findings were concerning for moderate hydrocephalus and Fehr’s disease with bilateral basal ganglia, thalamic, and cerebellar calcifications. Initial lumbar puncture (LP): opening pressure of 29mmHg, protein 371mg/dL, white blood cell (WBC) 41/mm3, and glucose 23mg/dL. Magnetic resonance imaging with contrast supported moderate hydrocephalus, however, signs of sarcoïd lesions, enhancements, or obstructions of the ventricular system were absent. For approximately five days the patient was treated with 3g NaCl tablets tid with continuous infusion of 250mL/hr of 0.9%, however his sodium remained near 120mEq/L.

Neurosurgery was consulted for VP shunt consideration. A large volume (26mL) LP was performed with opening pressure 16mmHg, WBC 130/mm3, and protein 300mg/dL. Additional CSF testing done at this time showed ACE>11.9, sIL-2r: 2,811 (normal<26.8), infectious work up was negative as was flow cytometry. CT chest guided lymph node biopsy was performed revealing granulomatous lymphadenitis.

Final Diagnosis: Neurosarcoïdosis with Communicating Hydrocephalus

Management: With strong evidence for sarcoïdosis and lack of infection or malignancy, the patient was started on solumedrol IV 1g daily for 5d. Thereafter the patient’s symptoms rapidly improved. At discharge the patient’s sodium normalized to 134mEq/L and he left the hospital on an extended steroid taper (prednisone 80mg) scheduled to decrease over 4 months.

References:

Learning Objectives: Test for, diagnose, and treat cerebral salt wasting due to neurosarcoïdosis.
Abstract Title: Splenic Rupture Following Prone Lateral Discectomy And Arthrodesis: Case Report

Presenting Author: Alexandra Echevarria, BS

Co-Authors: Alexandra Echevarria, BS, Research Fellow, Department of Orthopedic Surgery, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Hempstead, NY; Benjamin Hershfeld, BS, Medical Student, New York Institute of Technology/ Old Westbury, NY; Dr. Emily Arciero, MD, Northwell Health Department of Orthopedic Surgery, NorthShore University Hospital, Manhasset, NY; Dr. Rohit Verma, MD, Northwell Health Department of Orthopedic Surgery, NorthShore University Hospital, Manhasset, NY

Abstract:
Background: The prone lateral approach to lumbar spine surgery is known to have a multitude of potential complications including damage to neurovascular structures, surrounding viscera, and intra-abdominal structures near the surgical site. However, iatrogenic injury to the spleen following prone lateral lumbar discectomy and arthrodesis has not yet been described in the literature as a potential complication.

Case Presentation: We present the case of a 71-year-old female with a history of L3-S1 laminectomy and L3-L5 arthrodesis who underwent a prone lateral discectomy of L2-L3 with arthrodesis of the endplates for chronic lower back pain. On postoperative day 1, the patient developed hypotension unresponsive to pressor medications, significant abdominal pain, and anemia requiring several transfusions. The patient endorsed severe abdominal pain and physical examination showed pallor and abdominal distention. Computed-tomography scan of the abdomen demonstrated hemoperitoneum and a large splenic hematoma with possible active extravasation. On the second postoperative day, an exploratory laparotomy was performed where a total of 2.3 L of blood and clots were evacuated from the abdomen. The splenic capsule was noted to be ruptured and a splenectomy was performed. The patient was observed in the surgical intensive care unit for 6 days postoperatively without complications or hemodynamic instability.

Final Diagnosis: Iatrogenic splenic injury following lateral lumbar spine surgery is an uncommon but potentially deadly surgical complication which should be considered as part of the differential diagnosis for patients with hemodynamic instability following lateral approaches to the lumbar spine. It is suspected that the splenic injury may have been due to instrumentation causing tension on the abdominal viscera and leading to strain on the gastrospenic ligament and the splenocolic ligament.

Outcome: Although rare, splenic rupture should be considered as part of the differential diagnosis for patients with hemodynamic instability after lateral surgical approaches to the lumbar spine. Any patient with evidence of hypotension, anemia, and/or abdominal pain following lumbar surgery should be evaluated for splenic injury with an abdominal computed-tomography scan and considered for surgical intervention. Any abdominal complaint or hemodynamic instability should be addressed with ultrasound or contrast CT scan of the abdomen, and general surgery consultation.

References:

**Learning Objectives:** Understand the importance of anatomic attachments of surgical segments to reduce life threatening complications.

**Abstract Title:** Unique case of Calciophylaxis in a patient with NASH cirrhosis

**Presenting Author:** Poonam Patel, MD

**Co-Authors:** Parisha Masud, MD, MBA, Internal Medicine, PGY2, Norton Community Hospital

**Abstract:**

**Introduction:** Calciophylaxis, also termed calcific uremic arteriolopathy (CUA), is a rare and severe vascular condition characterized by arterry calcification and clotting, resulting in tissue ischemia and necrosis (1). It has traditionally been associated with end-stage renal disease, but there is growing evidence of its occurrence in individuals with underlying liver diseases, including nonalcoholic steatohepatitis (NASH) cirrhosis. The pathophysiological link between NASH cirrhosis and calciophylaxis remains elusive, but it is thought to involve a complex interplay of factors, including vascular calcification, hypercoagulability, and alterations in mineral metabolism (2). This case report highlights a unique instance suggesting a potential connection between NASH cirrhosis and calciophylaxis.

**Case presentation:** A 67-year-old male with PMH of NASH cirrhosis, diabetes mellitus, hypertension, hyperlipidemia, and obesity presented with a chief complaint of worsening painful lesions of bilateral lower extremities. Patient reports he initially noticed skin lesions about a month ago and has not yet been evaluated by Dermatology. Patient reported the lesions initially appeared as erythematous and violaceous nodules, which subsequently ulcerated. Over-the-counter pain medications did not adequately controlled his pain. On physical examination, the patient was noted to have multiple ulcerated, painful, and non-healing skin lesions on his lower extremities, starting from his bilateral shins. These lesions appeared to have dry central necrosis with eschar surrounded by a purpuric halo. The surrounding skin was indurated, and the lesions were tender to touch. No signs of infection were noted. Labs were remarkable for elevated LFTs, and decreased serum albumin indicating underlying cirrhosis. Serum electrolytes were unremarkable. Lower extremity Doppler ultrasound was negative for any deep vein thrombosis. Dermatology was consulted and a biopsy of the skin lesions was obtained.

**Final working diagnosis:** Calciophylaxis possibly secondary to NASH cirrhosis

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Management/ outcome/follow-up: Given the patient’s painful and extensive skin lesions, the patient was started on opioid analgesics. Wound care team was consulted and local wound care including dressings along with topical antibiotics was initiated. Biopsy of the skin lesion resulted which showed Calciphylaxis.

During this hospitalization, the patient received multidisciplinary care with a focus on pain management, wound care, and daily labs to monitor electrolytes.


Learning Objectives: This case highlights the complexity of managing Non uremic calciphylaxis in patients with underlying liver disease in absence of ESRD or HD and the importance of a comprehensive, multidisciplinary approach to care. Non-uremic calciphylaxis presents a challenge in terms of both diagnosis and treatment. Presently, therapeutic options are limited to wound debridement, pain management, and the regulation of triggering factors along with addressing septic complications (3).

Abstract Title: Post-Partum Cardiomyopathy: Quality Improvement of Recognition and Referrals

Presenting Author: CHRISTINE Sykalo, DO
Co-Authors: Christine Sykalo, DO, Cardiovascular Disease Fellowship, PGY-4, NGMC, Gainesville, GA; Heidi Ehrenreich, PhD, MPH, Maternal Cardiac Program, NGMC Georgia Heart Institute, Gainesville, GA; Nitya Chandra, MD, Heart Failure and Transplant Medicine, Georgia Heart Institute, Gainesville, GA

Abstract:
Background: Postpartum cardiomyopathy (PPCM) can be a life-threatening condition associated with reduced left ventricular ejection fraction below 45% and occurs during or within 5 months after pregnancy. Very little research is available on risk factors and no guidelines available on treatment.

Methods: Gap analysis was performed to identify risk factors. Within our health system from 07/02/2019 - 12/19/2022 we identified 29 patients with diagnosis of postpartum cardiomyopathy.

Results: Within our health system risk factors for post-partum cardiomyopathy were found to be: Essential hypertension, gestational hypertension, diabetes mellitus type 1 and 2, along with preeclampsia. Other research has suggested additional risk factors which were not seen within our health system including: Gestational diabetes mellitus, multiparity, and multiple gestations.

Conclusion: Our hospital system is building a high-risk cardiac OB clinic for patients who have a diagnosis or risk factors for postpartum cardiomyopathy. Algorithm is being created for earlier referrals and screening women with brain natriuretic peptide (BNP) labs for monitoring, even if they do not have symptoms. Current goal is to raise awareness and
vigilance about PPCM diagnosis and improve quality of care for these women. While there are no guidelines, we recommend pregnant women be screened with BNP levels, to identify those at potential risk for PPCM.

References:
doi:10.1161/CIRCHEARTFAILURE.117.004134https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6297639/

Learning Objectives:
Identify risk factors associated with post-partum cardiomyopathy (PPCM).
Recognize necessary lab work for PPCM screening.
Learn which pregnant patients should receive early referrals to cardiology.

Abstract Title: Improving Pediatric Resident Emergency Preparedness

Presenting Author: Blake Alexander Barton, MD

Co-Authors: Blake Barton, MD, Internal Medicine-Pediatrics, PGY-3, UTHSC, Memphis, TN; Maury Strong, MD, Pediatrics, PGY3, UTHSC, Memphis, TN; Nico West, MD PhD, Assistant Professor, UTHSC, Memphis, TN.

Abstract:
Background: Events of the past decade including mass casualty events, natural disasters, global pandemics have underscored the vulnerability of children in disaster situations and the need for physician trainee experience in
emergency preparedness. Some residency programs have addressed this gap through education and simulation, but emergency preparedness curricula are not commonplace in pediatrics training.

**Goals:** The primary goal is to improve resident comfort and competency in disaster situations during the 2023-24 academic year. At our institution, there is no formal curriculum addressing this previously identified gap in residency education. At the conclusion of the project, residents should be able to identify disasters most likely to affect their institution, recognize the importance of pediatric-specific emergency preparedness, and have a general awareness of hospital protocols and where to find them.

**Methods:** Proposed interventions include grand rounds topics on disaster medicine and hospital preparedness, resident involvement in the institution’s emergency preparedness committee and drills, resident orientation on emergency preparedness, didactics on disaster medicine, and table-top simulation conducted by the institution’s emergency preparedness director. PGY-1 through PGY-4 Pediatrics and Internal Medicine-Pediatrics residents will self-report comfort with emergency preparedness protocols, perceived importance of disaster training, and disasters likely to affect the region. Data will be collected in Likert scale format and compared before and after educational interventions during the academic year.

**Results:** Baseline surveys indicate that most trainees have no prior training in emergency preparedness but do believe that it is an important component of pediatric medical education. Most residents somewhat or strongly agree that blended didactics and simulation are the most beneficial format for delivery of the curriculum.

**Future Directions:** The project identifies an opportunity to integrate pediatric trainees in the institution’s emergency preparedness planning. Residents constitute a large part of a hospital’s physician workforce, therefore they should be prepared for and included in hospital protocols. We plan to bring our results to hospital administration and discuss this opportunity while continuing to expand the educational curriculum during the following academic year.

**References:**


**Learning Objectives:** Residents should be able to identify disasters most likely to affect their institution, recognize the importance of pediatric-specific emergency preparedness, and have a general awareness of hospital protocols and where to find them.

**Abstract Title: Dry Beriberi Resulting From GLP-1 Receptor Agonist and GIP Receptor Agonist Induced Weight Loss**

**Presenting Authors:** Timothy V Pham Timothy Vast

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Abstract:
Introduction: Glucagon-like peptide-1 receptor agonists (GLP-1ra) and dual-acting GLP-1 and glucose-dependent insulinotropic polypeptide receptor agonists (DAGLP), such as Tirzepatide, have proven highly effective in simultaneously managing blood sugar levels and promoting weight loss in patients with type 2 diabetes. In this report, we present a patient with uncontrolled T2DM and obesity with worsening bilateral lower extremity pain and angular stomatitis after initiating medication.

Case Presentation: A 22-year-old male with a past medical history of germinoma treated with resection and ventriculoperitoneal shunt resulting in panhypopituitarism and diabetes insipidus, Class 3 obesity, and uncontrolled Type II Diabetes Mellitus with HbA1c of 13 six months prior to presentation. He started treatment with GLP-1ra and changed to DAGLP with a total weight loss of 80lbs. Two months later physical examination revealed angular stomatitis, glossitis, gingival bleeding, absent patellar and achilles reflexes, 0/5 strength on dorsi- and plantarflexion. Imaging studies were unremarkable. Nerve conduction studies were consistent with severe peripheral neuropathy. Lab tests revealed thiamine level of 44nmol/L [normal 70-180], copper levels of 72mcg/dL [73-129], niacin was <5.0ng/mL [cutoff reference value <5.0], vitamin B6 was 7mcg/L [5-50], and vitamin B12 was 1480pg/mL [232-1245]. He was empirically started on niacin, pyridoxine, thiamine, vitamin C and multivitamins, which significantly improved clinical presentation. Nutrition was monitored and managed by a dietitian. The patient’s symptoms improved rapidly, and he regained functional mobility. He was discharged with recommendations for outpatient physical therapy and close follow up.

Conclusion and Discussion: 22-year-old patient with uncontrolled diabetes and obesity was treated with Semalutide and later Tirzepatide with significant reduction in A1c and weight loss due to decreased appetite. His poor intake led to multiple nutritional deficiencies. He had clinical features of Dry Beriberi, with distal symmetric motor and sensory neuropathy. In addition, he had low normal levels of multiple water-soluble vitamins and Copper, which can also cause peripheral neuropathy, stomatitis, and glossitis. Our patient’s presentation is the first to report the risk of nutritional deficiency after initiating Tirzepatide. This highlights the need to consider micronutrient deficiencies when initiating GLP-1ra and DAGLP in the setting of rapid weight loss.

References:


Learning Objectives:
Monitor, identify, and treat unique presentation of acute weight loss with new onset peripheral neuropathy and oral ulcers in patients with recent initiation of GLP-1 Receptor agonists and GIP Receptor agonists.
Abstract Title: Trust Your Gut: The role of a risk score in improving colon cancer screening

Presenting Author: Shivani Palakodaty, DO

Co-Authors: Shivani Palakodaty, DO, Family Medicine, PGY-3, Memorial Family Medicine Residency Program, Sugar Land, TX; Kavya Mathur, DO, Family Medicine, PGY-3, Memorial Family Medicine Residency Program, Sugar Land, TX; Thomas Wright, DO, Family Medicine, PGY-3, Memorial Family Medicine Residency Program, Sugar Land, TX

Abstract:

Introduction: Colon cancer is among the most common cancers diagnosed in the United States. The 2021-2022 Physicians at Sugar Creek (PSC) Purple Pod Colon Cancer Screening rate was 63.08%. Some of the factors that affect a patient’s likelihood of obtaining colon cancer screening include the fear of finding cancer, the belief that cancer will be fatal, lack of proper understanding of the disease and the importance of screening, lack of health promotion efforts by their PCP, poor adherence to preventive measures, and high cost of the procedure. The objective of this research project is to study if a patient’s hesitancy towards colon cancer screening changes after receiving their risk score via the NIH Colorectal Cancer Risk Assessment Tool.

Methods: Patients who were 45 years and older and due for colon cancer screening were asked if they would like to obtain screening. If they said no or were undecided, they were given a form with a QR code that led to the NIH Assessment Tool. After filling the assessment out and receiving a risk score, they were asked if this changed their mind about undergoing colon cancer screening.

Results: 18 patients qualified for the study. 10 patients chose to obtain screening after receiving their risk score. 8 patients did not change their minds. The results were statistically significant (p-score <0.0001). The 2022-2023 PSC Purple Pod Colon Cancer Screening rate improved to 68.7%.

Conclusion: The NIH Colorectal Cancer Risk Assessment Tool has the potential to change the minds of patients who are hesitant towards colon cancer screening. One confounding factor was the low sample size. One limiting factor of the risk assessment tool is the limited data for blacks/African Americans, Asian Americans/Pacific Islanders, and Hispanics/Latinos which may make their results less accurate. Future directions include incorporating this study into all of the pods at PSC to increase sampling, finding other tools to stratify risk in the aforementioned populations, and studying the percentage of patients who followed through with the screening.


Learning Objectives:
Upon completion of this lecture, learners should be better prepared to identify barriers to colon cancer screening, utilize the NIH Colorectal Cancer Risk Assessment Tool, examine for change in hesitancy after completion of the risk assessment tool, and discuss the different screening options available for colon cancer.
Abstract Title: Qualitative Insights on Bladder Cancer Experiences and Smoking Cessation: A Contemporary Analysis via Reddit

Presenting Author: Ryan Wong, BS

Co-Authors: Benjamin J Borgert, MD, Department of Urology, PGY1, University of North Carolina at Chapel Hill, Chapel Hill, NC; Richard S Matulewicz, MD, Department of Surgery, Urology Service, Memorial Sloan Kettering Cancer Center, New York, NY; Adam O Goldstein, MD, Lineberger Comprehensive Cancer Center, Department of Family Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC; Kimberly A Shoenbill, MD, Lineberger Comprehensive Cancer Center, Department of Family Medicine, Program on Health and Clinical Informatics, University of North Carolina at Chapel Hill, Chapel Hill, NC; and Marc A Bjurlin, DO, Department of Urology, Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill, NC

Abstract: Background/Knowledge Gap:
Motivators and barriers to smoking cessation among bladder cancer (BC) survivors is largely understudied. Using internet forums to assess user discourse is a novel approach to identify patient’s lived experiences of BC and their different avenues to quit smoking. “r/stopsmoking”, a Reddit forum with >155,000 users, is for people who smoke to motivate each other to quit smoking. We aim to qualitatively examine smoking cessation in former and current smokers with connections to BC using Reddit.

Methods: All posts on the subreddit “r/stopsmoking” was queried for “bladder cancer” and associated MeSH terms. Threads with anecdotal experiences on BC and smoking were included for analysis. Original post date, upvotes, and years smoked were extracted. Grounded theory (GT) was used to inductively analyze the original posts. Instead of testing a predefined hypothesis, GT recognizes a research context and lays the groundwork for subsequent research. Two independent reviewers arranged original posts into individual excerpts to identified preliminary themes. These themes were then refined to derive emergent concepts.

Results: 16 BC original posts (0.01%, n ≈ 149,139) by former (n=8) and current (n=8) smokers were evaluated. The number of BC original posts increased over time (R2=0.5 p=0.02). The median number of years smoked was 18 (n=7, IQR: 8-25). GT identified six themes: coping with BC, resilience and determination in the face of relapse, managing multiple medical conditions, fluctuating motivators, emotional release, family health history/habits. Newer posts (5/2020 - 3/2022, n=8) had greater mention of coping with BC compared to older posts (8/2010 - 11/2022, n=8). Original posts with themes of coping with BC had higher upvotes compared to those with themes of emotional release (p=0.02). Three emergent concepts were developed from these themes: BC negatively affects quality of life, smoking cessation relies on a strong support network, BC experience is a motivator for smoking cessation.

Conclusions: This study reveals BC experiences without judgment apprehension. The diagnosis of BC and patients’ shared experiences may serve as catalysts to quit smoking. These themes on BC’s impact on smoking can help guide clinicians to have tailored smoking cessation discussions.

Abstract Title: Adoption of Guideline-Directed Medical Therapy in Heart Failure with Reduced Ejection Fraction: An Analytical Series from a Singular Institutional Viewpoint.

Presenting Author: Sophia Navajas, MD
Co-Authors: Sophia Navajas, MD, Internal Medicine, PGY2, Broward Health North, Deerfield Beach, FL; Melisa Hidalgo, MD, Internal Medicine, PGY3, Broward Health North, Deerfield Beach, FL; Kevin Cortes, MD, Internal Medicine, PGY3, Broward Health North, Deerfield Beach, FL; Jordy Godinez MD, Hospitalist, Internal Medicine, Broward Health North, Deerfield Beach, FL and Reyna Yordanka, MD, Medical Director, Heart Failure, Broward Health Medical Center, Fort Lauderdale, FL.

Abstract:
Background: Congestive heart failure (CHF) afflicts roughly six million U.S. citizens, forecasted to generate an economic burden of $70 billion by 2030(1). CHF has been identified by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) as a primary area of concern for those aged 65 and older (2). Guideline-Directed Medical Therapy (GDMT) employs pharmacological treatments like ARNI, SGLT2 inhibitors, MRA, and Beta-Blockers, proven to enhance patients’ functional status while diminishing readmissions and mortality (3-8). Notwithstanding its substantiated efficacy, its integration into routine medical practice is suboptimal (8-14).

Purpose: This investigation elucidates GDMT’s suboptimal utilization, simultaneously recognizing the potential barriers in prescribing select treatments in non-profit settings.

Goals: Improve adoption rate of GDMT, reduce patient readmission, identify, and educate about viable strategies to overcome existing socioeconomic healthcare barriers.

Methods/Design: A retrospective examination undertaken at Broward Health North encompassing 105 patient samples, supplemented by an in-depth review of four prominent registry studies.

Results/Findings: Rigorous evaluation, compensating for prior therapy inefficacies or contraindications, discerned that 30% of patients were viable ARNI candidates, 57% for SGLT2 inhibitors, 57.14% for MRA, and 18.09% for beta-blockers. Despite this, such treatments remained unadministered. These findings outperformed previous registry study results.

Conclusions/Implication: There exists an urgent need to devise and implement strategies that bolster the guideline-directed administration of HFrEF medications.

References:
2. Quality Improvement Project: Urgent Heart Failure Clinic Reduces Admissions And Emergency Department Visits In Heart Failure Patients. Theresa Maitz, Desire Guthier, Orlando Rivera, Michelle Grigg, deborah w sundlof and Ellina C Feiner
Learning Objectives:
1) To improve adoption rates of guideline directed medical therapy in patients with HFrEF
2) To reduce readmission rate of these patients population.
3) To identify and educate about socioeconomic barriers in healthcare.

Abstract Title: Gangrenous Calciphylaxis in a Peritoneal Dialysis Patient: Case Report

Presenting Author: Maryam Ahmad

Co-Authors: Maryam Ahmad, Kaiser Permanente Bernard J. Tyson School of Medicine, Pasadena, CA; Aldin Malkoc, MD, MS, PGY3, General Surgery, Arrowhead Regional Medical Center / Kaiser Permanente Fontana Medical Center, Fontana, CA; and Majid Tayyarah, MD, Attending, Vascular Surgery, Kaiser Permanente Fontana Medical Center, Fontana, CA.

Abstract:
Introduction: Calciphylaxis, a rare condition primarily associated with end-stage renal disease (ESRD), manifests as painful cutaneous ulcerations, microvascular calcification, and tissue necrosis. While frequently studied in hemodialysis...
patients, its presentation and management in peritoneal dialysis (PD) patients remain underexplored. This case describes a patient on PD who developed gangrenous calciphylaxis in the setting of pre-existing peripheral arterial disease, eventually requiring multi-limb amputation despite aggressive, multimodal treatment.

**Case Presentation:**
A 63-year-old male with a history of hypertension, diabetes mellitus type II, ESRD, hyperparathyroidism, and hyperphosphatemia on PD presented with bilateral calf ulcers and penile and toe gangrene. The patient had noticed tender erythematous nodules on his lower legs three months prior, with later development of ulceration and necrosis on the penile glans and toes. Physical exam revealed black necrotic skin on the penile glans, toes, and multiple subcutaneous, firm, erythematous nodules with central necrosis on the legs. His right extremity exhibited weak dorsalis pedis and popliteal pulses. Calciphylaxis was strongly suspected due to the clinical features, ESRD history, hyperparathyroidism, and hyperphosphatemia. Other differential diagnoses were initially considered, such as cellulitis and peripheral arterial disease. Punch biopsy of a subcutaneous nodule confirmed the diagnosis of calciphylaxis, and a right leg angiogram additionally revealed severe peripheral arterial disease at the ankle and below.

**Final/Working Diagnosis:** Calciphylaxis with co-existing peripheral arterial disease

**Management/Outcome:** The patient was transitioned to hemodialysis for improved serum phosphorus control and to facilitate treatment with sodium thiosulfate. He received angioplasty of the right posterior tibial artery for treatment of his co-existing peripheral arterial disease. Despite this multimodal treatment, he eventually required multi-limb amputation, including a right and left transmetatarsal amputation.

This case presentation underscores the distinctive clinical presentation of calciphylaxis with co-existing peripheral arterial disease in PD patients. The significance of angioplasty in patients with concomitant calciphylaxis and peripheral arterial disease remains an area requiring further investigation. Further research is essential to optimize the management of this condition in PD populations.

**References:**
Learning Objectives: Upon completion of this lecture, learners should be better prepared to identify the clinical manifestations of calciphylaxis in peritoneal dialysis patients, and discuss the therapeutic role of angioplasty in treating concomitant gangrenous calciphylaxis and peripheral arterial disease.

Abstract Title: Diagnosing Relapsing Polyochondritis in a young girl

Presenting Author: Aashvi Dalal, MBBS, MD

Co-Authors: Aashvi Dalal, MBBS, Internal Medicine, PGY2, NYP-Brooklyn Methodist Hospital, NY Sonal Dalal, MD, DNB, Department Chair, Internal Medicine- Nephrology, Sterling Hospital, Gujarat

Abstract:
Introduction: Relapsing polyochondritis (RP) involves recurrent inflammation of cartilaginous structures. Diagnosis requires meticulous general examination, particularly in settings where cultural attire might obscure diagnostic signs. Key features include bilateral auricular chondritis, ear deformities, nasal chondritis leading to erosion and saddle appearance, and episcleritis. Respiratory symptoms like hoarseness, dyspnea, and wheezing suggest laryngotracheal involvement, which can lead to obstruction and infection. A combined approach of clinical, histopathological, and immunofluorescence features aids diagnosis. Treatment is symptomatic and tailored based on disease activity. Mild cases respond to NSAIDs, while systemic glucocorticoids and dapsone are used for refractory cases.

Case presentation: Here we present a case of a 38-year-old woman who presented to our clinic with a persistent daily evening fever, reaching up to 101°F, lasting for 12 days. Accompanying symptoms included headache and eye redness. Continued fever even after 5 days of ciprofloxacin, prompted a comprehensive evaluation. She displayed bilateral episcleritis and on asking to remove the head covering, redness in both ears while sparing the lobule during the systemic examination. There was no joint pain, nasal deformities, or tracheal cartilage tenderness. Elevated C-reactive protein to 154 mg/L, erythrocyte sedimentation rate to 100 mm/hr, and low positive Antinuclear Antibody to 1:100 to 1:320 via indirect immunofluorescence was noted. PR3-ANCA and MPO-ANCA were both negative.

Based on clinical findings, a provisional diagnosis of Relapsing Polyochondritis was made. Treatment was initiated with oral prednisone 5mg three times a day with a taper dose, for a total of 7 days. On follow-up with primary care and rheumatology, inflammation and pain subsided following treatment initiation.
References:

Learning Objectives:
1. Diagnose Relapsing Polychondritis on physical examination
2. Describe Relapsing Polychondritis
3. Treat Relapsing Polychondritis

Top 10 Abstracts

Abstract Title: Collision Course: An Unusual Presentation of Fatal Mucormycosis After a Motor Vehicle Accident

Presenting Author: Amanda Victoria Hardy, MD

Co-Authors: Amanda V. Hardy, MD, Internal Medicine-Pediatrics, PGY4, University of Tennessee Health Science Center, Memphis, TN;
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Charles Waldroff, 4th Year Medical Student, University of Tennessee Health Science Center, Memphis, TN;
Sara Cross, MD, Division Chief and Associate Professor of Infectious Disease, University of Tennessee Health Science Center, Memphis, TN.

Abstract:
Introduction: Mucormycosis is a rare but dangerous invasive infection caused by an opportunistic environmental mold. Mostly seen in immunocompromised hosts, even with early treatment, it can be rapidly fatal. We herein report an unusual presentation of mucormycosis in a patient who initially presented with polytrauma from a motor vehicle accident (MVA).

Case Presentation: A 43-year-old female with type 1 diabetes mellitus presented with polytrauma following an MVA. Injuries included a fracture of her right humerus requiring surgery. She was discharged only to present a week later with concern for infection at the surgical site. Antibiotics were initiated, and she underwent debridement and irrigation (D&I), which revealed dark, devitalized tissue involving the hardware. Cultures grew Rhizopus, and she was treated with isavuconazole. She underwent multiple D&Is with each revealing copious necrotic tissue. She ultimately required shoulder disarticulation. She was discharged home with continued medical treatment. Days later, she was re-admitted with wound dehiscence and new formation of a black eschar. CT suggested ongoing infection at the stump bed. Despite
aggressive antimicrobial treatment, she worsened clinically, and the medical team made clear to her and her family that her infection was immediately life-limiting.

**Final Diagnosis:** The patient was diagnosed with disseminated mucormycosis, initially manifesting as a cutaneous infection at her surgical site.

**Management/Outcome:** Despite the surgical team’s and medical team’s best efforts, the patient continued to decline. Recognizing that her prognosis was grim, the patient chose to be discharged home with hospice with an expressed goal of spending those final days of her life with her family. Five days following discharge, she succumbed to her infection. This case highlights the significant mortality associated with mucormycosis, no matter where or how it may initially manifest anatomically. While rare, with one study suggesting a rate of 0.12 infections per 10,000 hospital discharges (1), the overall mortality rate is estimated to be 54% (2). Clinicians must remain vigilant and recognize that though rare, the mortality rate is so significant that high-risk populations should be treated early and aggressively and, in certain cases, depending on the circumstances, pre-emptively.

**References:**

**Learning Objectives:**
- Identify risk factors for the development of mucormycosis
- Recognize the significant mortality associated with mucormycosis

**Abstract Title:** Portosystemic Shunt Occlusion as Treatment for Recurrent Hepatic Encephalopathy Secondary to Congestive Hepatopathy

**Presenting Author:** Meet Patel, MD

**Abstract:**
**Introduction:** Congestive hepatopathy promotes susceptibility to ammonia (NH4) accumulation through multiple mechanisms but markedly from decreased hepatic flow/clearance secondary to increased portal pressures. Hyperammonemia can manifest as hepatic encephalopathy (HE) and can be challenging to manage medically with the progression of heart failure and potential cirrhosis.

**Case Presentation:** A 65-year-old male with a history of heart failure with reduced ejection fraction complicated by congestive hepatopathy, moderate mitral stenosis, and end-stage renal disease on hemodialysis presented to the ED for the eleventh time in eighteen months for acutely worsening confusion. HE with hyperammonemia was determined as the root cause of altered mentation at every prior admission. NH4 levels during active encephalopathy ranged from 65mcMol/L to 222mcMol/L. Prior episodes of encephalopathy were associated with events resulting in a femur fracture and a subdural hematoma. Prior liver biopsy and right heart catheterization with hepatic circulatory measures were consistent with congestive hepatopathy. Genetic studies for inherent urea cycle defects were also unremarkable. Despite strict home management with oral lactulose, rifaximin, zinc, and lactulose enemas; the patient once again
presented with altered mentation. During this admission, NH4 was elevated to 152mcMol/L which clinically presented with a GCS score of 8.

Management/Outcome: Initially, the patient responded to multiple lactulose enemas, improving alertness and orientation. However, this was followed by multiple encephalopathic relapses despite aggressive medical management and consecutive dialysis sessions. Repeat abdominal CT imaging did reveal a portosystemic splenorenal shunt, routinely seen in patients with portal hypertension. In theory, closure of this shunt would reduce systemic NH4 levels and promote NH4 processing by the liver. After deliberation with a multidisciplinary team and shared decision-making with the patient’s family, the decision was made to pursue the occlusion of the splenorenal shunt. Interventional radiology performed a successful balloon-occluded retrograde transvenous obliteration (BRTO) of the splenorenal shunt. Over the next four days, improvements in alertness, orientation, and cognition were reported with the patient returning to baseline per family. At the two-week follow up patient had remained at baseline without further deterioration. Repeat NH4, four weeks after the procedure was <9 mcMol/L.

References:


Learning Objectives:
Recognize chronic congestive hepatopathy as a potential cause of hepatic disorders (cirrhosis, hepatic encephalopathy, ascites, etc)

Demonstrate understanding the pathophysiology of cardiac cirrhosis versus other etiologies of cirrhosis (alcohol, NAFLD, viral, etc)

Abstract Title: Metastatic Prostate Cancer Cells Effect on Tumor Microenvironment

Presenting Author: Jordan Beam, BS

Co-Authors: Renee Ormsby, PhD, University of Oxford, Oxford U.K.; Young Eun Park, PhD, University of Oxford, Oxford U.K.; Claire Edwards, PhD University of Oxford, Oxford U.K.; Jessica Whitburn, PhD University of Oxford, Oxford U.K.; Majd Zayzafoon, M.D. PhD University of Alabama at Birmingham Heersink School of Medicine, Birmingham, AL

Abstract:
Background: Bone is the main site of prostate cancer (PCa) metastasis, with an increased mortality rate for PCa patients. PCa cells interact with osteoblasts (bone-forming cells) to colonize the bone microenvironment (including adipocytes). The exact interactions that occur between osteoblasts, adipocytes and PCa cells are poorly understood. To investigate this, PCa cells were cultured ± osteoblasts or conditioned media from adipocytes.

Methods/Results: PCa cells (PC3 and LNCaP) and osteogenic cells (HS5, HOB and MC3T3) were co-cultured in transwells for 4 days. Cell viability was measured using Alamar Blue. PC3 cancer cells significantly reduced MC3T3 viability (3% decrease in 4 days). RNA was collected from PC3 and MC3T3 co-culture to determine changes in gene expression of

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G6PD (pentose phosphate metabolic pathway enzyme suggesting PCa growth and migration) OCN and COL1A1. In MC3T3 cells co-cultured with PC3, an increase in osteoblast markers-OCN, COL1A1, and RANKL-was detected suggesting interaction with PC3 cells induces MC3T3 differentiation. MC3T3 cells were cultured with conditioned media from PC3 cells. Bright-field microscopy showed MC3T3 cells rounding/clumping before undergoing apoptosis. Live/Dead staining of MC3T3 + PC3 conditioned media at 48 hrs displayed a similar morphology suggesting that prostate cancer cells interacting with MC3T3 cells could induce their apoptosis. PC3 cells were also cultured with conditioned media from ST2 differentiated adipocytes, inducing a marginal increase in PC3 viability (210% increase).

**Conclusions:** This work demonstrates that osteoblasts and adipocytes likely play key roles in PCa bone metastasis, with cancer-bone crosstalk impacting cell growth and differentiation.

**References:**

**Learning Objectives:**
Upon completion of this lecture, learners should have a better understanding of the tumor microenvironment, metastatic prostate cancer cell's interaction with osteoblasts and adipocytes, and be able to describe future targets for pharmacological prostate cancer therapy.

**Abstract Title: Ancient Surgery: Bridging Millennia in Modern Practice**

**Presenting Author:** Mahant Malempati, BS

**Abstract:**
This article challenges the misconception that surgical evolution is confined to recent centuries, uncovering the rich history of ancient civilizations like Egypt, China, and India that significantly influenced modern surgical foundations. Examining texts, burial sites, and artifacts, the study reveals the profound impact of these civilizations on contemporary surgical methods, challenging Eurocentric perspectives. Embedded in the medical traditions of ancient Egypt, China, and India, surgical interventions were driven by necessity and innovation, stretching back thousands of years.

Ancient Egypt’s advanced anatomical understanding is evident in mummification practices, showcasing meticulous skill and raising questions about widespread medical knowledge. The Ebers Papyrus details cardiovascular conditions and surgical strategies, underscoring the integration of anatomical understanding into medical practices. The Edwin Smith Papyrus outlines standardized surgical procedures, challenging the perception of surgical methods as exclusively modern.

Despite China’s hierarchical society, surgical luminary Hua T’o pioneered anesthesia and abdominal procedures, showcasing surgical contributions despite societal biases. Ancient India’s Susruta Samhita, with over 300 surgical procedures, highlights the depth of knowledge and sets a precedent for surgical literature, emphasizing innovation shared across epochs.

Ancient surgeons, with rudimentary tools, demonstrated remarkable skill in intricate procedures. Ancient and modern surgical values converge on patient-centered care, emphasizing a timeless commitment to patient well-being.
Acknowledging ancient roots becomes imperative as surgical technology evolves, enriching our understanding of the surgical journey and highlighting the seamless interplay of ancient wisdom and modern innovation in contemporary practice.

References:

Learning Objectives:

Historical Roots Appreciation:
Understand and appreciate the historical foundations of modern surgery, challenging the misconception that surgical evolution is exclusive to recent centuries, and recognizing the significant contributions of ancient civilizations.

Ancient Surgical Practices Insight:
Explore the anatomical and surgical innovations of ancient Egypt, China (Hua T’o), and India (Susruta Samhita), highlighting their impact on modern surgical principles and challenging the perception of surgical methods as exclusively modern.
Patient-Centered Care Continuity:
Examine the convergence of ancient and modern surgical values, emphasizing the enduring commitment to patient-centered care. Explore the teachings of Susruta, recognizing the timeless ethos of treating patients as family throughout the history of surgery.

Abstract Title: Patient-Reported Outcomes Provide Qualitative Insight into Patient Conditions in Trauma Patients

Presenting Author: Caroline H Clutton, BA

Co-Authors: Ashley Williams Hogue, MD, Assistant Professor of Surgery, Trauma & Acute Care Surgery and Burns, University of South Alabama Frederick P. Whiddon College of Medicine, Mobile, AL.

Abstract:
Introduction: There is a wealth of medical literature examining quantitative outcomes like mortality and procedural success for traumatic injuries; however, there is not sufficient research investigating subjective outcomes like quality of life, including physical, social, and psychological factors that contribute to patient satisfaction after injury. This information is valuable to completely understand health outcomes. We hypothesize that there will be a difference in cumulative quality of life scores for trauma patients of different age, race, mechanism of trauma, insurance status, and length of stay in the hospital.

Methods: The study was conducted among adult trauma patients admitted to a level 1 trauma center from December 2022 to February 2023. Inclusion criteria included: 18 years of age or older, Glasgow Coma Score of 15 on arrival, English-speaking, discharged to home. Each patient who met inclusion criteria was administered a 12-question phone survey compiling questions from EuroQol-5-Dimension (EQ-5D), Three-Item Care Transition Measure (CTM-3), and Patient-Reported Outcomes Measurement Information System (PROMIS) questionnaires. The responses were analyzed for correlation with age, race, mechanism of trauma, hospital length of stay, and insurance status. IRB approval was obtained.

Results: 302 patients were admitted for traumatic injuries during the date range studied. 180 of these patients met inclusion criteria. Of those, 12 refused participation, 2 were deceased, 3 were incarcerated. 24 had disconnected phone numbers. 105 were unable to be reached after 2 attempts. 34 surveys were completed. Of the factors analyzed, median cumulative CTM-3 scores were different by race (White 3[3-6] vs Black 6[5-6], p=0.010). EQ-5D and PROMIS were not significantly different. There was also a significant difference in median cumulative EQ-5D scores by insurance (BCBS 13[6-14.5] vs Medicare 6[5-11] vs Medicaid 7[7-11.5] vs Self Pay 16[13-19] vs Other 6[6-17], p=0.030). We calculated a p-value of 0.013 with Dunn’s posttest for Medicare vs Self Pay. Median cumulative CTM-3 and PROMIS scores were not significantly different. No other comparisons yielded statistically significant differences.

Conclusion: The data suggests that discharge readiness after traumatic injury differs based on race. This could be due to several factors including: cultural competency of provider, healthy literacy, education level, provider bias, or lack of patient-centered discharge. The results also suggest that insurance status may predict patient-reported physical ability after trauma.

References:
1. Sigune Kaske, Rolf Lefering, Heiko Trentsch, Arne Driessen, Bertil Bouillon, Marc Maeggele, Christian Probst, Quality of life two years after severe trauma: A single centre evaluation, Injury, Volume 45, Supplement 3, 2014, Pages S100-S105,


**Learning Objectives:** Upon completion of this lecture, learners should be better prepared to examine factors that impact patient quality of life post traumatic injury and discuss possible opportunities for equity.

**Abstract Title:** The Management of a Subscapular Abscess in a Pediatric Patient

**Presenting Author:** Sarthak Biren Parikh, DO

**Co-Authors:** Sarthak Parikh, D.O. Saint Francis Health Systems, Tulsa OK; Oklahoma State University Department of Orthopedic Surgery, Tulsa OK
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Steven A. Brown, D.O.Oklahoma State University Department of Orthopedic Surgery, Tulsa OK

**Abstract:**
A subscapular abscess is a rare condition in both adult and pediatric patients that is scarcely represented in the literature. Current research demonstrates only 5 other case reports of pediatric subscapular abscess, making it an unlikely differential diagnosis for pediatric physicians treating infective causes of shoulder pain. The purpose of this study is to present the history, diagnosis and management of a 2-year-old female with a left subscapular abscess that was treating with arthroscopic irrigation and debridement and offer management suggestions based on inferences of the current literature discussing pediatric subscapular abscesses. Most cases were caused by both MRSA and MSSA. Patients infected with MRSA developed re-accumulation of fluid that necessitated multiple procedures. Falls were associated in 3 of the 6 cases. Although one patient was managed with ultrasound guided aspiration and antibiotics, the author recommends operative intervention for abscess evacuation as drainage may not sufficiently eradicate the infection, especially if the pathogen is MRSA. Furthermore, practitioners should consider subscapular abscesses as a differential diagnosis when pediatric patients present similarly to septic glenohumeral arthritis without specific clinical findings. These suggestions and findings are limited primarily due to the paucity of research discussing subscapular abscesses in pediatric patients and should be interpreted cautiously. Further publications of subscapular abscesses in both the adult and pediatric patients are encouraged.
**References:**

**Learning Objectives:**
Management of arthroscopic debridement is a viable choice for the management of pediatric subscapular abscesses. This case contributes to the uncommon literature discussing the incidence of pediatric subscapular abscesses.

**Abstract Title:** "Know Your Numbers": A Report of a Medical Student-Led Preventative Health Intervention in the State of Mississippi

**Presenting Author:** Grace Hover Howell

**Co-Authors:** Grace H. Howell, Medical Student, 2nd year, University of Mississippi Medical Center, Jackson, MS; Isabella C. Kelly, Medical Student, 3rd year, University of Mississippi Medical Center, Jackson, MS; Simranjit Kaur, Medical Student, 2nd year, University of Mississippi Medical Center, Jackson, MS; Alan D. Penman, PhD MPH, Department of Preventive Medicine, University of Mississippi Medical Center, Jackson, MS; Richard D. deShazo, MD, Rheumatology, University of Mississippi Medical Center, Jackson, MS.

**Abstract:**

**Background**- The increasing prevalence of diabetes, hypertension, and inadequate health literacy in Mississippi can be largely attributed to the influence of Social Determinants of Health. Previous endeavors to address these disparities reveal limitations, notably in physicians’ constrained schedules, clinical availability in rural areas, and healthcare expenses. Building on these dismal trends, there remains a significant need for student-led community initiatives in Mississippi that promote an understanding of three of the most important causes of mortality and morbidity: hypertension, diabetes, and obesity. In an attempt to address the health literacy gap in Mississippi, second-year medical students at the University of Mississippi Medical Center started the Student Health Coalition (SHC) in June 2022. The SHC was envisioned to provide Mississippi residents with free educational resources and health screenings consisting of blood pressure, blood glucose, and body mass index (BMI) at convenient venues across the state.
Methods- The SHC utilized a standardized Community Health Advocacy training designed by nutrition and preventive medicine experts to equip the students with the skills to provide and interpret screenings at events. Emphasis was placed on explaining the basic causes of hypertension and hyperglycemia, along with related risk factors, to help participants understand the significance of their screening results. The SHC scheduled screenings to be conducted at suitable community events, including festivals, food kitchens, and housing authorities. At events, individuals were offered free readings and provided with a copy of their results. The SHC saved de-identified information to estimate the number of individuals screened.

Results- The SHC has provided over 2500 screenings to Mississippians in 37 counties. The organization has expanded to include pediatric screenings and partnered with the state health department, housing authorities, public schools, and colleges across the state. Today, the Student Health Coalition is a collective of approximately 250 medical and graduate students united by the goal of advancing preventative health services in Mississippi.

Conclusions- This report provides evidence that medical students, with the guidance of academic mentors, can positively impact the healthcare landscape of Mississippi by providing quality preventative health screenings and referrals in rural areas with limited access to care.

References:


Learning Objectives: Describe an effective student-led, community based preventative health intervention designed to address the health literacy gap in Mississippi and strategize the critical need for the integration of such interventions into local communities to mitigate the prevalence of diabetes, hypertension, and obesity in the state.

Abstract Title: An Unusual Side Effect of Acyclovir: Junctional Rhythm

Presenting Author: Poonam Patel, MD

Co-Authors: Vagharsh Antanesian, MD MPH, Internal Medicine, PGY 3, Norton Community Hospital Norton, VA
Abstract: Acyclovir, an antiviral agent primarily targeting Herpes Simplex Virus (HSV) infections, presents predominantly mild adverse effects such as malaise (>10%), gastrointestinal symptoms, and elevated liver function tests (1-10%). However, more severe complications, notably associated with intravenous administration, encompass rare occurrences of acute renal failure, neurological toxicity, and sporadic cases of bradycardia. A review of literature revealed 2 instances linking acyclovir to bradycardia, with no documented reports on junctional rhythm. A phase IV clinical study examining FDA data identified 1,424 individuals encountering side effects from Acyclovir, with only 6 individuals (0.42%) reporting bradycardia, primarily observed in males aged 60 and above using the medication for less than a month. Here we report a rare case of junctional rhythm caused by acyclovir.

Case Presentation: 42-year-old female presenting to the Emergency Department with a chief complaint of “10/10 worst headache of my life”, described as sharp, stabbing pain radiating to her neck, associated with nausea, vomiting, lightheadedness, dizziness, and right upper quadrant abdominal pain. While physical examination exhibited no neurological deficits, her complex medical history, leukocytosis and clinical presentation, prompted admission for further investigation into potential causes of the severe headache, possibly due to meningitis, migraine, or intracranial bleeding. The initial assessment, including negative findings in urinary drug screen, Monospot test, and sed rate, was followed by a CT scan of the head, revealing a stable 9mm meningitis. Consequently, the patient was empirically treated with vancomycin, Rocephin, acyclovir, and dexamethasone due to her immunocompromised state and the clinical presentation. Subsequent imaging studies and ongoing CSF analysis showed no acute abnormalities. Days later, the patient developed chest pain, leading to a cardiac workup.

Working Diagnosis: The electrocardiogram (ECG) revealed junctional bradycardia with a rate of 43. Extensive evaluation ruled out alternative causes including negative cardiac work up, other medication side effects, attributing the junctional rhythm to acyclovir on the Naranjo Scale.

Management/follow up: Patient was managed symptomatically and upon discontinuation of acyclovir, the patient’s junctional rhythm resolved and follow up ECG showed baseline sinus rhythm at discharge.

References:

Learning Objectives: This case identifies that acyclovir can cause bradycardia, junctional rhythm; therefore, caution should be used when starting a patient on acyclovir and keeping acyclovir-induced bradycardia/junctional rhythm as a possible etiology in such cases.
Abstract Title: Viper Insecticide (Cypermethrin) Cardiotoxicity

Presenting Author: Vagharsh Antanesian

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Abstract:
Introduction:
Viper insecticide is a commonly used product in gardening. Its active ingredient Cypermethrin Pyrethroid has been known to cause toxicity through ingestion, inhalation or skin contact. The symptoms of toxicity include neurotoxicity, cardiotoxicity, and gastrointestinal symptoms. In this case we will discuss a case of symptomatic bradycardia as a result of cypermethrin toxicity. This case highlights the importance of environmental exposure.

Case:
69-year-old male with NASH cirrhosis, HLD, GERD, and history of gout presented with chief complaints of Dizziness and bradycardia. Patient reported over the past few days prior to presentation he has been having episodes of near-syncope during which his HR has been ranging between 30s to 60s. EKG showed some sinus bradycardia and infrequent PACs and PVCs. Patient also reported intermittent, dull in quality Chest pain, located in the substernal/epigastric area, radiating to the left arm which lasted a few seconds and was not associated with shortness of breath. The episodes were associated with nausea but no vomiting. At baseline, patient reports of being active, walks daily and intentional weight loss of 40lb over the last one year. Review of medications did not show any offending agent that could possibly cause bradycardia or dizziness. The patient denied using any supplements. Upon reviewing any possible chemical exposure, the patient stated he uses Viper insecticide (active ingredient Cypermethrin Pyrethroid) for his garden every 3 weeks and his last use of insecticide was 2 days ago. He denied using proper protection and reported about 2-3 weeks ago he had an episode of dizziness after dusting his Garden vegetables.

Management/outcome/follow up:
Patient was treated conservatively. He did not require Atropine administration. He was observed overnight with the following day stress test and Echocardiography which were unremarkable. He was instructed on using protective clothing while using the insecticide. He was discharged with no future complications.

References:
https://www.sciencedirect.com/science/article/pii/S2214750020304479#:~:text=Cypermethrin%20poisoning%20can%20present%20as,neurological%2C%20gastrointestinal%20or%20cardiac%20manifestations.&text=Prolonged%20bradycardia%20following%20acute%20oral%20intoxication%20with%20cypermethrin%20is%20a%20rare%20entity.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3286848/

Learning Objectives:
Importance of environmental exposure in causes of bradycardia
Symptoms of Cypermethrin toxicity
Importance of detailed history