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Abstract 2022-4
Rapid Fluctuations Between Somnolence and Agitation Occurring with Antipsychotic Polypharmacy
Tyler Torrico, MD; Parisa Hashemi, MD; Mohammed Molla, MD

Introduction: Olanzapine toxicity has reports of a rare but specific phenomenon characterized by rapid fluctuations between somnolence and agitation, which has been referred to as "agitation despite sedation." A similar phenomenon is observed as an adverse reaction of the long-acting injectable olanzapine formulation, which has been referred to as "delirium/sedation syndrome".

Purpose: This case report describes a 48-year-old male diagnosed with schizophrenia who experienced rapid fluctuations between somnolence and agitation during a cross-titration of olanzapine to clozapine. The patient had normal serum levels of both medications and the symptoms resolved with discontinuation of olanzapine.

Conclusions: Rapid fluctuations in mental status between somnolence and agitation are not clearly described amongst other antipsychotics and it is possible that this spectrum of phenomena may be specific to olanzapine and be of shared pathophysiology. Early recognition of rapid fluctuating mental status between somnolence and agitation should alert clinicians to a possible medication-induced delirium from saturated histamine (H_1) and muscarinic (M_1) antagonism.

Abstract 2022-5
The Neurosyphilis and Cocci Conundrum
Jeffrey Nguyen, MS III; Valerie Espinoza, MD; Amar Shah, MD; Kasey Radicic, DO; Rasha Kuran, MD; Arash Heidari, MD

Introduction: Neurosyphilis is an infection of the central nervous system caused by *Treponema pallidum* that can occur after the initial infection. Early forms of neurosyphilis affect the cerebrospinal fluid, meninges and vasculature, while late forms of the disease affect the brain and spinal cord parenchyma. We describe a case of neurosyphilis that was complicated by fluconazole toxicity during treatment of pulmonary coccidioidomycosis.

Purpose: Neurosyphilis is relatively rare due to spontaneous resolution in some cases without an inflammatory response. This case demonstrates a unique case of late latent syphilis consistent with neurosyphilis resulting in bilateral posterior subcapsular cataract at age 18 with cranial nerves III and VII palsy, complicated by fluconazole toxicity during treatment of pulmonary coccidioidomycosis.

Discussion: 26-year-old male with poorly controlled type 1 diabetes mellitus, pulmonary coccidioidomycosis (finished a course of ambisome, followed by fluconazole 800mg daily for the past 2 weeks), HFrEF, cranial nerve III palsy of the left eye secondary to diabetic mononeuropathy and cranial nerve VII palsy of the right lower face who presented to the emergency department for worsening weakness and syncope. Patient slumped over on a shower chair and had a brief loss of consciousness for about 20-30 seconds with rapid correction of mentation.

On physical exam, pupils were equal but not reactive to light and accommodation bilaterally, AO x3, 5/5 strength in all extremities, left cranial nerve III unable to adduct with mild ptosis and cranial nerve VII right lower face unable to show teeth or smile. He was admitted to the internal medicine service for further work-up with infectious disease and neurology consulted. MRI brain showed no acute infarction, abnormally enhancing intra-axial mass, fluid collections or midline shift noted, however, there was slightly diffuse increased enhancement. Chest x-ray showed infiltrates, worse in the left midlung zone with left perihilar region and also in the right upper lobe regions. Initial lumbar puncture showed opening pressure of 14cm, WBC5, RBC0, glucose48, protein254 with cocci IgG WR CF 1:4. Fluconazole level was supratherapeutic at 138. In the setting of worsening cocci, now CNS cocci/disseminated with supratherapeutic fluconazole levels, fluconazole was discontinued, and patient was started on cresemba.

Patient's weakness and syncope were also related to fluconazole toxicity with improvement after

discontinuation of fluconazole. MRI of T/L-spine showed no acute diseases. Neurology recommended treatment for CNS cocci with repeat lumbar puncture sending for flow cytometry and cytology for possible carcinomatosis meningitis, oligoclonal bands, and IgG synthesis rate as patient has a family history of multiple sclerosis. RPR, VLDR and FTA-ABS were also sent due to history of bilateral posterior subcapsular cataract at the age of 18. Repeat lumbar puncture showed improvement with opening pressure 30cm, WBC3, RBC2, glucose78 and protein136. Throughout the course, his weakness improved, and he became ambulatory with a front wheel walker.

Labs revealed syphilis antibody positive, RPR nonreactive, VDRL nonreactive, but FTA-ABS reactive. Late latent syphilis in setting of bilateral posterior subcapsular cataract at age of 18, cranial nerve III and cranial nerve VII palsy, CSF positive for albuminocytologic dissociation is neurosyphilis. Patient was instructed to start Penicillin G IV 24,000,000 units/day for 14 days and on the 14th day, patient will need Penicillin G benzathine 2,400,000 units intramuscular one time in the Infectious Disease clinic.

Conclusion: Co-infections should be warranted in endemic areas because it can lead to severe brain damage if not treated promptly. Therefore, it is critical to initiate therapy as soon as the diagnosis has been made.

Abstract 2022-6
Delayed Tension Pneumocephalus Following Frontal Sinus Fracture
Jagdipak Heer, MD; Daniel Quesada, MD; Bianca Arechiga, MD

Introduction: Tension Pneumocephalus (TP) is a rare neurosurgical emergency, with finite published literature limited to a handful of case reports. TP is at increased risk of developing from traumatic pneumocephalus when associated with paranasal sinus and skull base fractures. Characterized by the presence of increasing amounts of intracerebral aerocele with concurrent neurological deterioration, TP can lead to brain herniation and death if not recognized and treated promptly.

Purpose: A 72-year-old female with a history of auto-vs-pedestrian accident 21-days prior presented from an acute rehabilitation facility (ARF) for altered mental status. She was previously hospitalized for a right frontal lobe contusion, small right frontal lobe sub-arachnoid hemorrhage, pneumocephaly in the right frontal lobe, and fractures of the right anterior/posterior frontal sinus extending to the medial aspect of the orbital roof and the medial wall of the right orbit.

Vital signs included a HR 114 bpm, BP 137/58 mm Hg, RR 18 bpm, and O2 saturation 100% on RA. Physical exam revealed somnolence, aphasia, Glasgow Coma Score (GCS) 11 (eyes 4, verbal 1, motor 6), right gaze deviation, left lateral gaze palsy, and left hemiparesis of both extremities.

Computed tomography (CT) of the brain showed interval development of right frontal loculated pneumocephalus measuring 6.6 x 5.5 x 4.9 cm exerting mass effect resulting in diffuse cerebral sulci effacement, 14 mm leftward subfalcine herniation, and suspected early right uncal herniation.

Neurosurgery and otolaryngology were consulted and patient subsequently went to the operating room for frontal bone repair, ethmoidectomy and closure of cerebrospinal-fluid leak. Patient had an uneventful recovery and was discharged to a skilled nursing facility with a GCS of 15.

Discussion: The underlying pathophysiology of TP depends on the presence of an aberrant pathway through which air can enter the cranium [1]. The development of TP has been described by Dandy in 1926 as the “ball-valve” theory, allowing the inflow of air while preventing the outflow [2]. Such pathophysiology can be exacerbated when extracranial pressure is altered as seen with concurrent facial fractures.

Treatment of pneumocephalus varies based on the severity of the condition. Most cases can be treated conservatively with measures that include placement of patient in Fowler’s position; administration of osmotics, analgesics, antipyretics, and avoidance of any maneuvers that may increase intracranial or sinus pressure.

However, in cases of TP with evidence of intracranial hypertension and/or neurological deterioration,

emergent decompression is indicated. Treatment options include the placement of a burr hole, needle aspiration, craniotomy, placement of a subdural drain or external ventricular drain, and the repair of a dural defect.

Conclusion: TP is a neurosurgical emergency requiring surgical intervention. The incidence of TP associated with TBI is less than 1%. However, the incidence increases to 8% with facial or skull base fractures [8]. Although TP commonly presents acutely, this case demonstrates how delayed TP can occur weeks after inciting event. Failure to maintain an appropriate level of clinical suspicion for this condition in a neurological deteriorating patient with known subacute pneumocephalus and facial fractures can lead to brain herniation and death.

Abstract 2022-7

Lubiprostone for the Treatment of Clozapine-Induced Constipation: A Case Series

Pooja Eagala, MS III; Manik Dayal, MS III; Tyler Torrico, MD; Snehpreet Kaur, MD; David Weinstein, MD

Introduction: Clozapine-induced constipation is an increasingly recognized adverse reaction that frequently impairs optimal management of treatment-resistant schizophrenia. The Food and Drug Administration recently strengthened an existing warning for clozapine causing constipation as an adverse effect which can progress to serious bowel complications. Lubiprostone is a relatively newer laxative that has labeled indication for opioid-induced constipation, irritable bowel syndrome with constipation, and chronic idiopathic constipation. Purpose: This case series describes clinical pearls associated with four cases of treatment-resistant schizophrenia who had treatment of clozapine-induced constipation with lubiprostone.

Methods: The methods used in this research study was minimal risk de-identified records data study from patients' electronic medical records.

Results: Case 1 describes relief of constipation with the addition of lubiprostone and decreased dose of clozapine. However, the patient did have incontinence in between episodes of constipation, potentially from supratherapeutic effect of lubiprostone. Case 2 describes relief of constipation with the addition of lubiprostone but had simultaneous initiation of polyethylene glycol, making it unclear if one agent or the combination of both was needed for treatment of constipation. Case 3 and 4 describes relief of constipation with the addition of lubiprostone to a regimen that included other laxatives.
Discussion: Overall, the described cases are suggestive of lubiprostone having therapeutic benefit for the treatment of clozapine-induced constipation with minimal risk of adverse reaction but are unable to assess its effectiveness as a monotherapy.

Conclusion: The study of isolated lubiprostone benefit (i.e., without coadministration of other laxatives) continues to be of prominent interest to understand its ability to manage clozapine-induced constipation alone. Evidence-based guidelines for laxatives in the management of clozapine induced constipation remain scarce and there is a general need for improved algorithms in management of this common condition.

Abstract 2022-8

Carcinosarcoma of Duodenum and Pancreases Successfully Treated by Whipple's Procedure

Nadia Raza, MD; Pearl Chan, MS IV, Rahul Dev Polineni, MD

Purpose: A rare presentation of carcinosarcoma of duodenum and pancreas treated with Whipple procedure and adjuvant chemotherapy.

Methods: Retrospective Study

Summary: 53-year-old female incidentally found to be anemic with hemoglobin of 7.7 and liver function test which showed alkaline phosphatase of 679, aspartate transaminase of 129, alanine transaminase of 220, and bilirubin of 1.6 on regular lab workup ordered by surgeon prior to elective lipoma removal. Due to anemia, transaminitis, and hyperbilirubinemia, computerized tomography (CT) scan of abdomen and pelvis were performed which was remarkable for 5-centimeter ulcerative mass in the second part of duodenum without evidence of metastasis. An Esophagogastroduodenoscopy (EGD)

was performed which revealed non-obstructive circumferential ulcerated mass with biopsy finding may represent a sarcomatoid carcinoma or carcinosarcoma. Malignant cells stain positive with AE-1/AE-3, CD10, CA 19-9, and CK7. Patient acutely developed worsening abdominal pain and was hospitalized with gastric outlet obstruction and underwent Whipple's procedure. Patient had a carcinosarcoma with 60% sarcomatous component on 40% adenocarcinoma component in the primary tumor. However, there were 8 out of 43 lymph nodes involved predominantly with adenocarcinoma. Final pathology was indicative for staged III carcinosarcoma of the duodenum and pancreas requiring adjuvant chemotherapy of Folfirinox for six months.

Patients' follow up imaging were unremarkable, and the patient has no evidence of disease. Conclusions: Carcinosarcomas are a rare malignant tumor that consists of a mixture of two components, the carcinomatous and sarcomatous elements. Commonest sites include uterus, head and neck and are extremely rare in the duodenum. Localized tumors located in the region that can potentially obstruct gastric outlet flow such as in this case ought to be resected. Whipple's procedure has shown an efficacious role in the treatment plan. Although, given that there are no direct guidelines on treatment for such a rare carcinosarcoma, this case highlights the importance of timely diagnosis, resection, and adjuvant therapy considering there is a high risk for recurrence.

Abstract 2022-9
Vinblastine Induced Paralytic Ileus in a Young Female with Hodgkin Lymphoma
Nadia Raza, MD; Glen Malolot, MS IV; Rahul Dev Polineni, MD

Purpose: A rare presentation of paralytic ileus induced from Vinblastine treatment.

Methods: Retrospective Study

Discussion: 31-year-old female with Hodgkin lymphoma stage II presented with progressive diffuse non-radiating abdominal pain, nausea, and vomiting. Patient's symptoms started a few days after initiation of second cycle of ABVD (Adriamycin, Bleomycin, Vinblastine, Dacarbazine) therapy. Laboratory studies were remarkable for anemia and leukopenia. Abdominal X-ray was significant for gaseous distention mostly prominent in the colon just beneath the left hemidiaphragm. Further imaging studies with Computed tomography (CT) abdomen and pelvis revealed colonic gaseous distention with moderate residual fecal material and moderate small bowel fluid-filled distention. Given high suspicion for paralytic ileus induced by Vinblastine, the patient was treated with prokinetic agent metoclopramide, a stimulant laxative, and vinblastine was continued. Patient symptoms resolved with conservative management. Conclusions: Paralytic ileus is a common clinical condition that is associated with autonomic neuropathy subsequently leading to decreased bowel peristalsis. Most are often caused postoperative but a small niche of the population undergoing chemotherapy treatment with vinca alkaloids vincristine and vinblastine are susceptible with this condition. Toxicity profile of Vinblastine affecting the gastrointestinal system seems to be dose related. Metabolism of Vinblastine is processed by the hepatic cytochrome P450 3A. Majority of the pharmacokinetic interactions are due to previously administered drugs that are metabolized same as Vinblastine. After coadministration effects can lead to potent enzyme inducers or inhibitors.

Conclusion: There are abundant drugs out in the market that can interfere with Vinblastine metabolism which can potentially aggregate increasing drug-related toxicity. The importance of this case illustrates that early recognition of Vinblastine induced paralytic ileus can lead to better outcomes and shorter hospital courses as treatment as mentioned above is different based on the cause of paralytic ileus.

Abstract 2022-10
Application of Point of Care Ultrasound in the Removal of Non-Palpable Nexplanon in a Teaching Community Health Center
Timiiye Yomi, MD; Sally Wonderly, MD; Verna Marquez, MD; Rupam Sharma, MD; Tamara Hilvers, MD

Introduction: Nexplanon is a reversible non-biodegradable progestin-only long-acting hormonal contraceptive subdermal implant. Introduced into the United States market in 2010, its makers featured two modifications to the original Implanon contraceptive which was found to have insertion errors and an increased risk of migration; a special applicator which made insertion faster, easier with better accuracy, and less risk of migration, and the inclusion of a small amount of Barium Sulphate, aiding radiological localization for easy removal. Palpable superficial implants are easy to remove in the outpatient clinic setting. However, patients with deep non-palpable implants traditionally are referred to Surgery for elective removal. In the wake of the Covid -19 pandemic, priority was given to emergent cases leaving patients with nonpalpable implants unattended to, hence the decision to begin removal at our community clinic under ultrasound guidance. Herein described are five cases of reproductive-age women who presented to our community health clinic for removal of deep, non-palpable Nexplanon implant.

Methods: Approval was exempt from the Institutional Review Board of both Clinica Sierra Vista and Kern Medical. We performed a retrospective study by reviewing the charts of patients who underwent Nexplanon removal from September to October 2021. Data was gathered from our electronic medical records of the patient's database. A total of twenty-nine women presented for Nexplanon removal and five of them were found to have non-palpable implants. A high-frequency linear ultrasound probe was utilized to localize the non-palpable implants followed by removal in the clinic under local anesthesia. The implants' relationship to fascia, muscle, and vascular structures was also assessed prior to removal.

Results: A total of twenty-nine female patients presented at the East Niles Community Health Center for their scheduled Nexplanon removal. Twenty-four patients (82.7%) had palpable implants which were successfully removed by manual palpation. Five patients (17.3%) had non-palpable implants which were successfully removed under ultrasound localization and guidance in our clinic. Non-palpable implants were identified as intrafascial (n=3); subfascial (n=1); suprafascial (n=1).

Conclusion: Our study has shown that non-palpable Nexplanon implants can be successfully removed under ultrasound localization and guidance in a teaching health center under the direct supervision of an experienced health care provider without the need for specialty referral. It is safe, fast, cost-effective, and overall increases patient satisfaction.

Abstract 2022-11
A Case of Pseudomonas Aeruginosa Associated Diarrhea in a Long-Term Hospitalized Patient
Charizza Besmanos, MS IV; Nadia Raza, MD; Hobart Lai, MD; Shikha Mishra, MD, Arash Heidari, MD, Scott Ragland, MD

Purpose: Pseudomonas aeruginosa associated diarrheal disease is not common in adults and if seen mostly reported in pediatric population. It has been classified into Shanghai fever, enterocolitis and antibiotics associated diarrhea in pediatric literature. In adults, immunocompromising conditions such as malignancies, neutropenia, admission to long term care and intensive care unit (ICU) are known risk factors. Here we describe a case of Pseudomonas aeruginosa associated diarrhea in a long-term hospitalized patient who had rectal tube.

Methods: Retrospective case review after IRB approval.

Summary: A 53-year-old Caucasian man with a history of alcohol use disorder, hypertension and hypothyroidism presented with myxedema coma with TSH 148 requiring intubation, complicated hospital course with ventilator associated pneumonia with MRSA, sepsis with candida and abdominal compartment syndrome requiring decompressive laparotomy. The patient slowly recovered despite 43 days of hospitalization. Before leaving his 31 days of admission to ICU, a flexi-seal rectal tube was placed due to fecal incontinent. Five days later when he was already transferred out of the ICU, he started having loose watery stools with leukocytosis and left shift. Clostridioides difficile (C.diff.) colitis was suspected and he was placed on

oral vancomycin empirically. His stool test for C.diff. came back negative, and his rectal tube was subsequently re-moved. Imaging did not show any abscess, perforated viscus or fistula formations. His stool culture grew heavy colony numbers of Pseudomonas aeruginosa. Vancomycin was stopped and he was started on oral ciprofloxacin 750 mg twice a day with complete resolution of his diarrhea and leukocytosis.

Conclusion: Pseudomonas aeruginosa associated diarrheal disease is not common in adults. Complicated pro-longed hospitalization, administration of broad-spectrum antibiotics, immunocompromising conditions perhaps plays role in colonization and eventually infection in the right setting. The role of rectal tube is unknown.

Abstract 2022-12

Elevated Adenosine Deaminase Levels in a Case of Coccidioidomycosis

Christine Salib, MD; Leila Moosavi, MD; Kasey Radicic, DO

Introduction: Elevated adenosine deaminase (ADA) levels have been a useful diagnostic tool associated with tuberculosis (TB). Diagnostic testing for Coccidioidomycosis (Cocci) involves serologic testing of IgM and IgG antibodies. Though there are a variety of diagnostic testing options for TB, in a case of high clinical suspicion, pleural fluid analysis for ADA is often completed as an additional confirmatory test, due to its high sensitivity and specificity. This case demonstrates a patient who presented with elevated ADA levels despite having negative sputum cultures for TB and with elevated serological titers for Cocci.

Case Presentation: A 26-year-old male with history of uncontrolled Type 1 diabetes presented to the ED with shortness of breath and productive cough of two-day duration. The patient denied history of travel and reported a nonspecific amount of weight loss over the past few months. He presented febrile, tachycardic, and hypoxic. CT scan found a lung abscess and empyema. He was seen by Interventional Radiology for placement of a pigtail catheter for drainage of pleural fluid. He was initially treated with Fluconazole but then transitioned to Ambisome.

During his admission, patient remained consistently tachycardic and tachypneic with worsening hypoxia. Requiring ICU admission, he was intubated three times and was subsequently extubated within a few days. The patient underwent bronchoscopy and was found to have pleural ADA level of 468. Despite having negative QuantiFERON results, the patient was started on RIPE therapy due to suspected TB infection.

Results from Mycobacterial sputum culture returned negative weeks after patient was discharged from the hospital, confirming that the patient did not have an active TB infection. However, serologic test was confirmatory for Cocci.

Discussion: ADA levels have been known to have both a high sensitivity and specificity for diagnosing TB, which makes it an ideal diagnostic tool. In this instance, there was the unusual presentation of increased levels of ADA along with a negative AFP culture. The role and expected actions of the ADA enzyme can be indicative of T-lymphocyte activity. When thought of more generally, this diagnostic tool can be used to diagnose disease conditions other than TB, such as Cocci.

Abstract 2022-13

A Case of Keppra Toxicity in a Female with Alcoholic Use Disorder

Andrew Hauser, MS III; Tatum Jestilla, MD; Shikha Mishra, MD; Kasey Radicic, DO

Abstract: Levetiracetam is an anticonvulsant medication used to treat seizures by inhibiting voltage gated Ca+ channels. Side effects of severe CNS toxicity resulting in visual and auditory hallucinations are rare but must be considered in patients with recent increase in dose of Levetiracetam. In contrast, alcohol withdrawal can result in visual/tactile hallucinations with a typical duration of less than 48 hours. Here we describe a case of Levetiracetam induced visual and auditory hallucinations after having Levetiracetam dose increased.

Methods: A single patient case report was conducted after IRB approval.

Case Presentation: A 40-year-old female with a history of alcohol abuse and epilepsy diagnosed by EEG with a recent increase in Levetiracetam dose to 500mg every eight hours 6 weeks prior presented to the emergency department (ED) with visual and auditory hallucinations for three days. The patient's coworkers had witnessed her responding to internal stimuli. Patient stated that she has not had any alcohol in 2 weeks, confirmed by her family. She has had withdrawal seizures and visual/tactile hallucinations prior. She denies any history of auditory hallucinations. In the ED, the patient was tachycardic with HR of 103 but other vital signs were normal. Levetiracetam level therapeutic at 56.8. Workup including CT of the head, MRI brain, EEG, and urine toxicology were unremarkable. She was started on benzodiazepine therapy and treated for presumed alcohol withdrawal. Her home dose of Levetiracetam was continued on admission. After two days, she continued to have visual and auditory hallucinations. Her Levetiracetam was discontinued on hospital day 2 due to concern for Levetiracetam induced hallucinations and all hallucinations resolved 24 hours later. The patient remained asymptomatic for 24 hours and was discharged from the hospital on Depakote.

Conclusion: This patient's hallucinations were initially believed to be secondary to alcohol withdrawal due to her history of alcohol withdrawal with visual/tactile hallucinations. However, the patient had not had alcohol in 2 weeks and was experiencing new auditory hallucinations. The patient's recent increase in Levetiracetam dosage was further considered as her auditory and visual hallucinations persisted after two hospital days. This case highlights the importance of considering rare side effects of Levetiracetam in a patient with a recent dosage increase.

Abstract 2022-14
A Challenging Case of Colitis: Inflammatory, Infectious, or Both?

Samantha Ratnayake, MD; Kulraj Grewal, MD; Greti Petersen, MD; Arash Heidari, MD

Introduction: Indeterminate colitis (IC) is a form of Inflammatory Bowel Disease (IBD), when the diagnosis of Ulcerative colitis (UC) or Crohn's disease cannot be made due to mixture of findings. The incidence of Clostridioides difficile (C. diff) infection is 6-9% in patients with IBD, which can lead to increased risk for colectomy or death.

Purpose: Here we discuss a case of newly diagnosed IC with superimposed C. diff infection.

Discussion: A 26-year-old male with no known medical history presented to our facility with progressive one month history of abdominal cramping pain and bloating. This was associated with watery hematochezia up to 15 episodes per day. Upon admission, he was found to have fever as high as 39.4C, WBC 7.5, CRP 23.8 mg/dL, ESR 68 mm/hr, Hgb 12.7 g/dL. His work up also showed stool Calprotectin 3520 mcg/g, positive stool Lactoferrin, and atypical P-ANCA titer of 1:160, commonly elevated in UC. Stool studies were also positive for C.diff toxin B PCR and GDH antigen, and oral vancomycin was started. Colonoscopy with biopsies showed mixture of findings, from 2 pathology readings, for UC and CD with focal active colitis with focal ulcerations (consistent with UC), involvement of the crypts, lamina propria, and submucosa (consistent with CD). The diagnosis of IC was made and he was started on Methylprednisolone 60 mg TID and Mesalamine 1600 mg BID. Patient eventually improved with less frequency of hematochezia. Upon follow up in outpatient clinic his was down to only 5 episodes of diarrhea without hematochezia. Follow up colonoscopy when C.diff infection is resolved is planned for making a definitive diagnosis between UC and CD.

Conclusion: Diagnosis of Ulcerative Colitis vs Crohn's Disease can be challenging in the setting of superimposed infection with Clostridioides difficile. Management of this coexistence is difficult, and duration of treatment is also not well studied. Further work up and repeat biopsy might be needed for definitive diagnosis.

Abstract 2022-15
Spontaneous Vaginal Delivery of Uterine Carcinosarcoma
Nanse Mendoza, MD; Manish Amin, DO

Introduction: Uterine carcinosarcomas are mixed mesodermal tumors that are highly rare and aggressive; they account for less than 5 percent of all uterine malignancies[1]. Less than 50 cases have been recorded in literature since 2013[2]. Because of this rarity, there is no standard protocolled treatment[3]. We herein report a rare presentation of uterine carcinosarcoma in a patient who presented to emergency department (ED) the after she spontaneously expulsed a large mass from the vagina.

Purpose: A 63-year-old female patient G3P2 with history of osteoporosis, presented to the (ED) after she spontaneously expulsed a large mass from the vagina. Prior to this, the patient had been experiencing vaginal bleeding for two weeks, intermittent abdominal pain for four days, and urinary retention for two days. She was evaluated at an outside facility after she began to experience severe intermittent pelvic pressure. A CT of the abdomen/pelvis was done at that facility which revealed a large heterogenous intrauterine mass prolapsing through the cervix. A foley was placed for urinary retention and patient was advised to follow up with gynecology outpatient. Later that day after ED discharge, she began to experience "contractions" and shortly after vaginally delivered a mass at home which she preserved in a plastic bag (see image 1). She then presented to our ED asking for help identifying the mass. She reported mild vaginal bleeding and no longer had pain. Her vitals were normal and abdominal exam was benign. Pelvic exam showed a closed os with a cervical lesion. A foley catheter was in place and draining clear urine. The mass was inspected and noted weigh 204g and measured 12.3cm x 9.9cm x 3.4cm; it was firm and fleshy. It was sent to pathology. The foley catheter was removed and patient was able to void spontaneously. The patient was discharged home and followed at gynecology clinic. Final pathology revealed uterine carcinosarcoma and patient underwent hysterectomy, bilateral salpingo-oophorectomy and lymph node dissection and was deemed to be Stage IA. She underwent six cycles of chemotherapy and was then lost to follow up.

Discussion: Uterine carcinosarcomas are usually seen in patients who are over 60 years old and present with a classical triad of pain, bleeding and rapidly enlarging uterus[4]. Although our patient did not notice increasing abdominal girth, she did exhibit symptoms of a rapidly increasing mass as evident by urinary retention. This was presumably related to mass effect as her retention resolved upon expulsion of the mass. In addition, our patient had a cervical mass as well which is seen in up to 20% of patients with uterine carcinosarcomas. Although our patient was stage IA, it is imperative that patients be diagnosed in a timely fashion due to this disease's aggressive nature.

Conclusion: The authors call attention to this case as it is a rare presentation of spontaneous expulsion of a uterine carcinosarcoma which has not been reported in the literature to date.

Image 1: Fleshy solid mass retrieved from a plastic bag brought in by the patient.

Abstract 2022-16
Wet Purpura as a Sole Presentation to New-Onset Severe ITP
Larissa Morsky, MD; Daniel Quesada, MD

Introduction: This is a case of a patient who was diagnosed with severe, treatment refractory, Immune Thrombocytopenia Purpura (ITP). His case was unique given that the only significant physical examination finding on presentation to the Emergency Department was wet purpura located in the oral cavity.

Purpose: The patient was a 58-year-old Spanish-speaking male, with only known medical history of

hypertension, otherwise a non-smoker, presenting to the Emergency Department with a one day history of oropharyngeal bleeding.

Exam was notable for a well-appearing patient, spitting up blood-tinged sputum, otherwise anicteric without pallor. He had no evidence of oropharyngeal mucosal lacerations, gingival bleeding, no buccal, mucosal or tongue masses, leukoplakia, or thrush. There were no petechiae or purpura. Examination of the oropharynx was significant for non-mobile purpuric lesions on the surface of the hard palate, uvula and posterior oropharynx.

Chest X-ray was negative for evidence of pulmonary masses. CT scan of the neck was obtained to evaluate for any soft tissue masses of the deeper neck spaces, which was also normal. Laboratory studies were obtained to evaluate for evidence of blood dyscrasias or coagulopathy, which were notable for isolated critically low platelet count of 3000 per microliter of blood (reference range: 150-450 per microliter of blood), with an otherwise normal hemoglobin, and WBC count. Coagulation studies, inflammatory markers, D-dimer and fibrinogen, chemistry panel, LDH, HIV and hepatitis panels showed no acute abnormalities. Hematology evaluated the patient and believed his thrombocytopenia to be either idiopathic, or secondary to recent Moderna COVID vaccination. The patient's course was complicated by multiple readmissions, with treatment refractory thrombocytopenia.

Discussion: ITP is defined as isolated thrombocytopenia with no clinically apparent associated conditions or other causes of thrombocytopenia. Although severe life-threatening hemorrhage is rare, and ITP is a readily treatable condition, missing subtle key history and exam findings may prove catastrophic as these may herald severe bleeding.

Conclusion: In a patient presenting to the Emergency Department with oropharyngeal bleeding, careful attention must be made to note wet purpura, as this may represent severe thrombocytopenia and ITP. Furthermore, these cases are often refractory to first line therapy, and thus warrant urgent hematology evaluation and treatment.

Abstract 2022-17

Metformin Induced Lactic Acidosis: A Case Report

Leila Moosavi, MD; Elaine Deemer, DO; Arash Heidari, MD; Sabitha Eppanapally, MD; Pearl Chan, MS IV

Introduction: Metformin is the most commonly prescribed and preferred initial drug therapy for type 2 diabetes. Metformin is the only FDA-approved biguanide, due to its lower risk for lactic acidosis. Although rare, metformin-associated lactic acidosis (MALA) has a mortality rate of 31%, which underscores the importance of early diagnosis and treatment.

Purpose: We report on a 75-year-old female with diabetes mellitus type 2 with HbA1c 13.6% and hypertension presented to the emergency room complaining of 2 episodes of clear, watery diarrhea, nausea, and 2 episodes of nonbloody nonbilious emesis for 2 days. Labs were significant for acute kidney injury (AKI) with creatinine of 5.65 mg/dL, anion gap metabolic acidosis (Na of 129 mmol/L, Cl of 96 mmol/L, HCO3 of 20 mmol/L, and corrected anion gap of 19 mmol/L), and severe lactic acidosis of 8.4 mmol/L. Over 3 days, the lactic acid levels were labile at 8-9 mmol/L, despite aggressive fluid resuscitation. Computerized tomography (CT) abdomen/pelvis, retroperitoneal ultrasound, comprehensive stool panel, blood cultures, and wound cultures were negative for infection, while urinalysis and culture were positive for yeast. Patient’s kidney function progressively worsened with oliguria, requiring hemodialysis (HD). After 2 HD sessions, the patient's lactic acidosis and anion gap metabolic acidosis resolved.

Of note, the patient was admitted and treated 1 week prior for intractable nausea/vomiting, acute kidney injury, and urinary tract infection. At discharge, the patient's labs showed blood urea nitrogen of 18 mg/dL and creatinine of 0.86 mg/dL. She was discharged with ciprofloxacin 500 mg twice daily, Metformin 500 mg twice daily, and lisinopril 2.5 mg daily.

Discussion: Metformin is a first-line diabetes medication with a well-known, rare, side effect of lactic acidosis. As a diagnosis of exclusion with a high mortality risk, it is imperative physicians can quickly identify and treat. The treatment for MALA is HD or continuous veno-venous hemofiltration (CVVH) and

should be initiated urgently to prevent further morbidity or mortality.

Conclusion: Ultimately, this patient's rapid decline following metformin initiation illustrates the importance of early recognition and treatment of MALA.

Abstract 2022-18
Comparing Manual Blood Pressure and Non-Invasive Blood Pressure in the Emergency Department
Katelyn Anderson, RN; Joseph Guerrero, RN; Adriana Franco-Resendiz, RN

In our evidence-based project, we compared the use and accuracy of using a manual blood pressure monitoring system vs. an automatic noninvasive blood pressure monitoring system in order to monitor hypotension in the adult ED population. An evaluation of manual and NIBP monitoring in the Emergency department revealed that many of the non-licensed staff did not know how to take an effective manual BP or calculate the MAP needed for some patients who are hypotensive.

PICOT (Patient, Intervention, Comparison, Outcome, Time) Question: In adult patients in the emergency department, are manual blood pressure values more accurate in the diagnosis of hypotension versus using an automatic non-invasive blood pressure? Objectives included an evaluation of the need for manual BP in the treatment of hypotension to avoid the need for vasopressors. Although more than 100 BP samples were taken over the 90-day period of this project, a targeted review of 20 patients with BP systolic 90-100 and calculated MAP were found to be slightly higher by 10%, thus avoiding the need for treatment. A manual BP should be documented at least once per hour to confirm correct treatment and that manually calculated MAPs should be documented. Impact of this EBPP, was increased need for manual BP cuffs, more education to non-licensed staff, with recommendations for manual BP monitoring prior to vasopressors. The group also recommend the ED look at the arterial device FloTrac to monitor BP/MAP/SV for high-risk patients needing treatment for hypotension requiring vasopressors.

Abstract 2022-19
CIWA-Ar Protocol for Alcohol Withdrawal
Rebecca Bready, RN; Chinda Chann, RN; and Daisy Flores, RN

Alcohol withdrawal in the emergency department is often under recognized and ineffectively treated before patients are discharged or become admitted patients. CIWA-Ar is a nurse driven assessment tool when patients present with alcohol related symptoms.

PICOT (Patient, Intervention, Comparison, Outcome, Time) Question: In adult ED patients with alcohol withdrawal is the CIWA-Ar a safe and effective tool compared to fixed rate dosing, placebo, or observation in preventing or minimizing side effects of alcohol withdrawal during the patient's hospital stay? Although this evidence-based practice project had many challenges including lack of staff nurse understanding that CIWA-Ar is a nurse driven tool and had received e-learning education (83% compliance) on the topic, lack of effective documentation in the EMR was noted. Barriers were identified and recommendations to retrain nursing staff on CIWA-Ar, collaboration with the ED medical residents, identify patients with ETOH withdrawal symptoms and use of benzodiazepine in the treatment of patient with a score greater than 15. Recommendations include a more intense review of CIWA-Ar protocol education to ED nursing staff and audit of CIWA-Ar documentation of patient presenting with symptoms of alcohol withdrawal.

Abstract 2022-20
Skin to Skin Bonding for Newborns and NICU Infants
Sara Birka, RN; Brianna Klopfenstein, RN; Alma Madrigal, RN and Nancy Martinez Lazacano, RN

A review of skin-to-skin bonding (Kangaroo Mother Care – KMC) in the maternal child departments of labor and delivery and the neonatal intensive care unit.

PICOT (Patient, Intervention, Comparison, Outcome, Time) Question: For infants in the neonatal intensive care unit, how do the barriers that are present during the months of October-November 2021 affect the rates of skin to skin being performed with parents in the L&D and NICU at Kern Medical? Comparing October 2021, 80/237 (33%) births received skin to skin bonding time for times greater than 30 minutes, while November 59/207 (28%) received KMC bonding. More than 150 were excluded from the study due to undocumented times in the EMR of completion of skin-to-skin placement. A review of the literature and comparing with Kern Medical's maternal child departments the current skin to skin practices revealed that there is a correlation between the skin-to-skin time, infant census, and nurse staffing. As the staffing shortages increased, the time set aside for KMC was not completed or lack of documentation noted. Covid restrictions also had an impact on parent's availability for KMC. Recommendations included ongoing audit of KMC in the NICU, education on KMC to all staff in maternal child, and adoption of policy for skin-to-skin care standards in L&D and NICU.

Abstract 2022-21

Evaluating Early Mobility for Intubated Patients on Ventilators in the ICU/DOU

Doris Itsede-Abu, RN; **Benjamin Juarez, RN**; Jagdeep Kaur, RN and Upkaur Kaur, RN

Prolonged mechanical ventilation places the patient at risk for ICUAW intensive care unit-acquired weakness (ICUAW) resulting in a higher risk of functional cognitive, physical, psychological disability, higher mortalities as well as an increase in hospital costs and risk for potential complications.

PICOT (Patient, Intervention, Comparison, Outcome, Time) Question: In ventilated and non-ventilated ICU/DOU patients, how does educating critical care nurses about Up Sooner Safer (USS) assessment score, increase early mobility as compared with current mobilization score during ICU hospitalization? The performance improvement/observational study identified incomplete assessment documentation of 76 patients 47% lacked documentation. After education to the staff and including the PCTs in the ICU/DOU setting, completed assessment increased to 53%. Challenges include an increase in temporary/traveler staff who were unfamiliar with Up Sooner Safer Assessment and lack of knowledge about this nurse driven tool as many relied on old practices/policies, and fear of hemodynamic instability. Recommendations include: improve mobility assessment/documentation in EMR to 90% and retraining of staff on the use of USS assessment score.

Abstract 2022-22

Evaluating the Effectiveness of the Medsitter in Fall Prevention on the Medical Surgical Telemetry Units

Natalie Serna, RN; Simarjit Ajula, RN; Ravinder Kaur, RN

Fall prevention is essential in-patient safety and conventional strategies to prevent falls are not always effective. The introduction of the Medsitter - a virtual monitoring system with a camera and staff to remotely view the patients at risk for falls. The Medsitter central workstation on 3C can monitor patients on all medical surgical and telemetry departments.

PICOT (Patient, Intervention, Comparison, Outcome, Time) Question: In the adult medical surgical patient how effective is the virtual sitter compared to in-person sitter in reducing falls by 25% by September 2021? As patients must be assessed with an algorithm to determine eligibility for a sitter, if criteria is met, then the Medsitter may be brought to the bedside for remote monitoring. As the patient is able to communicate with Medsitter workstation staff, has this prevented falls better than in-person sitter. The 6-month assessment of utilization of staff sitter, Medsitter, and no sitter. By comparing these modalities revealed 23 falls without a sitter, 7 falls with an in-person sitter, and an average of 1 fall/month over 120 days with the Medsitter. Education to staff about the Medsitter was provided during huddles and utilization is low on 2C and 3D and many staff did not know Kern Medical had a virtual sitter available for patient monitoring. Early recognition of patients at risk for fall, adding the

Medsitter to the options available to the nurse at the bedside is an effective way to reduce patient falls. Recommend more Medsitter units and education to staff to reduce patient falls and improve patient safety.

Abstract 2022-23
Improving Seizure Precautions in the Emergency Department
Anacarina Gonzalez, RN; Megan Green, RN; Juan Melendrez, RN; Teddi Rawles, RN

Improving care of the patient presenting to the Emergency Department with seizures or report of seizures event have the potential risk of aspiration/apnea, mouth trauma, falls, entrapment and injury to flailing limbs/head trauma, and closed head injury. An assessment of Kern Medical's readiness to implement seizure precautions as a patient safety initiative and readiness to prevent complications to seizures. Findings included lack of seizure precaution policy, or guidelines for room set up for patients with seizures. Lack of equipment for hallway beds included lack of suction set up, oxygen, and makeshift padded side rails. Sample size of 21 patients during April through May 2021, only 6 (28%) patients had all 5 elements in place for seizure management. Implementation of an environmental checklist and education to ED staff to increase room preparation for seizure precautions, and to purchase needed padded side rails. Compliance to precautions improved to 71% after education/checklist implemented. Padded side rails have been ordered and need for policy development for preparation for implementing seizure precautions. Update Cerner to include seizure precautions checklist is recommended.

Abstract 2022-24
Preventing CLABSI through Compliance of Maintenance Bundle in the ICU/DOU
Irma Guerrero, RN; Jenelle Anderson, RN; Steven Mulder, RN

Evaluation of compliance to the central line associated blood stream infection (CLABSI) in the DOU/ICU setting. This observational study with 55 patients central line sites assessed 6 elements (dressing clean dry and intact, site labeled, stickers in place, biopatch, caps present, and use of femoral lines with inherent risk of site contamination) and 48 observation post education. Staff education included a single page review of the CLABSI bundle at morning huddle. All areas of compliance improved by 6-17%, with a drop in caps present, and a decrease in femoral lines site from 20% to 4%. CLAPSI bundle compliance recommendations include increasing site monitoring/dressing changes by vascular access nurses, to consider training staff in the use of endurance midlines catheters, and share monthly/quarterly display of CLABSI compliance data on infection rates.

Abstract 2022-25
Immediate Skin to Skin Effect on Breastfeeding Rates at Discharge
Michaela Acton, RN; Crysta Davis, RN; Julie Elizagoyen, RN; Ashley Lee, RN; Yarely Pena, RN

Evaluate Kern Medical's compliance to "Golden Hour" the skin-to-skin contact (SSC) with newborns to mothers at the time of delivery in compliance with the Baby Friendly/WHO/UNICEF initiatives to improve exclusive breastfeeding as preferred method of feeding. Data was collected over a 90-day period in 2021 (Jan-March 2021) on breastfeeding with NTSV and immediate skin to skin contact, delays in SSC, and non-exclusive breasting. Sample size was 23-24 patients each month, with immediate skin to skin contact was highest at 39% and 49% delay in skin to skin in January. Delays in skin-to-skin contact dropped to 29% after staff education. There was an unexpected rise in non-exclusive breastfeeding from 13% to 37%. Recommendations included continuing early skin to skin contact at delivery and education to staff/parents to advantages of skin-to-skin contact. Hospital signage and education flyer to mother/families to advantages to skin to skin contact and breastfeeding at time of discharge.

Abstract 2022-26
Developmental Swaddled Bathing

Ashley Alejo, RN; Rovie Ancheta, RN; **Arianna Chambers, RN**; Melissa Guillen, RN

Observational study comparing traditional newborn bathing practices in the NICU versus implementation of developmental swaddled bathing. A review of the literature and best practices, and implementation of swaddled bathing clinical practice guideline in the NICU setting. Pre-implementation assessment February through April 2021 observations of bathing practices of 40 infants evaluated stress levels (crying, grimacing, fussy behaviors) and temperature loss data was collected. Education during morning huddles, and on Elsevier on the use of the Turtle Tub and swaddled bathing clinical practice guidelines was introduced to the NICU nursing staff. A comparison of the post education/implementation data revealed a less than 20% of newborns showed signs of stress with swaddled bathing vs 72% with traditional bathing practices. Temperature loss with traditional bathing at 10 minutes and 30 post bathing temperature loss of 0.81°F, while developmental swaddled bathing averaged 0.29°F temperature loss. Recommendations include adopting the developmental swaddled bathing as a standard of care for all NICU infants.

Abstract 2022-27

A Rare Hemorrhagic, Orange-Colored Ascites, Challenging Traditional Ascitic Fluid Analysis

Huma Quanungo, MS III; Huda Quanungo, MS III; Elena Naderzad, MS IV; Elaine Deemer, DO; Frederick Venter, MD; Greti Petersen, MD; Alan Ragland, DO

Introduction: Ascitic fluid is analyzed by gross appearance, cell count, and serum ascites albumin gradient (SAAG) score. In a 56-year-old patient, paracentesis revealed a rare presentation of ascites fluid that has not been documented in literature; hemorrhagic, orange-colored ascites. This presentation has posed a challenge in traditional classification systems of ascites, with one suggesting inflammation, while another suggesting portal hypertension as the underlying diagnosis.

Purpose: A 56-year-old Hispanic woman with alcoholic cirrhosis and esophageal varices presented with ascites fluid build-up. Laboratory investigations at that time revealed; Hgb 6.0g/dL, serum albumin 1.8g/dL, and total protein of 8.3g/dL. On CT scan of the abdomen, portal venous hypertension was confirmed. An abdominal paracentesis revealed a unique bright orange-colored, turbid, ascites with total polymorphonuclear count of 14/mcL, RBC count of 24,250/mcL, and differential of 11% neutrophils and 55% lymphocytes. Analysis showed an albumin level of 0.7g/dL, LDH level of 118unit/L, pH level 7.70, and protein level of 2500mg/dL.

Discussion: This patient's cytology opens a discussion about the possibility of a non-inflammatory, hemorrhagic process underlying her disease. Our focus lies in using the gross appearance of her ascites fluid, cell count, and SAAG score to establish a diagnosis. Fluid analysis revealed an elevated RBC count, suggesting an inflammatory process at play here, specifically hemorrhagic ascites. Appearance as a predictor of underlying disease is challenged by the cell count and differential in the ascites fluid. We originally believed the diagnosis was portal hypertension, which was contradicted by her high protein count. The typical finding in cirrhosis is a low protein ascitic fluid, not found in this case. We seek to find another source for the elevated protein, which we can definitively state was not a product of portal hypertension, but likely another underlying pathophysiology that has not revealed itself. Patients with a SAAG score > 1.1g/dL indicate portal hypertension, with an accuracy of 97%. Our patient's SAAG score was calculated as 1.1. CT of the abdomen in this patient, however, revealed portal venous hypertension, contradicting her SAAG score. Based on these criteria, our patient has fallen in the 3% in which SAAG is not an accurate diagnostic tool, further complicating classification of ascites. On one hand, we have a SAAG score that suggested portal hypertension. On the other hand, we have a significantly elevated protein count that cannot be explained by portal hypertension alone and must be attributed to another underlying process, such as spontaneous hemorrhagic non-inflammatory, yet exudative pathology.

Conclusion: Physicians have used the SAAG score to differentiate between abdominal ascites due to portal hypertension versus inflammatory processes with 97% accuracy. Our case highlights the

misdiagnosed 3% of patients with ascites, in which using the SAAG score suggested causes of ascites fluid that contradicted our patient's laboratory findings. Thus, in clinical settings that do not conform with traditional diagnostic tools, physicians cannot rely on these to help guide diagnoses. Our team suggests that there needs to be more research into quick score calculations used to classify ascitic fluid.

Abstract 2022-28
A Case of Raoultella Planticola Bacteremia in an Immunocompromised Male
Austin Garcia, MS IV; Arash Heidari, MD; Shikha Mishra, MD; Kasey Radicic, DO

Introduction: *Raoultella Planticola* formerly called *Klebsiella planticola* is a gram-negative aerobic rod that belongs to the Enterobacteriaceae family and is often established in aquatic habitat and soil. The published cases infected with *R. planticola* are scarce. It rarely causes infection in an immunocompetent host. In contrast, in immunocompromised patients, inoculation of *R. planticola* can surpass innate and adaptive host response leading to bacteremia. Here we describe a case of *R. planticola* bacteremia in a patient on chemotherapy who presented with fever with a recent dog bite to his right lower extremity as a potential source.

Methods: A single patient case report was conducted after IRB approval.

Case Presentation: A 41-year-old male with right knee osteosarcoma who was receiving infusions of cyclophosphamide and mesna presented to the emergency department (ED) with fever and chills for 3 days. He was bitten by his friend's dog on the medial aspect of his right posterior calf resulting in a bleeding wound one month prior while working in the garden. One day later, he developed regional swelling and pain associated with fever which progressively worsened for almost two weeks, followed by complete self-resolution. While in ED, he was tachycardic and febrile to 39.4 °C. Imaging was unremarkable. The site of the dog bite was well healed and had no tenderness, fluctuance, erythema, or warmth. Blood cultures were drawn from peripheral and his chemotherapy port and he was started on broad-spectrum antibiotics with vancomycin and cefepime. After two days, the blood culture from peripheral grew gram negative rods resembling enterics and cefepime was replaced by meropenem. The patient became afebrile. Blood cultures identified as *R. planticola*, sensitive to ceftriaxone. Antibiotic therapy was switched to ceftriaxone on hospital day 4. Repeat blood cultures were negative and the patient remained afebrile for greater than 24 hours. He was discharged with at-home infusions with Ceftriaxone for 14 days.

Conclusion: *R. planticola* is an emerging infection, particularly in oncology patients. Clinicians should be aware and include it in their differential diagnosis of any unidentified gram-negative infection in immunocompromised host as failure to treat in a timely manner could result in a fatal outcome.

Abstract 2022-29
Use of Street Medicine to Reduce Emergency Department Visits Among Homeless Population
Natalie Peña-Brockett, OMS II; Sarah Holzmann, OMS II; **Zach Josse, OMS II**; Jake Dertinger, OMS II;

Mark Rhoades, EMRAP; Daniel Quesada, MD; Matthew Beare, MD; Anne VanGarsse, MD
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Access to health care has become increasingly difficult for homeless populations due to numerous barriers that limit ability to seek proper care. Street medicine is a rising intervention in health care in which health screenings and treatments are completed within patient homeless encampments. This study will look at unhoused individuals seeking health care treatment in local emergency departments (ED) in Bakersfield, CA. Identifying the characteristics and barriers to healthcare in the homeless population will allow for increased utilization of street medicine and decreased overflow of the ED.

Quality assessments and evaluation of street medicine efficacy will allow for better allocation of community resources for this population and within the ED. Patient data from the ED (n=136) showed 17.6% of patients were level 4/5 traumas that could have likely been treated by the street medicine team. 25% of the patients are uninsured and could benefit from the street medicine team's resources to help with insurance enrollment. 27.9% of patients have 5 or more ED visits in the last 3 years. Preliminary surveying of Clinica Sierra Vista's Street Medicine (SM) patients (n=13) showed that 84.6% cited SM team rapport as the primary reason for continued use of the service. Our initial data assessment suggests that there is the potential for the street medicine program to eliminate several barriers to care experienced by this community while increasing patient satisfaction and trust.

Abstract 2022-30
Rope-like Candy Causing Small Bowel Obstruction

Jade Douglas, MS III; Ngon Trang, MD; Everardo Cobos, MD

Introduction: Small bowel obstructions (SBO) are commonly caused by intra-abdominal adhesions, malignancies and hernias. In rare cases, they've been induced by food, typically containing seed or plant material. In review of the medical literature, there have been no documented cases of an SBO caused by rope-like candy. Here we present the case of 67-year-old female with an SBO caused by undigested rope-like candy.

Purpose: A 67-year-old female with a history of chronic lower extremity wounds was brought in by ambulance complaining of abdominal pain in the setting of altered mentation. At the time, she had no tenderness on abdominal palpation and couldn't answer most questions but her lower extremity wounds were showing signs of infection. She was found to be septic and was started on antibiotics. Shortly after, her blood cultures grew E. coli which then prompted an abdominal CT that showed gaseous and fluid filled small bowel distention. On day three, she was finally able to communicate that she had severe abdominal distention, tenderness and obstipation for the last 4 days accompanied by nausea and vomiting. A small bowel series was recommended which noted increasing dilation of multiple small bowel loops, suggesting SBO. A nasogastric tube was subsequently placed for symptomatic relief.

The following two days, her symptoms worsened and repeat x-rays showed worsening small bowel dilation. She was then taken for an exploratory laparotomy which found intact small bowels without adhesions that were dilated from the ileum proximally. Mid ileum, there was a firm rubbery intra-luminal foreign body measuring 10cm in length by 2cm in width. This was milked into the ascending colon. After operation, the patient recalled eating a few rope-like candies a week prior to admission. She later fully recovered and healed well.

Discussion: The cardinal symptoms of SBO include distention, nausea/vomiting, pain and obstipation, all of which our patient had but was unable to initially communicate. These symptoms alone may lead to suspicion of SBO which can then prompt the need for a confirmatory contrast CT. In this case, it's important to note that it was mainly the E.coli found in her blood that prompted the first CT.

Diagnosis of SBO represents approximately 20% of surgical emergencies. In recent years, these surgeries are performed more selectively as imaging can now usually tell us whether an SBO is simple or complicated. Most simple obstructions are managed

conservatively in comparison to those complicated by bowel ischemia which carry a much higher mortality rate and require surgical intervention.

Conclusion: Patients with SBO are usually in enough discomfort to visit the hospital but can often still communicate their symptoms through initial history taking. In the event that they can't, care teams must rely on laboratory findings and imaging for treatment. By documenting this case, we hope to bring awareness on the fact that sometimes we must bring together seemingly trivial individual findings in order to create a clinical picture that makes sense. We also hope to note the possibility that candy, albeit small and digestible, can indeed lead to SBO.

Abstract 2022-31
Dyke-Davidoff-Masson Syndrome as the Diagnosis in a Middle Aged Woman with Intractable Seizures
Jade Douglas, MS III; Rebecca Chavez, MS III; Lam Chau MS III; Ngon Trang, MD; Harleen Sandhu, MD; Shikha Mishra, MD; Kasey Radicic, DO

Introduction: Dyke-Davidoff-Masson syndrome (DDMS) is a condition that is associated with variable degrees of facial asymmetry, seizures, contralateral hemiparesis, mental retardation and learning disabilities(1). DDMS is usually diagnosed in childhood, but rare cases are diagnosed in young adults(4). This is a case of a 50-year-old woman with intractable seizures that began at 6-years-old, not receiving her diagnosis until 42.

Presentation: A 50-year-old woman with a history of DDMS was brought in by her sister for sudden onset, recurring GTC seizures for one day. The seizures lasted up to 45 seconds. At baseline, she has about 5 seizures per week despite being on 4 different anticonvulsants. It was noted that 11 days ago, her PCP decreased her Keppra from 1.5g to 1g due to her serum levels being significantly above therapeutic range. On evaluation, vitals were stable. There were moderate facial deformities with healed skin grafts. She had decreased coordination on her R side. At this time, the team was made aware of her global developmental delay and limited verbal communication. Her cognitive ability resembled a 6-year-old. She could only communicate via squeezing of fingers.

For seizure control, home anticonvulsants were continued with an increase in her Keppra to 1.25g. A CT of the head and 48-hour EEG were obtained for further evaluation. CT showed cerebellar atrophy with asymmetrical left cerebral atrophy. Over her first hospital day, she became more alert. However, her sister still witnessed multiple, although less frequent seizures. Her EEG showed brief subclinical and generalized tonic seizures with rare generalized epileptic discharge. Days 2 and 3 were similar to the first. It was determined that she will most likely still have frequent seizures at baseline. Patient discharged on fourth hospital day with her previous medications and adjusted dose of Keppra.

Discussion: Imaging for DDMS typically shows asymmetry of cerebral hemispheres with unilateral atrophy, ipsilateral osseous hypertrophy and hyperpneumatization of sinuses. Left hemisphere involvement and male gender are most frequently affected. This patient's presentation with multiple intractable seizures, contralateral manifestations and progressive mental retardation is consistent with DDMS. At age 19, she experienced a seizure while cooking resulting in the necessity for multiple reconstructive facial surgeries. Two years later she experienced a febrile seizure resulting in a permanent non-ambulatory state. The management of DDMS is symptomatic, however early diagnosis can protect the patient's overall health. In this case, on proper seizure medication her average amount of seizures dropped from 100 per day to five a week.

Conclusion: DDMS is a difficult diagnosis to make because it needs to be differentiated from various neurological syndromes. A complete clinical history and examination with consistent radiologic features is necessary to diagnose. Her disorder is likely congenital or from early vascular injury to the developing brain, likely her findings were visible on radiology years prior to the diagnosis. This must be a diagnosis to consider so proper management can begin.

Abstract 2022-33
Aortic Thrombus with Renal Infarction
Lev Libet, MD; Joshua Tobias, MD

Introduction: This case portrays an uncommon complication of protein C deficiency.

Purpose: A 48-year-old male presented to the emergency department for abdominal pain. His abdominal pain was sudden in onset commencing 45 minutes prior to arrival, described as severe and diffuse. He has a history of protein C deficiency with prior arterial thrombi including a chronic aortic thrombus. He has undergone right iliofemoral embolectomy, above knee amputations bilaterally, and placement of an abdominal infrarenal aortoiliac stent/graft. Due to his hypercoagulable state, prior arterial thrombi and noncompliance with warfarin a CT angiogram was obtained of the abdomen and pelvis. This revealed significant thrombus burden from the suprarenal aorta, with near complete occlusion at the level of renal arteries extending down to the femoral arteries. CT also revealed hypodensities to the renal cortices bilaterally indicating bilateral renal infarcts. During his hospital stay his peak creatinine was 4.6 from a baseline of 1.14. The patient was anticoagulated with heparin. Interventional radiology and vascular surgery decided against surgical or endovascular intervention. He did not require dialysis and was transitioned to Warfarin.

Discussion: Protein C is a vitamin K dependent proenzyme which activates when binds to thrombin. It is an integral component of the endogenous anticoagulation system. Protein C deficiency affects 0.2-0.5% of the population with clinically significant protein C deficiency being present in only 1 in 20,000. The association between protein C deficiency and venous thromboembolism is well established, however, arterial thromboembolism may be present in only 6% of those with protein C deficiency (4). In this particular patient the risk is likely higher as he was noncompliant with anticoagulation in the setting of an aortoiliac stent/graft. The acute abdominal pain was likely due to new renal infarcts and less likely related to the occlusion of the infrarenal aorta and iliac arteries. The presence of an aortic thrombus in the setting of protein C deficiency has been described (1-3). Kulahcioglu et al (5) is the only other report of bilateral renal infarcts with this disease process. further research is needed to more fully describe the risk arterial thromboembolism and renal infarcts in the setting of protein C deficiency.

Conclusion: Renal infarction is an important consideration in acute, sudden onset abdominal pain. While uncommon arterial thromboembolism is a possibility in the setting of protein C deficiency.

Abstract 2022-34

Development of Subdural Hemorrhage in a COVID-19 Patient Concurrently Admitted for Presumed Neurosyphilis

Brandy Truong, MS IV; Manuel Tu, MD; Cecilia Covenas, MD; Ikenna Nwosu, MD; Nayoung Sung, MD; Verna Marquez, MD

Introduction: COVID-19 can cause nervous system complications like ischemic stroke and intracerebral hemorrhage (ICH). Neurological symptoms are more common in severe COVID-19 infections and in elderly patients with a history of hypertension, cardiovascular diseases, and diabetes mellitus. Fewer cases of ICH were reported compared to ischemic stroke and there are even fewer cases of subdural hemorrhage (SDH). There hasn't been a case where a patient presents to the hospital for a non-COVID-19 related medical problem that later tests positive during admission and develops a SDH.

Case presentation: We present a case of SDH in a patient presented with a non-COVID-19 related medical problem that later tests positive during admission. A 69-year-old female with a history of type 2 diabetes mellitus, cognitive impairment with hallucinations, treated syphilis and COVID-19 vaccinated twice presented to the emergency department with altered mental status and admitted for UTI with an infection history of extended spectrum beta-lactamase E. Coli. A magnetic resonance imaging (MRI) showed periventricular microvascular disease and lumbar puncture resulted in elevated protein. Penicillin G was initiated for presumptive neurosyphilis. On hospital day 13, the patient was febrile, coughing, and agitated, and COVID-19 test resulted positive. On hospital day 14, the patient had poor response but arousable, and Glasgow Coma Score (GCS) was 11-12. There were no reports of trauma or incidents overnight. Computed tomography (CT) head showed SDH with

8mm midline shift. Patient was started on Tranexamic acid per neurosurgery recommendation. Following treatment and towards the end of the patient's admission, GCS was 14-15. She completed her treatments and was discharged to home with hospice.

Conclusion: COVID-19 is known to be a prothrombotic state which explains ischemic hemorrhages. However, the mechanism is unclear for how COVID-19 can cause ICH. Explanations include how the virus causes endothelial dysfunction in cerebral vessels. There is a decrease of ACE2 in the central nervous system from the virus binding to ACE2 that can lead to injury of the smaller vessels via systemic hypertension; therefore, increasing the risk of ICH. High glucose can also lead to impaired endothelial function leading to brain vessel disease. Looking at SDH specifically, it is caused by damage to the bridging veins and one mechanism proposed was that systemic viraemia and endothelial dysfunction made bridging veins more vulnerable to bleeding. Although our patient's diabetes was controlled and her blood pressure was normal throughout admission, CRP was elevated which may have been a sign of endothelial damage from COVID-19. In addition to the virus causing endothelial dysfunction, our patient had neurosyphilis which may have compounded the strain on the central nervous system. Neurosyphilis manifests in many neurological symptoms and diseases like stroke are secondary to the meningovascular pathology associated with neurosyphilis. It is possible that the stresses on the central nervous system vasculature from neurosyphilis and COVID-19 led to our patient's SDH. There are increasingly reported COVID-19 ICH cases. With more cases being reported, hopefully there becomes a clearer explanation and better understanding of the pathology.

Abstract 2022-35
Improvement in Accuracy of Documentation by Physicians During Procedural Sedation in the Emergency Department
Larissa Morsky, MD; **Mike Chin, DO**

Introduction: Procedural sedation is defined as the technique of safely administering short-acting sedative or dissociate agents, with or without analgesics, to reduce discomfort, apprehension, and potentially unpleasant memories while minimizing cardiorespiratory depression of patients during diagnostic and therapeutic procedures Given that adverse events are not uncommon with procedural sedation, the physician must practice careful patient selection and complete a thorough pre-procedural assessment.[1] It is also imperative that the physician accurately documents the completion of the patient assessment and details of the events that occur during the procedural sedation.

Purpose: Upon a review of 30 patient charts chosen randomly from the Electronic Medical Record (EMR) Cerner during the months of May, June and July 2021 we found that 18 cases contained documentation from procedural sedation that did not adhere to the standards set out by The Joint Commission and Kern Medical or were missing certain elements. Specifically, the two items most commonly omitted on the form were assessment of the airway or American Society of Anesthesiology (ASA) physical status classification.

The purpose of this Quality Improvement Project (QIP) was to create a standardized process for procedural sedation documentation completed by Emergency Medicine physicians in order to improve the evaluation of patients and accuracy of documentation during procedural sedation performed in the Emergency Department at Kern Medical.

Method: We created a document template in the Cerner Electronic Medical Record system which encompassed all of the required points of patient evaluation and documentation. This template was made available to all Emergency Medicine physicians who perform procedural sedation in the ED at Kern Medical. An informative email explaining the new process was sent to all of the physicians and a short educational session regarding the importance of accurate documentation and the plan for improvement occurred during both the monthly faculty meeting and resident meeting in July 2021.

Results: Review of 30 random charts from the subsequent months of November, December and January showed a significant improvement in adherence to the standardized template and therefore the completeness of the patient assessment prior to procedural sedation. 73% of the cases reviewed contained all of the required

information. We did note that there were 8 charts that were missing a complete airway assessment.

Discussion: The American College of Emergency Physicians released a clinical policy statement in 2005 regarding the key components of patient assessment prior to procedural sedation. They recommend to "Obtain a history and perform a physical examination to identify medical illness, medications, allergies, and anatomic features that may affect procedural sedation and analgesia and airway management."

Prior to initiation of this QIP we did not have a consistent method of documentation during procedural sedation. There was variation between individual physicians including documentation on hard copy paper vs a note in the EMR. There were also different formats for the EMR note which did not all contain the same information and evaluation of the patient.

Even though the physician was performing a thorough evaluation of the patient and their clinical status prior to initiation of procedural sedation, this was not always documented appropriately.

After our intervention we did not find any charts with uploaded paper documentation, therefore we believe it is reasonable to conclude that all notes by physicians are now occurring within the EMR. There was a drastic change in the number of charts with all of the required pre-sedation evaluation completed. During evaluation of the first chart review we found only 12 out of 30 (40%) had the entire evaluation documented correctly. When we reviewed the next 3 months of data that number increased to 22 out of 30 (73%), which is a 33% improvement.

Conclusion: Introducing a standardized form in the EMR has improved the accuracy and comprehensiveness of the documentation of procedural sedation by physicians in our Emergency Department.

Our aim now is to continue this trajectory by educating all incoming faculty and residents regarding the importance of the process that is currently in place and to ensure that the correct document is being utilized. We plan to perform another evaluation of all procedural sedations completed over the course of the next 3 months to ensure that these changes are maintained.

Abstract 2022-36

Clonidine Overdose as an Unusual Cause of Heart Failure

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Introduction: There are very few cases of clonidine overdose induced NSTEMI with chest pain, EKG changes, elevated troponin with heart failure documented in current literature.

Purpose: The patient is a 28-year-old female with hypertension, ADHD, and depression diagnosed with systolic heart failure and coronary vasospasm secondary to clonidine overdose in an attempt to commit suicide. She reported five days of cold-like symptoms including subjective fevers, sore throat, body aches, and three days of sharp, constant, bilateral chest pain prior to her suicide attempt. Vital signs were significant for bradycardia and labs showed significant troponemia. EKG revealed an NSTEMI with Q waves consistent with either vasospasm or Takotsubo cardiomyopathy. Echocardiogram showed dilated cardiomyopathy with severe left ventricular systolic dysfunction, LVEF of 25-30%, and concentric left ventricular hypertrophy. Troponin trended down and cardiac symptoms resolved. Troponemia spontaneously resolved and the patient was optimized on GDMT and is doing well. The most recent echocardiogram revealed a LVEF of 50%.

Discussion: Clonidine is an effective off label treatment for ADHD, thought to act via reduction in sympathetic activation via its alpha antagonist effects in the medulla and posterior hypothalamus. Clonidine's alpha agonist properties decrease stimulation of receptors in the heart, vessels and kidneys resulting in decreased vascular resistance, heart rate, and cardiac contractility while increasing vasodilation. Thus, overdose can present with hypotension, bradycardia, and altered mental status. Although patients may be young with no risk factors for heart failure or NSTEMI as seen in this case, patients may experience coronary vasospasm secondary to the clonidine overdose.

Heart failure can be a rare complication of clonidine overdose, likely due to the paradoxical peripheral vasoconstriction leading to coronary vasospasm secondary to peripheral alpha-1 receptor activity at high doses of clonidine. Additionally, postsynaptic alpha-2 receptors in cardiac vascular smooth muscle can cause transient hypertension along with peripheral vasoconstriction, contributing to an NSTEMI and severe systolic dysfunction. Heart failure secondary to clonidine overdose is treated with guideline directed medical therapy and allows for return of systolic function to normal, as seen in our patient.

Conclusion: Consider clonidine-induced vasospasm as a differential diagnosis in NSTEMI patients with clonidine overdose. Treat these patients with ACS protocol, however, continue low dose beta blocker and angiotensin converting enzyme inhibitor. Diagnosis can be verified with an angiogram and repeat echocardiograms can monitor resolution of acute heart failure after discharge. A multidisciplinary approach with cardiology is recommended.

Abstract 2022-37
Aggressive Angiomyxoma Presenting as Pelvic Organ Prolapse
Alexandra E. Neiman, MD; Gloria Fernandes, MS IV; Amin A. Ramzan MD; Yufan B. Chen, MD

Introduction: Aggressive angiomyxoma (AAM) of the female pelvis is a rare malignancy, with fewer than 250 cases reported in the literature. It typically presents in reproductive-age women and due to its low prevalence, typical presentation of AAM is not well-defined. We present a case of aggressive angiomyxoma in a 50-year-old-woman presenting as pelvic organ prolapse (POP).

Purpose: A 50-year-old Gravida 3 Para 2 presented to the urogynecology clinic with Stage 3 pelvic organ prolapse and mixed urinary incontinence. Physical exam revealed prolapse of a mass, thought to be either the cervix or an enterocele. The patient desired definitive management. Intraoperatively, she was found to have a 6 cm mass originating from the left paracervical stroma. The surgeons were unable to adequately insufflate the abdomen due to severe obesity, and therefore performed an exploratory laparotomy to confirm the absence of an enterocele. She then underwent a bilateral salpingectomy, excision of vaginal mass, mid urethral sling, and cystoscopy. The pathologist reported aggressive angiomyxoma. She was referred to gynecologic oncology and CT imaging demonstrated cervical soft tissue enlargement and no evidence of metastatic disease. She subsequently underwent a total laparoscopic hysterectomy, bilateral oophorectomy, and cystoscopy. The patient made a full recovery and pathology did not demonstrate residual AAM.

Discussion: AAM is locally aggressive and incomplete resection can lead to local recurrence; thus, accurate preoperative diagnosis is imperative to prompt and definitive treatment. The presentation of AAM is not well characterized due to its rarity. Most often, it presents as vulvar, perineal and vaginal masses, sometimes misidentified as Gardner and Bartholin cysts. Our patient presented with a prolapsing pelvic mass and ultimately was discovered to be an aborting cervical mass. The surgeons performed an abdominal survey to rule out the possibility of an enterocele. Total hysterectomy was then recommended to reduce the risk of local recurrence. This case highlights the need for additional research into the characterization, risk factors and presentation of AAM.

Conclusion: This case describes the first known presentation of AAM in a postmenopausal woman as symptomatic pelvic organ prolapse. Gynecologists should be aware of this rare form of cancer when evaluating a woman with a pelvic mass.

Abstract 2022-38
Annual Review of Implementing Pediatric Antimicrobial Stewardship Program in a Non-Freestanding Children's Hospital in an Adult-Centered Community Hospital
Alice Ip, PharmD; Tsung-Chi Lien, M.S., PharmD; Laurie Covarrubias, PharmD; Harlan Husted, PharmD, MBA; Chokechai Rongkavilit, MD

Background: A pediatric-specific antimicrobial stewardship program (Ped ASP) has been shown to optimize antimicrobial use, improve patient outcomes, and reduce healthcare expenditures in this population. Due to mixed infrastructure, opportunities and challenges exist when executing a Ped ASP for a children's hospital within an adult-centered medical center

Purpose: Demonstrate an annual review of a Ped ASP in a non-freestanding children's hospital within an adult-centered tertiary hospital located in San Joaquin Valley, California.

Methods: A pediatric infectious disease physician and four pediatric pharmacists designed a Ped ASP utilizing direct and indirect patient care activities to optimize pediatric antimicrobial use in 21 bed-pediatric services within a 685-bed, adult-centered medical center. Launched in 2020, Ped ASP activities include thrice weekly chart reviews followed by handshake rounds and quarterly reviews of documented interventions. The Ped ASP team also developed policies, education, and other resources to further guide appropriate antimicrobial use, in collaboration with the adult team.

Results: Ped ASP was initiated on general pediatric (PED) and pediatric intensive care (PICU) units. In 2021, a total of 256 charts were reviewed with 153 antibiotic interventions provided, including optimization of antimicrobial selection (30%), antibiotics discontinued (22%), and antimicrobial dosage adjustment (13%). Annual average antibiotic length and days of therapy per 1000 patient-days were 97 and 100 respectively in PED, and 503 and 569 in PICU. As compared to the year 2020, the ratio of narrow to broad spectrum antibiotics in 2021 increased from 2.16 to 4.92 in PED and 1.49 to 1.59 in PICU. Concurrently, pediatric vancomycin AUC/MIC monitoring, late-onset neonatal sepsis pathway, and pediatric community acquired pneumonia treatment algorithm were developed and implemented.

Discussion: A Ped ASP was successfully launched in a non-freestanding children's hospital, resulting in optimization of antimicrobial use and reduction of broad-spectrum antibiotic utilization.

Conclusions: Continual metrics served as an important tool to identify areas for improvement. Future goals include expansion of Ped ASP to other service lines, enhanced ASP education in residency training and development of additional pediatric antimicrobial treatment pathways.

Abstract 2022-39
Immune Thrombocytopenia Following COVID-19 Vaccine

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Purpose: Several vaccines have been developed and are being administered against severe acute respiratory syndrome coronavirus 2. Common side effects include fever, chills, headache, myalgia, and soreness at the injection site. However, some rare adverse effects have also been reported. Cases of thrombocytopenia following COVID-19 vaccination have been reported since the initiation of mass vaccinations. We present a case of thrombocytopenia presenting with petechiae and mucosal bleeding which developed as an adverse response after first-dose administration of the Moderna COVID-19 vaccine and was refractory to first-line therapy. Treatment options for refractory thrombocytopenia are discussed.

Methods: Retrospective case study.

Summary: A 58-year-old Hispanic male presented to our hospital for acute onset of mucosal bleeding, petechiae and easy bruising. He denied any previous history of spontaneous bleeding or easy bruising. Patient had received his first dose of the Moderna COVID-19 vaccine three weeks prior to the development of spontaneous bleeding. Physical examination was notable for diffuse petechiae along the arms, legs, and abdomen along with numerous oral lesions and gingival bleeding. He was noted to have a platelet count of 3×10^9/L with all other cell lines within normal limits. After a comprehensive and exhaustive workup of all well-known precipitants of immune thrombocytopenic purpura returned negative, a diagnosis of idiopathic thrombocytopenic purpura was made. Patient was treated with first-line therapy of platelet transfusion, high dose steroids, and intravenous immunoglobulin (IVIG) multiple times but platelet count remained refractory. We then treated the patient with romiplostim—a thrombopoietin receptor agonist—and fostamatinib—an inhibitor of spleen tyrosine kinase. The platelet count improved and his symptoms were resolved.

Discussion: With the widespread administration of COVID-19 vaccines to combat the pandemic, adverse reactions have been reported including rare

instances of thrombocytopenia and thrombosis. More specifically, there have been reported cases of both vaccine-induced immune thrombocytopenia (VIT) and vaccine-induced immune thrombotic thrombocytopenia (VITT). There is confounding evidence whether VIT and VITT occur via the same mechanism or if they are the same reaction with a spectrum of manifestations. Our patient received the Moderna vaccine and three weeks later presented with isolated thrombocytopenia which we diagnosed as VIT. Of reported cases of VIT, most patients responded to treatment with corticosteroids and IVIG. Refractory cases of thrombocytopenia to both steroids and IVIG may benefit from a thrombopoietic agent. Our case is unique in that multiple treatment modalities were employed to increase platelet count with multiple rounds of steroids, platelet transfusions, and IVIG, despite which, our patient's platelet count remained low. Finally, treatment with TPO-RA and SYK inhibitor was able to stabilize his platelet count.

Conclusion: Since the mechanism of COVID-19 vaccine induced thrombocytopenia is unclear, it is important to acknowledge that some patients may not respond to the standard accepted treatment with steroids and IVIG. Cases similar to ours may benefit from therapy with romiplostim and fostamatinib when first-line therapy is unsuccessful.

Abstract 2022-40

The Dynamic Duo: The Scrofula and Mycetoma

Nugdeep Singh, MS IV; Jeffrey Nguyen, MS IV; Chien-Wai Chiu, MD; Valerie Espinoza, MD; Arash Heidari, MD

Introduction: Scrofula is a form of extrapulmonary *Mycobacterium tuberculosis* that involves the cervical lymph nodes. Tuberculosis also can infect cutaneous tissue and in the lower extremities can mimic mycetoma. We present a case of newly diagnosed scrofula with a previously diagnosed left foot mycetoma with prior refractory treatment. Both conditions responded to antituberculosis treatment.

Method: IRB approved retrospective case report

Case Presentation: 34-years-old Spanish-speaking Hispanic male with a history of thyroglossal duct cyst removed five years prior to presentation and left foot mycetoma diagnosed six years prior with multiple flares and a refractory treatment course. The patient complained of left side neck swelling and pain for two weeks. The symptoms were associated with dysphagia and unintentional weight loss of five to ten pounds due to decreased appetite. He denied fever, rigors, or night sweats. Upon presentation, vital signs were within normal limits.

Physical exam showed a large palpable 4x5 cm tender mass to the left angle of the mandible and a 2x3 cm tender mass posterior to the sternocleidomastoid muscle, in addition to multiple palpable lymph nodes along the anterior and posterior cervical chain bilaterally. Left foot exam was remarkable for pitting edema from the dorsum of his midfoot extending proximally to below the knee, with hypopigmentation and hyperpigmentation of the dorsum of the foot and multiple healed fistula tracks suggestive of mycetoma.

Computerized tomography (CT) scan of the neck showed rim enhancing subcutaneous fluid collection measuring 3.7x2.5x4.4cm superficial to the left submandibular gland as well as multiple enlarged bilateral lymph nodes measuring up to 1.6 cm with central necrosis. The patient underwent an ultrasound-guided aspiration and biopsy of the fluid collection by interventional radiology. The pathology showed a portion of focal granuloma formation of the lymph node. Fluid aspiration stained positive for acid-fast bacilli resembling *Mycobacterium tuberculosis* (MTB). This led to the diagnosis of scrofula of several bilateral cervical lymphadenopathies with central suppuration. He was started on drug regimen of isoniazid, rifampin, pyrazinamide, and ethambutol with noted clinical and radiological improvement. Final mycobacterial culture-confirmed MTB complex with intermediate susceptibility to isoniazid.

Therefore, due to clinical response, his regimen was continued for 12 months with complete resolution of his scrofula. Interestingly, his "mycetoma" also responded with a significant reduction of swelling without any new fistula formation or flares suggesting a diagnosis of cutaneous MTB.

Conclusion: Extrapulmonary tuberculosis can involve lymph nodes and cutaneous tissue. Proper diagnosis and prolonged treatment are necessary.

Abstract 2022-41
Screening for Diabetes in Pregnancy - Experience of a Community Health Center
Idean Pourshams, MD; Golriz Asefi, MD; Hector Arreaza, MD; Amy Arreaza, FNP; Carol Stewart, MD; Mehran Najafi

Introduction: Gestational diabetes mellitus (GDM) is currently one of the most common medical complications during pregnancy (1). Major risk factors include obesity, advanced maternal age (>35 years), past medical history of gestational diabetes, family history of type 2 diabetes mellitus, and ethnicity. Complications may affect both mother and infant, including infant macrosomia, preeclampsia, cardiovascular disease, higher risk of cesarean section, and impaired glucose metabolism.

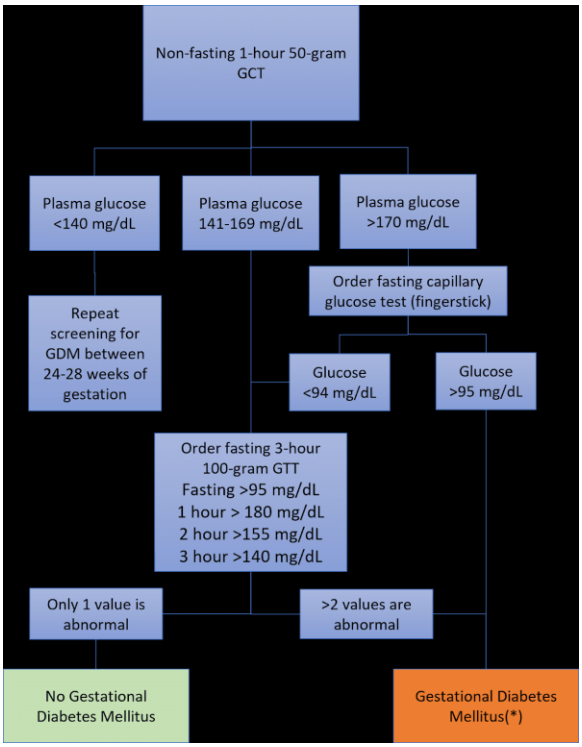

Figure 1. Screening for pre-gestational diabetes at the time of diagnosis of pregnancy at Clinica Sierra Vista East Niles. GCT: Glucose challenge test; GTT: Glucose tolerance test.

The United States Preventive Services Task Force (USPSTF) recommends screening all pregnant persons for GDM at 24 weeks or after (Grade B), but they have concluded there is insufficient evidence to recommend screening before 24 weeks of gestation. The main objective of this report is to present our experience in screening for diabetes before and after 24 weeks of gestation.

In our organization, given the high-risk population we serve, we screen all pregnant persons for diabetes twice: at entry (to detect pre-gestational diabetes) and again at 24 weeks of gestation (to detect GDM).

We use a non-fasting 1-hour 50g glucose challenge test (GCT) as the *screening* tool, and a fasting 3-hour 100g oral glucose tolerance as the *diagnostic* tool (see figures 1 and 2).

To perform the *screening* test, patients are given 50 grams of oral glucose in a non-fasting state, and their plasma glucose is measured one hour later. It is considered abnormal if the plasma glucose at 1 hour is above 140 mg/dL. If the screening test is abnormal, we order the *diagnostic* test. The *diagnostic* test is not done when a fasting fingerstick glucose is >95 mg/dL (see figure 1). The patient is diagnosed with pregestational diabetes when the fasting fingerstick glucose is >95 mg/dL and the 50g GCT is >170 mg/dL.

To perform the *diagnostic* test, patients are given 100 grams of oral glucose after eight hours of fasting, and plasma glucose is measured every hour for the following 3 hours. A plasma glucose level is considered positive if it falls in these categories: fasting >95 mg/dL, 1 hour >180 mg/dL, 2 hours > 155 mg/dL, and 3 hours >140 mg/dL. Patients are diagnosed with diabetes mellitus if more than two values are high. When the diagnostic test is positive, the patient is considered to have pre-gestational diabetes if she is less than 24 weeks pregnant, and gestational diabetes if she has more than 24 weeks of gestation. In either case, patients are started on treatment with dietary modifications and self-monitoring of

glucose.

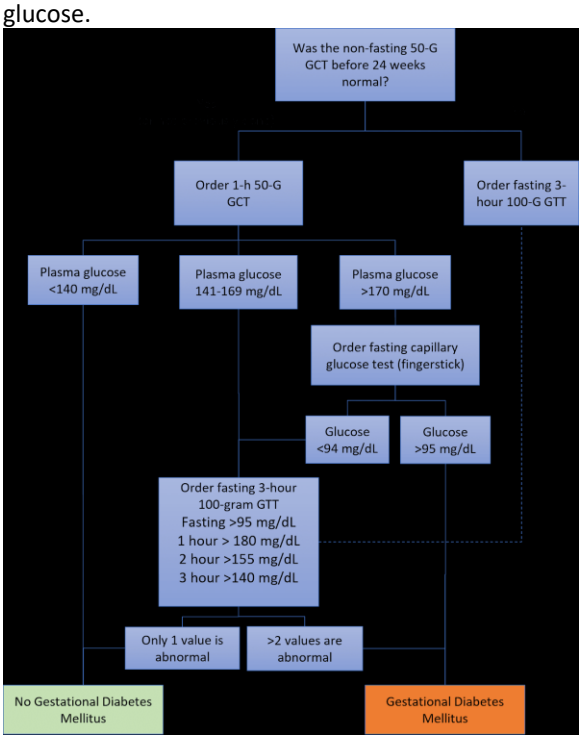

Figure 2. Screening for gestational diabetes after 24 weeks at Clinica Sierra Vista East Niles.

Objective/Purpose: We aimed to determine the positivity rate of the screening and the diagnostic tests before and after 24 weeks of gestation. Given the knowledge gap in the medical community regarding the ideal timing and type of test needed to screen for diabetes in pregnancy, our objective is to add information about the early detection of this disease to prevent the natural negative impacts if left untreated in pregnancy.

Methods: We performed a chart review of all patients screened between April 1, 2019 and October 31, 2021. Only patients who fit the criteria and had sufficient data were included in the study. Patients with unclear gestational age or gestational age above 42 weeks were excluded. We determined percentages of positive tests before and after 24 weeks. We compared the positivity rate between the two tests we used: the 1-hour 50g glucose challenge test (GCT) and the 3-hour 100g glucose tolerance test (GTT).

Results: We reviewed a total of 11,357 results of diabetes tests during pregnancy.

Most of our patients were tested before 24 weeks (55%, n=6256). We screened 3565 with the 50g GCT, and 823 (23.0%) had abnormal glucose levels. We tested 2691 patients with the 100g GTT, and 424 (15.8%) were diagnosed with pre-gestational diabetes.

After 24 weeks, we screened 2413 patients with the 50g GCT, and 566 (23.5%) had abnormal glucose levels. We tested 2688 patients with the 100g GTT and 517 (19.2%) were diagnosed with gestational diabetes.

Table 1. Screening for diabetes before and after 24 weeks of gestation at Clinica Sierra Vista between April 1, 2019 and October 31, 2021.

	Number of patients tested	Percentage
Before 24 weeks of gestation		
50g GCT high	823	23.0%
50g GCT normal	2742	77.0%
50g GCT total	3565	100.0%
100g GTT high	424	15.8%
100g GTT normal	2267	84.2%
100g GTT total	2691	100.0%
After 24 weeks of gestation		
50g GCT high	566	23.5%
50g GCT normal	1847	76.5%
50 GCT total	2413	100.0%
100g GTT high	517	19.2%
100g GTT normal	2171	80.8%
100g GTT total	2688	100.0%
Total of patients screened for	11357	

diabetes during pregnancy

Conclusion: The decision to screen patients earlier is supported by our findings of a high number of abnormal glucose screening results. This approach allowed us to identify patients with pregestational diabetes (15.8%) who were unaware they had the disease before pregnancy. We started treatment of pregestational diabetes promptly to prevent potential obstetric complications. Thus, while the USPSTF did not find data to offer a recommendation for early screening for GDM, our results support that hyperglycemia before 24 weeks is significant, especially in high-risk groups. More research and discussion are needed to determine the value of detecting hyperglycemia before 24 weeks of gestation.

Additionally, 19.2% of our patients were positive for gestational diabetes after 24 weeks of gestation. This again supports the importance of the detection of diabetes in pregnancy for the potential benefits of early intervention to prevent obstetric complications.

Abstract 2022-44
Iatrogenic Calcinosis Cutis of the Left Wrist Secondary to Extravasation of Calcium Chloride
Melanie Khamlong, MD; Christine Garabetian, MD; Nadia Raza, MD; Rasha Kuran, MD

Introduction: We present the case of a 22-year-old woman with ovarian dysgerminoma who developed iatrogenic calcinosis cutis secondary to intra-operative calcium chloride infusion.

Purpose: A 22-year-old female was admitted to the gynecology service for abdominal bloating and discomfort. CT scan abdomen and pelvis showed a 13.5 mm mass in the right pelvis. Biopsy confirmed metastatic ovarian dysgerminoma. She underwent abdominal surgery for debulking. Prior to operation, serum calcium level was 7.9 mg/dL. Calcium chloride was given via left wrist peripheral intravenous (PIV) line, with dosages of 2.8 mEq three times and 5.6 mEq once. Post-operative serum calcium level was 6.6 mg/dL.

After discharge, she was started on chemotherapy with platin and bleomycin. Two months after, she complained of a vesicular, salmon-pink rash on her left wrist. Due to concerns for varicella-zoster infection, she was started on Acyclovir 800 mg three times daily for seven days. The rash did not resolve after completion of Acyclovir.

Patient was referred to infectious disease to rule out viral dermatitis. Physical examination showed a 4 cm by 5 cm salmon-pink firm plaque with irregular borders over the radial aspect of the left wrist, with limited range of motion in all planes (Figure 1). X-ray of the left wrist showed soft tissue calcification along the radial aspect of the distal forearm and wrist (Figure 2).

The diagnosis of iatrogenic calcinosis cutis of the left wrist secondary to extravasation of intravenous calcium chloride was made. She was treated conservatively with local wound care and physical therapy. After one year, she reports improvement in the appearance of the left wrist, which is macular in appearance, and intact range of motion (Figure 3).

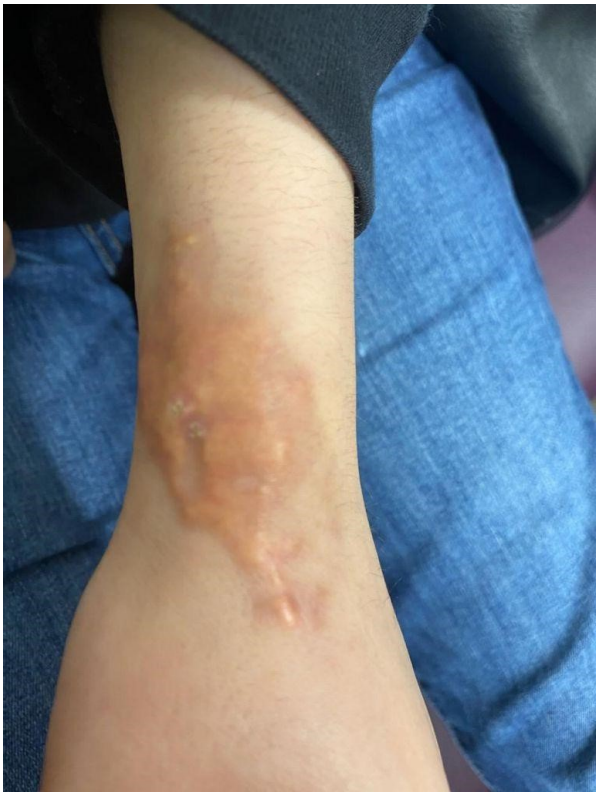

Figure 1. Salmon-pink rash with irregular borders, consistent with iatrogenic calcinosis cutis

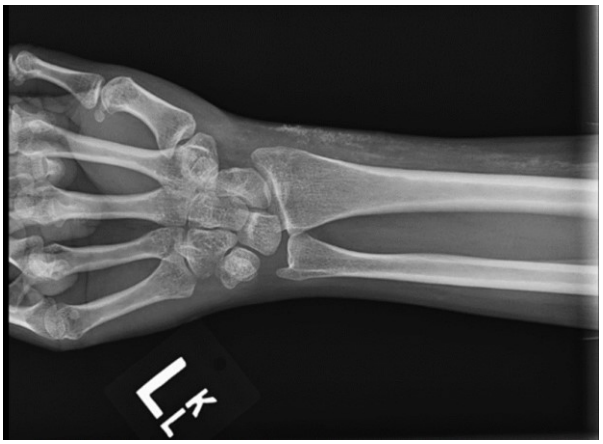

Figure 2. Xray of the right wrist showing soft tissue calcification along the radial aspect of the distal forearm and wrist

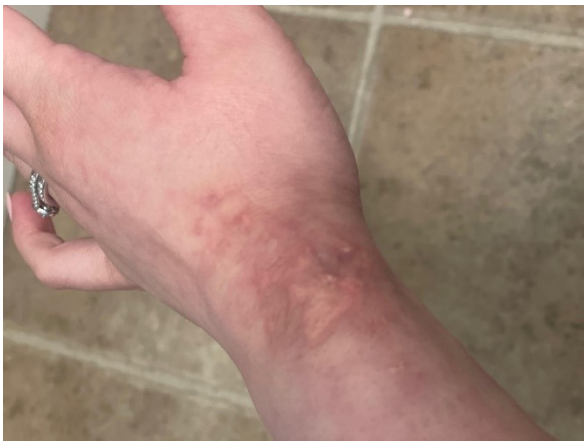

Figure 3. Improvement of rash with macular presentation after one year

Discussion: Cases reported in the literature were predominantly in infants or adults with malignancy as this case here. Due to her immunosuppression from chemotherapy, the probability of a varicella-zoster rash was appropriately entertained. The clinical diagnosis of iatrogenic calcinosis cutis was suspected with the development of a firm, irregular subcutaneous plaque and decreased range of motion of the left wrist in addition to history of calcium chloride infusion and imaging demonstrating soft tissue calcification.

Most clinical and radiographic findings of calcinosis cutis resolve with conservative management, which includes elevation of the extravasation site, cold compresses, and local wound care. Topical sodium thiosulfate therapy has been used with improvement within three months. However, it is unclear whether the symptoms self-resolved or responded to treatment. Plastic surgical intervention can be considered if complications result in immobility or if no resolution with conservative management.

Prevention of extravasation is important to avoid iatrogenic calcinosis cutis. When managing patients with critically low serum calcium levels, peripheral intravenous route versus central line should be evaluated. Dilution of calcium solutions may be used to avoid adverse effects of extravasation.

Conclusion: Iatrogenic calcinosis cutis should be considered in patients that present with firm, irregular plaques with prior use of intravenous calcium-containing solutions to treat hypocalcemia. Though most resolve with conservative management, other considerations for management include evaluating routes for venous access and dilution of calcium solutions.

Abstract 2022-45
Risk Factors for Custody Under Child Protective Services for Newborns to Mothers with Inpatient Psychiatric Hospitalization
Tyler Torrico, MD; Md. Towhid Salam, MD, PhD; Ranjit Padhy, MD

Introduction: The National Institute of Mental Health estimates the prevalence of serious mental illness in the United States at 14.2 million adults (5.6% of the population) in 2020. People with serious mental illness are more likely to have contact with Child Protective Services (CPS) than those without serious mental illness, despite equal likelihood to become parents. Serious mental illness results in frequent hospitalization, and there is limited research into which risk factors and clinical characteristics may predispose expectant mothers with such hospitalizations to have their child under CPS custody after childbirth.

Purpose: To identify clinical characteristics and risk factors that are associated with the newborn being under custody of the CPS for women with psychiatric hospitalization during pregnancy.

Methods: We conducted a retrospective chart review over a 10-year period (2012-2021) for patients who were pregnant and psychiatrically hospitalized. Subjects excluded were those who experienced intrauterine fetal demise or delivered at an outside hospital. We followed 81 patients (18 to 43 years) who delivered within the hospital. Study endpoint was whether the newborn was placed under CPS custody. We obtained relevant medical, obstetrical, and psychiatric records from the electronic medical records. Independent variables of interest included psychiatric diagnoses (categorized into psychotic disorders vs mood disorders), history of homelessness, history of incarceration, previous CPS involvement, prenatal care, and substance use during pregnancy. We utilized logistic regressions to investigate the associations of these factors with the study outcome.

Results: In this inpatient study population, the prevalence of psychotic disorders was 57%. About 40% subjects were Non-Hispanic Whites, 37% were Hispanic, 16% were Black, and 6% were Asian. Most subjects were single (70%), had Medi-Cal insurance (93%), and had up to a high school level of education (73%). Most were unemployed (89%), many had no prenatal care (42%), 47% had a history of incarceration, 32% had a history of homelessness, and 50% with a previous CPS involvement. Substance use during pregnancy was high, with 70% used any substance, 46% used cigarettes, 50% used cannabis, and 49% used methamphetamine during pregnancy.
In univariate analysis, maternal education, health insurance, employment status, history of homelessness, history of incarceration, psychotic disorder, substance uses (tobacco, methamphetamine), having no prenatal care, and previous involvement with CPS were statistically significantly associated with having the newborn being under CPS custody. In multivariate analysis, after adjusting for potential confounders, women with psychotic disorders were at increased risk of having their newborns under CPS custody (odds ratio [OR]= 8.43; 95% confidence interval [95% CI] 2.16-32.85) compared with women with mood disorders. Furthermore, multivariate analyses revealed that mothers with history of homelessness had higher risk (OR = 6.59; 95% CI: 1.24-35.13) of their child being under CPS custody at birth than those without history of homelessness. Other factors were not statistically significantly associated with the study outcome in the multivariate model. When we investigated the joint effects of diagnosis of psychotic disorder and history of homelessness, we found that mothers who had a history of homelessness and had psychotic disorders were at 44-fold higher odds (95% CI: 4.55-426.63) of having their newborn under CPS custody at birth compared with mothers with mood disorders who had no history of homelessness.

Discussion: Studies have documented that placement of a child under CPS not only affects child's health, behavior and social outcomes but also affects maternal health and social outcomes. Although patients with serious mental illness are more likely to have CPS custody than their counterparts; those who have a psychotic illness are the highly likely to have CPS custody at childbirth. Psychotic illness is generally debilitating and is known to be associated with socioeconomic disadvantage, which may further perpetuate difficulties in the ability to raise children. Additionally, those with a history of homelessness, regardless of underlying psychiatric diagnosis, are also at higher risk of CPS custody at time of childbirth. While the sample size of this study was relatively low, we had reasonable statistical power to detect statistical significance for few risk factors in our analyses.

Conclusions: Appropriate maternal and child relationships improve mental health outcomes for mothers and children. Our results indicate that serious mental illness (psychotic disorder) and socioeconomic disadvantage (history of homelessness) are independently associated with newborns being placed under CPS custody. Our findings call for the need for clinical and public health interventions aimed at reducing homelessness and for optimizing management of psychotic illness to improve health outcomes for mothers and children.

Abstract 2022-46
Holocord Spinal Subdural and Epidural Empyema with Methicillin-Resistant Staphylococcus Aureus

Manik Dayal, MS III; Pooja Eagala, MS III; Shatha Aboaid, MD; Gurpal Singh, MD; Christopher Logan, MS III; Carlos D'Assumpcao, MD; Leila Moosavi, MD; Shikha Mishra, MD; Arash Heidari, MD; Kasey Radicic, DO, Sabitha Eppanapally, MD

Introduction: Holocord subdural empyema is considered a life-threatening emergency due to its involvement with a synergistic cascade of rapidly accumulating pus surrounding the spinal cord, causing increased pressure leading to spinal compression, severe inflammatory edema, and possible infarction. These events, especially involving the entire spinal cord, can lead to paralysis, respiratory depression, and inevitably death.

Holocord spinal subdural and epidural empyema with MRSA is even less common and has a very high rate of significant morbidity and mortality. There are only a few published cases found in the literature.

Methods: Retrospective IRB-approved case report.

Case Presentation: A 56-year-old-male with a history of substance abuse presented with two days of nausea, vomiting, and severe neck and back pain. Physical exam was remarkable for severe cervical and lumbar spinal tenderness to palpation with positive Kernig and Brudiziski signs. Initial laboratory studies showed a leukocyte count of 27,000/mm^3 with neutrophil predominance, Erythrocyte Sedimentation Rate of 62 mm/hr, and C-reactive protein of 26 mg/L. Urinary toxicology was positive for methamphetamine, cannabinoids, and opiates. Lumbar puncture was performed, and CSF fluid was turbid with WBC 18,000, Glucose 7, protein 585. CSF gram stain showed gram positives in clusters and culture revealed MRSA. Blood cultures also grew MRSA.

MRI of the spine showed holocord subdural abscess with a diffuse leptomeningeal enhancement of the entire spine in addition to epidural abscesses throughout the entire spine with diffuse myositis and micro-abscesses of the psoas, iliacus, and paraspinal muscles.
The patient was started on double coverage with daptomycin and ceftaroline. Due to his extensive disease, surgical options were limited and after extensive multidisciplinary discussion, the decision was made to treat the patient with antibiotics only. Throughout hospitalization, the patient showed clinical improvement and achieved negative blood cultures after six days. Twelve days after admission, the patient was discharged to a subacute facility to finish his course of antibiotics for 6 weeks.

Conclusion: Holocord subdural empyema is a life-threatening infection that requires immediate diagnosis with obtaining neuroimaging and surgical and therapeutic intervention. Clinicians should be aware of this condition to avoid any delays in care.

Abstract 2022-47
Clinical Telavancin Failure in Persistent MRSA Bacteremia

Carlos D'Assumpcao, MD; Charizzza Besmanos, MS IV; Isabel Fong, PharmD; Rasha Kuran, MD; Arash Heidari, MD

Introduction: Telavancin is a vancomycin-derivative semisynthetic lipoglycopeptide that has antimicrobial activity against resistant gram-positive organisms, namely methicillin-resistant Staphylococcus aureus (MRSA).

Purpose: The purpose of this study is to describe a case in which telavancin clinically failed in treating persistent MRSA bacteremia in a patient.

Discussion: A 61-year-old man with nasal MRSA colonization and history of previous abscesses who was initially admitted for severe COVID-19 pneumonia requiring high flow nasal cannula oxygen support and dexamethasone protocol as per current guidelines. He developed MRSA pneumonia and persistent polyclonal resistant MRSA bacteremia with hematogenous seeding causing lumbar vertebral osteomyelitis despite treatment with vancomycin for 5 days follow with telavancin for 11 days. MRSA susceptibility to the glycopeptide antibiotics as well as ceftaroline and daptomycin were evaluated using E-test to interpret minimum inhibitory concentration (MIC) according to the manufacturer's instructions. Telavancin MIC was initially 0.064 but then on retest was 0.125. Since MRSA continued to grow in repeated blood cultures after 11 days, telavancin was considered to have clinically failed. He was switched to combination of

ceftaroline and daptomycin and subsequently developed daptomycin associated eosinophilic pneumonitis. He was started on prolonged course of prednisone. He was switched to ceftaroline and rifampin to complete 6 weeks total of antibiotics after blood sterilization. Outpatient MRSA decolonization protocol was also started just prior to discharge.

Conclusion: Secondary bacterial infection associated with COVID-19 is on the rise particularly after adoption of dexamethasone as standard of care in severe cases. Persistent bacteremia with MRSA complicated with metastatic seeding in this setting is not described and perhaps is due to host-pathogen mediated mechanisms. Clinical failure of telavancin in deep seeded MRSA infections has not yet been reported.

Abstract 2022-48

Human Herpesvirus-6 Meningoencephalitis in an Immunocompetent Male

Vishal K Narang, MD; Carlos D'Assumpcao, MD; Michael Valdez, MD; Kasey Radicic, DO; Leila Moosavi,MD; Arash Heidari, MD

Introduction: Meningoencephalitis is an inflammatory condition involving the meninges and brain parenchyma resulting in focal neurologic deficits and altered mental status. Etiology is typically infectious with specific diagnosis based on cerebrospinal fluid (CSF) studies. In viral illnesses, a typical CSF profile demonstrates lymphocytic pleocytosis. Human herpesvirus 6 (HHV-6) predominantly causes infection in children and immunocompromised adults.

Purpose: We describe a case of HHV-6 meningoencephalitis in an immunocompetent elderly male who presented with fever, confusion, and worsening mental status.

Discussion: Patient is a 79-year-old male with a history of dementia and diabetes mellitus who presented after being found down by a bystander. Patient arrived lethargic, tachypneic, and febrile to 39.4 °C. Physical exam was remarkable for rhonchorous breath sounds heard bilaterally with rigid extremities with laboratory studies demonstrating a leukocyte count of 14.6x10^3 cells/mm3 without bandemia and hyperglycemia to 550 mg/dL. Patient became increasingly lethargic and was started on empiric meningitis therapy with acyclovir and broad-spectrum antibiotics. CT of the head demonstrated moderate to severe global volume loss and periventricular leukomalacia. CSF studies demonstrating a corrected WBC count of 17 with 76% monocytes and 22% lymphocytes. BioFire CSF Meningoencephalitis Panel (BioFire, BioMerieux, Salt Lake City, Utah) found HHV-6 positivity.HHV-6 serology testing found negative IgM and positive IgG. CSF HHV-6 PCR found less than 500 copies per mL of HHV-6 DNA. Serum HHV-6 PCR found greater than 2 million copies/mL. Patient was started on ganciclovir which resulted in significant improvement in symptoms. MRI brain with gadolinum found atrophic and chronic microangiopathic changes without enhancement or hyperintensity. Patient was discharged to rehabilitation facility to complete 30 days of antiviral therapy on valganciclovir.

Conclusion: CNS infection caused by HHV–6 is relatively rare. The few cases that are reported described precipitating risk factors including immunosuppression. Risk factors in immunocompetent patients is unknown. HHV-6 should remain part of the differential diagnosis in meningoencephalitis in an immunocompetent patient.

Abstract 2022-49

Clostridium Paraputrificum in a 46 Year Old Male with Liver Disease

Carlos D'Assumpcao, MD; Kevin Dao, MS IV; Arash Heidari, MD

Introduction: *Clostridium paraputrificum* is an anaerobic spore forming gram positive bacilli that is part of normal human gastrointestinal flora. Less than 1% of all clostridium infections in the literature are *C. paraputrificum*.

Purpose: We report a 46 year old male with alcoholic liver disease and lower gastrointestinal hemorrhage who was found to have *Clostridium paraputrificum* bacteremia.

Discussion: A 46-year-old male with heavy alcohol abuse, hypertension and congestive heart failure presented with two weeks of worsening abdominal pain that progressed to bright red blood per rectum. He was found to be in septic shock at presentation to the emergency department. He received aggressive fluid resuscitation and vasopressor support. He was diagnosed with liver cirrhosis complicated by splenomegaly and ascites shortly after admission. Ascitic fluid analysis supported diagnosis of spontaneous bacterial peritonitis. He was started in ceftriaxone. He eventually developed acute oliguric kidney injury due to shock and hepatorenal syndrome. He was placed on intermittent dialysis. Admission blood cultures grew *C. paraputrificum*. Metronidazole was added. Upper and lower endoscopy found large internal hemorrhoids vessels associated with rectal varices requiring banding. He continued to requiring blood transfusions daily. He was a poor candidate for colorectal surgery and outpatient dialysis. Patient and family ultimately agreed with hospice care.

Conclusion: *C. paraputrificum* is a rarely reported cause of anaerobic septicemia. Translocation from the gastrointestinal tract is the usual path and mucosal damage should be investigated. Cirrhosis portends a poorer prognosis.

Abstract 2022-50
A Case of Pseudoterranova
Sonal Prasad, MD; Carlos D'Assumpcao MD; Rick McPheeters DO; William Stull MD; Arash Heidari MD

Introduction: Anisakiasis is a parasitic disease of the gastrointestinal tract caused by *Anisakis* species *or Pseudoterranova* species. Humans acquire this disease by ingestion of raw or undercooked fish that are infected with larvae of these parasites.

Purpose: We describe a 17-year-old male who had consumed ceviche one week prior and presented after he coughed up a worm. The worm was identified as *Pseudoterranova* species. Epidemiology of food sources in Southwestern United States is discussed.

Discussion: A 17-year-old male with no significant medical history presented to our hospital after he coughed up a worm earlier that morning. He also complained of ongoing rhinorrhea and sore throat for the past four days. He denied nausea, vomiting, rash, diarrhea, fever, chills, night sweats, hematochezia, hematemesis, abdominal pain, abdominal bloating, headache, weight loss, or change in appetite. Patient stated that he was from Mexico but had been living in the United States for the past two years. A dietary history revealed that one week ago he had eaten his favorite ceviche made from fresh fish brought by a family member visiting from Ensenada, Mexico. Patient's physical examination, lab values, and imaging were all unremarkable. He had brought the worm, which he had coughed up, to the hospital. The worm was sent to the pathology lab and identified as *Pseudoterranova* species. Patient was discharged with instructions to return if symptomatic. He was referred for follow-up in the outpatient setting.

Conclusion: Anisakiasis is rare with current United States food handling regulations. The clinical suspicion is raised when raw fish from alternative sources of fresh seafood is consumed. Removal of the worm via endoscopy or even surgery might be necessary and is considered therapeutic. Diagnosis is made by direct visualization of the nematode.

Abstract 2022-51
Mandibular Osteomyelitis due to Aggregatibacter Actinomycetecomitans
Harjinder Sidhu MS IV; Samantha Ratnayake, MD; Carlos D'Assumpcao, MD; Greti Petersen, MD; Arash Heidari, MD

Introduction: *Aggregatibacter actinomycetemcomitans* is frequently associated with localized aggressive periodontitis. *A. actinomycetemcomitans* is a Gram-negative facultative anaerobe that is a member of the HACEK group of fastidious Gram-negative bacteria that can rarely cause endocarditis.

Purpose: We report a 21 year-old Hispanic male with osteonecrosis of the mandible from a tooth infected with *A. actinomycetecomitans* requiring antibiotics and surgical intervention.

Discussion: A 21-year-old Hispanic male with no known past medical history presented to the emergency department with a purulent right jaw and neck abscess. Two weeks prior he began having right lower tooth pain. Over the next 10 days his pain and swelling progressed, limiting his ability to open his mouth and to eat and drink. He then noticed an enlarging mass over the right jaw and neck with purulent discharge. Intolerable pain brought him to the ED. Admission CT of the soft tissue of the neck found right mandibular angle and ramus osteomyelitis, adjacent masticator and sternocleidomastoid infectious myositis, reactive right parotiditis, and severe right cervical cellulitis. There were also small periapical abscess of the right mandibular first molar, and small pockets of localized edema in the right suprahyoid neck without organization and right upper cervical adenopathy. He was started on vancomycin and pipericillin-tazobactam. Ear nose and throat surgeon aspirated the abscess. Aspirated abscess culture grew *A. actinomycetecomitans.*Antibiotics were narrowed to ceftriaxone and metronidazole. ENT then performed incision and drainage of the right jaw and neck abscess and extracted two infected teeth. He was successfully discharged on post operative day one on moxifloxacin with goal of 6 weeks of therapy with close ENT follow up.

Conclusion: Early recognition and treatment of periodontal infections is important to prevent complications such as abscess formation and osteonecrosis from osteomyelitis. We report a prototypical example of an acute progression of a simple tooth ache developing into severe osteonecrosis by a rare HACEK organism not commonly encountered requiring aggressive antibiotics and surgical management.

Abstract 2022-52

Peritoneal Tuberculosis Mimicking Ovarian Cancer

Avery Cox, MD; Carlos D'Assumpcao, MD; Arman G Froush, DO; Arash Heidari, MD; Amin A Ramzan, MD

Introduction: Diagnosis of peritoneal tuberculosis may be challenging. This form of extrapulmonary infection may present as abdominal and/or pelvic masses with pain, bloating, and discomfort. The clinical manifestations are similar to ovarian cancer, including elevation in tumor marker CA-125, peritoneal seeding and lymphadenopathy. Multiple diagnostic procedures are sometimes needed to make a definitive diagnosis.

Purpose: We present a case of peritoneal tuberculosis mimicking ovarian cancer.

Summary of Results: A 50-year-old Hispanic woman presented with generalized abdominal discomfort, bloating, fatigue, unintentional weight loss and night sweats. CT imaging revealed an 11 x 9 x 9 cm cystic pelvic mass associated with large volume loculated ascites, diffuse lymphadenopathy and peritoneal implants. She had an elevated CA-125 of 583 units/mL. Paracentesis was non-diagnostic. Intraperitoneal biopsies revealed diffuse granulomatous inflammation with foreign body-like multinucleated cells and no evidence of malignancy. Acid-fast stain and acid-fast bacilli (AFB) smear and culture were negative. Chest x-ray showed bilateral hilar adenopathy and a granuloma in left upper lung, with subsequent positive QuantiFERON gold. Antituberculosis therapy was initiated with Isoniazid, rifampin, ethambutol, and pyrazinamide (RIPE). After 5 months of RIPE therapy, the CA-125 normalized and there was dramatic radiographic improvement in lymphadenopathy and peritoneal disease burden. The pelvic mass persisted and she underwent bilateral salpingo-oophorectomy. Histopathology resulted as a serous cystoadenoma with necrotizing granulomatous inflammation. The AFB smear and mycobacterium tuberculosis complex PCR were positive. The patient recovered post-operatively and was re-initiated on RIPE therapy. Mycobacterial culture of ovary grew Mycobacterium tuberculosis. Sensitivity results are pending.

Conclusion: Peritoneal tuberculosis can be mistaken for ovarian cancer and thorough diagnostic evaluation is essential to ensure appropriate management and treatment.

Abstract 2022-53

Intraparenchymal Coccidioidoma in a Pregnant Patient

Carlos D'Assumpcao, MD; Rupam Sharma, MD; Royce H. Johnson, MD; Rasha Kuran, MD; Arash Heidari, MD

Introduction: Coccidioidomycosis disseminated to the central nervous system, if left untreated, is generally fatal within two years. Meningeal and intraparenchymal involvement can create different treatment challenges to due unknown antifungal CNS pharmacokinetics and pharmacodynamics. CNS coccidioidomycosis treatment is lifelong, and so must be tailored to patient's life events.

Purpose: Presented here is a young female with multiple intraparenchymal coccidioidomas who got pregnant. Management challenges are discussed.

Discussion: 31 year old female developed dry cough and fever three months prior to presentation. Serum coccidioidomycosis immunodiffusion IgM and IgG were reactive and immunocompliment fixation was 1:512 (ARUP, Salt Lake City, UT and Kern County Public Health Department). Imaging at the time found miliary dissemination of pulmonary coccidioidomycosis. She was prescribed fluconazole 200mg BID for two months only. She subsequently developed headaches, dyspnea, fatigue and bilateral thigh soreness. Fluconazole was increased to 1000mg daily. Neuroimaging found multiple enhancing nodules scattered throughout brain parenchyma, largest lesion at posterior margin of left pons, as well as cervical, thoracic and lumbar spinal cord. However, lumbar puncture found no evidence of meningitis. Serum fluconazole level was 37.1 to 89.1. Four months after initial symptoms, she developed open draining left clavicular abscess with speculated masslike lesion in right upper lung. Left clavicular abscess grew Coccidioides species and methicillin sensitive Staphylococcus aureus. Repeat neuroimaging found decrease in number and size of enhancing lesions in brain parenchyma and cervical, thoracic, and lumbar spinal cord. Seven months after initial symptoms, patient found out she was pregnant. Due to azole teratogenic potential, she was switched to intravenous liposomal Amphotericin B for duration of her pregnancy.

Conclusions: Disseminated coccidioidomycosis is a diagnostic and therapeutic challenge given variable pharmacokineitic and pharmacodynamics of limited available antifungal options into sensitive body spaces. Patient preferences, despite discussion of pregnancy risks, factor into therapeutic options.

Abstract 2022-54

A Unique Presentation of a Well-Functioning Adult with Methylmalonic Acidemia

Huda Quanungo, MS III; Huma Quanungo, MS III; Samantha Ratnayake, MD; Shikha Mishra, MD

Introduction: Methylmalonic acidemia (MMA) is a lethal autosomal recessive disorder diagnosed in infants involving inborn defects in amino acid metabolism. Mortality is reported at a median age of death of 2.2-years in patients with the *mut0* enzymatic subtype. We present a 29-year-old female with MMA mut0 subtype, or complete deficiency of methylmalonyl coA mutase, presenting with intellectual deficit without severe neurological dysfunction. Her clinical picture represents a rare presentation of MMA, as patients with her disease typically do not survive past the initial years of life.

Case Presentation: A 29-year-old Caucasian female with MMA subtype mut0, status-post liver and kidney transplant, and splenectomy presented to the emergency department with one episode of new-onset tonic-clonic seizure. Since then, patient was started on levetiracetam 1000mg PO BID. MRI Brain showed focal cortical/subcortical white matter signal abnormality involving the high left frontal lobe.

Upon further evaluation, she suffered from neonatal trauma causing mental delay, abnormal metabolic function with gastrotomy, benign thyroid cysts, and scoliosis of the lumbar spine. Nutrition was from nightly G-tube feeds, and protein-restricted diet. She has a left leg limp but is ambulatory without durable medical equipment for shorter distances. She can complete activities of daily living with assistance. She is well versed in communicating her needs effectively and holding structured conversations.

Discussion: MMA presents within the neonate period as a sepsis-like picture with poor feeding, vomiting, hypotonia, ketosis, acidosis, and seizures. Patients will experience multisystemic disease, involving neurologic, renal, intellectual, and ocular deficits. Isolated bilateral globus pallidus infarcts have only been reported in MMA. Developmental

delay was also found to be present in all MMA patients with cobalamin-C metabolism error. Kidney transplantation provides enough enzyme activity to allow for methylmalonic acid excretion. Kidney transplantation is recommended often in combination with a liver transplant as it can improve survival and quality of life and prevent further neurological deterioration. The metabolic conversion of propionate occurs in the liver; therefore, a transplant can compensate to avert metabolic decompensation. It has been concluded that patients who have had a liver transplant lived 1.5 years longer with 7.9 quality-adjusted life years than patients who were treated with nutritional management alone.

Mortality in patients with the mut0 subtype has changed dramatically over time. One study demonstrated that 100% of patients died at a median age of 1.6-years-old in the 1970, 50% died at 7.6-years-old in the 1980s, and 20% died at 2.2-years-old in the 1990s. Our patient is a well-functioning adult with liver and kidney transplants with intellectual disability but without severe neurological dysfunction. She has considerably exceeded mortality expectations.

Conclusion: In the last few decades, there have been breakthrough studies that show treatment options can prolong life expectancy and improve quality of life in patients with the mut0 subtype. Both kidney and liver transplants have proved beneficial, as evidenced by the decrease in mortality rates. As research in this area expands, both parents and patients with MMA can be hopeful about leading a life with minimized complications.

Abstract 2022-55

The Peripheral Central Line: Cannulation of the Accessory Azygos Vein in a Central Line Placement due to Anatomical Variations

Haidar Hajeh, MD; Austin Garcia, MS IV; Jesslin Abraham, MD; Valerie Espinoza, MD; Kasey Radicic, DO; Shikha Mishra, MD

Introduction: Central venous catheters are used to obtain venous access in unstable patients who may require vasopressors or other irritative substances. Given the relative risk of central venous catheter procedures, ultrasound guidance is used during placement with post procedural positioning confirmed by chest X-ray. On rare occasions, anatomical variations in neck veins disturb the usual course of the central venous catheter which is evident on chest imaging.

Case Presentation: A 36-year-old African American female with a medical history of sickle cell disease, steroid-refractory neuromyelitis optica (NMO) with multiple anatomical deformities and paraplegia presented to the hospital for sickle cell pain crisis.

The patient required a left internal jugular (IJ) central line as peripheral access could not be obtained given the patient's severe extremity contractures and inability to visualize the right IJ well. The line was placed with good venous return and without any complications. The placement within the IJ was confirmed with the ultrasound.

On confirmatory chest x-ray, the line coursed inferiorly, without terminating in the superior vena cava (SVC), and appeared coiled. A lateral CXR did not demonstrate coiling, but showed the catheter coursing inferiorly and posteriorly in the chest. A follow-up chest CT scan identified an anatomical variation in the accessory azygos vein. Throughout the patient's hospitalization, the CVC was used as peripheral access without complications.

Discussion: The internal jugular vein is one of the most common sites for central line insertion. The normal course of an internal jugular central venous catheter (IJCVC) is through the skin of the neck, down the internal jugular, through the brachiocephalic vein and into the SVC. The tip of the catheter should terminate in the SVC above the pericardial boundaries. Placement should always be confirmed with imaging before the use of the line.

In some patients, anatomical variations cause the IJCVC to take an abnormal course. In our patient, an abnormal connection was present between the accessory azygos and the brachiocephalic veins. This connection allowed the IJCVC to course through the internal jugular vein and into the accessory azygos vein which appeared on chest x-ray as coiled, posterior coursing.

The incidence of this variant is difficult to estimate given that most cases are discovered incidentally after IJCVC insertion, but some studies suggest an incidence of 1-2%.

The accessory hemiazygos vein diameter is half that of the SVC, therefore attempting a different site of central venous access should be done. In this case, the multiple anatomical deformities made it difficult to obtain a different peripheral or central access. Nevertheless, it was used as peripheral access and removed without complications as soon as it was no longer medically indicated.

Conclusion: Anatomical variations in neck veins are rare, but should always be considered when the IJCVC course appears abnormal on confirmatory chest x-ray. Multiple factors play a role in the decision of keeping or removing the line, but changing the site should always be considered if applicable.

Abstract 2022-56

Pellagra, From History Books to Present Clinical Practice: A Case Report of Alcoholic Pellagrous Encephalopathy

Sameer Narula, MS IV; Haidar Hajeh, MD; Shikha Mishra, MD; Kasey Radicic, DO

Introduction: Chronic alcoholism produces a wide range of electrolyte and vitamin deficiencies. Although Thiamine deficiency is more common, niacin deficiency should not be overlooked. Niacin (vitamin B3) deficiency causes pellagra which classically results in Dementia, Diarrhea, and Dermatitis. Alcohol dependence can induce or aggravate pellagra by causing malnutrition, gastrointestinal disturbances and nutritional deficits. We present a case of alcoholic pellagrous encephalopathy presenting with altered mental status, diarrhea, and atypical rash that improved after niacin treatment. If left untreated, pellagra will eventually lead to death.

Case Presentation: A 60-year-old male with a history of chronic alcohol abuse (last drink 2 days ago) presented with diarrhea for 5 days and a 2-day history of scaly macular erythematous rash localized to the arms, legs, and trunk. Vital signs were unremarkable except for a heart rate of 110 and labs were also unremarkable except for a lactic acid of 6.3 and phosphorus of 0.7. Punch biopsy was obtained and sent for analysis and the patient was discharged after improvement in his diarrhea.

Later that evening, he was brought in with altered mental status, generalized weakness and confusion leading him to crash his automobile. On physical examination, patient was disoriented to time, place and person, tremulous with visual hallucinations. Neurological exam including deep tendon reflexes was unremarkable and labs were unremarkable. He was started on Benzodiazepine therapy with thiamine supplementation for suspected alcohol withdrawals.

Over the next 7 days while on high-dose thiamine therapy, the patient had worsening mentation. Work-up including MRI, LP and EEG was unremarkable. Skin biopsy results were negative for vasculitis, dysplasia, or malignancy.
Given his worsening mentation on current management, an alternative diagnosis of pellagrous encephalopathy was pursued. Patient was supplemented with higher amounts of niacin with significant improvement in clinical condition within the next 48 hours. Given the rapid clinical improvement and the fact that niacin levels are usually normal even in some pellagra cases, niacin blood levels were not measured.

Discussion: Due to the similar presentations of alcohol withdrawal delirium (AWD) and pellagrous encephalopathy, pellagra is often mistaken for AWD. Although dermatitis and diarrhea are more specific to pellagra, it's uncommon to have dermatitis, diarrhea, and dementia in all cases. High suspicion is therefore extremely important in diagnosis.
Thiamine has been an essential part in managing alcohol withdrawal. However, thiamine alone can increase the demand for niacin leading to worsening of pellagra which is what happened to our patient.

Skin manifestations in pellagra usually resemble sunburns on sun-exposed areas. Alcoholic pellagra however lacks the typical rash presentation which usually develops quickly and resolves quickly after management. Serum niacin level measurement is

not usually helpful as it is usually normal in most cases.

Conclusion: Pellagra is rarely seen in developed countries nowadays. This case highlights the importance of considering this disease in alcoholics and severely malnourished patients as early treatment will prevent death.

Abstract 2022-57
What You See is Not What You Get: Germ Cell Neoplasm in the Setting of Disseminated Coccidioidomycosis
Haidar Hajeh, MD; Hazem Aboaid, MD; Everardo Cobos, MD; Kasey Radicic, DO; Arash Heidari, MD

Introduction: Coccidioidomycosis is a fungal infection primarily seen in the southwestern United States. Although it most commonly affects the lungs, it can spread to other organs such as the skin, joints or CNS and can range in presentation from asymptomatic to disseminated coccidioidomycosis (DC). DC typically presents with multiple nodular opacities on CT and MRI imaging, so it is important to consider other diseases, such as malignancy, that can have a similar appearance on imaging.

We present a case of a 30-year-old male with a history of disseminated cocci who presented with shortness of breath, cough, lower extremity paresthesia and fecal and urinary retention. Given the medical history and neurological symptoms, DC with lesions compressing the spinal cord was initially suspected. However, biopsy of the lesions revealed germ cell neoplasm.

Case Presentation: A 30-year-old Hispanic male with history of disseminated coccidioidomycosis presented to the hospital complaining of a two-week history of shortness of breath, chest pain on deep inspiration, generalized weakness and dry cough. Patient also endorsed lower back pain with bilateral lower extremity numbness, and bowel and urinary retention. He was being managed outpatient with antifungals for disseminated coccidioidomycosis.

Upon presentation, vital signs were significant for tachycardia of 128 and tachypnea of 24. Physical examination revealed decreased breath sounds on the right side, as well as decreased sensation in both legs and groin. A right neck enlarged lymph node was also noted. Chest X-ray revealed moderate right pleural effusion and left upper zone nodular opacities. CT and MRI showed numerous bilateral solid nodules, moderate right pleural effusion and widespread sclerotic and sclerotic/lytic lesions throughout the skeleton, some compressing the lumbar spine.

Antifungals were started for suspected DC due to the patient's history, but coccidioidomycosis serology showed IgM non-reactive so an alternative diagnosis of malignancy was considered. A biopsy of the anterior neck lymph node showed germ cell neoplasm (GCN) and thoracentesis showed exudative fluid. Ultrasound of the testes showed no abnormalities and the patient was started on chemotherapy for extragonadal GCN.

Patient later elected for palliative care and passed away shortly after.

Abstract 2022-58
STEMI Secondary to Blunt Chest Trauma
Larissa Morsky, MD; Angela Tseng, DO

Introduction: ST-elevation myocardial infarction (STEMI) due to coronary artery damage is a rare but potentially life-threatening complication of blunt chest trauma. This case is unique in that our patient was found to have a complete occlusion of his Left Anterior Descending (LAD) artery after being struck by a motor vehicle without any evidence of atherosclerosis or damage to the coronary arteries.

Purpose: A 46-year-old male arrived in the Emergency Department (ED) after he was struck by a motor vehicle traveling 30 mph. He presented with chest pain, shortness of breath and flank pain. Physical exam was notable for tachycardia, tachypnea, left chest wall tenderness to palpation and crepitus along with extensive abrasions. Chest radiograph revealed a left mid clavicle fracture, multiple left sided anterior and posterior rib fractures along with a hemothorax and a small pneumothorax. A 36F thoracostomy tube was placed in the ED. Given the patient's persistent chest pain and ST elevations noted on the cardiac monitor

serial EKGs were obtained. Findings were concerning for an acute anterior-lateral STEMI with ST elevations in leads I, aVL and V2-V6. Troponin was 0.9 ng/mL.

The patient was emergently transferred to a nearby hospital with interventional cardiac catheterization capabilities. He was found to have an isolated total occlusion of the mid LAD with normal left ventricular function, an ejection fraction of 55%. After aspiration thrombectomy and placement of a stent blood flow was re-established with 0% residual occlusion.

Discussion: There are reports in the literature describing Acute Coronary Syndrome (ACS) after blunt chest trauma secondary to damage of the LAD, the most common coronary artery affected, likely due to its proximity to the chest wall.[1]
Mechanisms of injury have been found to include: intimal dissection with resultant thrombosis, vessel rupture, rupture of existing plaque, embolism (of clot or bone marrow) and vessel spasm.

In this case the initial EKG showed ST elevations in V2-V5 without reciprocal changes. Subsequent EKG demonstrated dynamic changes with new ST elevations in lead I and AvL along with reciprocal depressions in AvR. This heightened our concern for an anterolateral MI.

Troponemia may be found in patients who sustain blunt chest trauma due to a variety of etiologies including cardiac contusion, aortic dissection, supply/demand mismatch etc. However, ST elevations with reciprocal changes in a specific vascular distribution should only be present in ACS.

The combination of a normal EKG and a normal cTnI (<0.4 ng/mL) almost completely excludes a clinically significant blunt cardiac injury and acute coronary syndrome, with negative predictive values ranging from 98% to 100%.
The treatment approach to STEMI following blunt chest trauma is immediate coronary angiography and revascularization with percutaneous intervention and continuation of dual antiplatelet therapy.

Conclusion: Acute MI after blunt chest trauma is a life-threatening diagnosis that can easily be missed. Although chest pain would not be unexpected following significant blunt trauma, ongoing pain should alert the physician to consideration of uncommon causes including myocardial ischemia.

Abstract 2022-59
Much Fuss About Nothing: Anesthesia Mumps Following Operative Repair of a Traumatic Orthopedic Injury
Haidar Hajeh, MD; Jeremy Miller, MD, MPH; Janpreet Bhandohal, MD

Introduction: "Anesthesia Mumps" refers to a benign disease process that characteristically resembles the well-known viral associated Mumps, manifesting as parotid gland swelling. While there continues to be various theories on the true pathophysiological mechanism that underlines this condition, current literature continues to highlight clinical patterns associated with its rare presentation. This benign complication has been documented following procedures necessitating general anesthesia, endotracheal intubation or even epidural anesthesia. The condition becomes apparent immediately in the postoperative course and can last as long as two weeks.

Case Report: A 25-year-old male presented to the emergency department after sustaining a gunshot wound to the left elbow. X-ray imaging showed fracture of the distal humerus with numerous metallic fragments. Patient was sent to the operating room for open reduction and internal fixation of the fracture and removal of the fragmented bullet. The case was concluded after 2 hours with no operative complications. After 8 hours postoperatively, the patient complained of swelling of the right cheek. He denied any associated pain, paresthesia or loss of sensation other than a mild feeling of localized "soreness and tension". Physical examination showed a right parotid swelling.

Assessment of the facial nerve revealed no abnormalities with no restriction in the movement of the temporomandibular joint. The enlargement was firm, mobile, without any associated warmth or erythema. Vitals were within normal limits. Mumps

antibodies test showed immunity and no acute infection. A clinical diagnosis of “anesthesia mumps'' was made and the patient was managed with supportive care and observation. On postoperative day two, the right parotid gland remained noticeably swollen, however markedly decreased in size from the day prior. With this significant clinical improvement, the patient was discharged before complete resolution of the swelling due to the benign nature of the condition. A phone call appointment was done later and the patient endorsed reduction in the size of the swelling and complete resolution 2 days after discharge.

Discussion: Differential diagnosis of unilateral parotid swelling includes multiple etiologies like bacterial infections, viral infections and tumors among others. The acuity of the symptoms, course of the swelling and immunization history may point to one diagnosis versus the others.

In anesthesia mumps, it is important to recognise the benign presentation of the disease (not affecting the facial nerve). It is also important to observe the patient for resolution or near-resolution of the swelling before discharge.

Anesthesia mumps remains a diagnosis of exclusion. Other diagnoses must be ruled out before establishing this benign diagnosis.

Conclusion: Anesthesia mumps is characterized by rapid resolution and benign presentation. It is important to exclude other causes of parotid swelling before establishing the diagnosis of anesthesia mumps.

Abstract 2022-60
The Unmasked Secret of Seronegative Autoimmune Encephalitis
Jade Douglas, MS III; Rebecca Chavez, MS III; Lam Chau, MS III; Ngon Trang, MD; Kasey Radicic, DO; Shikha Mishra, MD

Introduction: Autoimmune encephalitis is a disease in which antibodies develop towards neuronal cell surface and synaptic proteins. Clinical presentation is highly variable and can often be confused for other infectious or neuropsychiatric etiologies. We report a case of a young male initially presenting with seizures with a clinical presentation that raised a high suspicion for autoimmune encephalitis.

Presentation: A 23-year-old male with no known medical history presented with several episodes of new onset generalized tonic-clonic seizures, witnessed by family, for 9 days prior to presentation. Prior to admission, he was placed on low dose Keppra by his family physician with intention to taper off. On presentation, vital signs were unremarkable. He was awake, alert, and oriented x4 without focal deficits; appeared calm without delusions/hallucinations. Initial labs did not show signs of infection, abnormal electrolytes, or drug use.

Electroencephalography (EEG) showed no seizure activity but showed mild diffuse encephalopathy. Magnetic resonance imaging of the brain was unremarkable. On hospital day three, patient became severely agitated
with acute psychosis. EEG remained unchanged. Lumbar puncture did not show signs of infection, and anti-N-methyl-D-aspartate (NMDA) receptor antibodies were sent and remained pending at the time of discharge. Based on the patient’s recent onset of seizures and acute psychosis, there was a high suspicion for autoimmune encephalitis. Due to acute psychosis, steroids were not administered. The patient was started on Intravenous immunoglobulin for 5 days and experienced full recovery after 5 days. He was discharged on levetiracetam and phenytoin.

Discussion: There should be a high suspicion for autoimmune encephalitis in patients with subacute onset of neuropsychiatric symptoms, new onset seizures, and a reasonable exclusion of other causes. Patients should have a workup including neuroimaging, EEG, and lumbar puncture. The detection of a specific autoantibody is the definitive diagnosis. Most studies have been done on patients with anti NMDA receptor encephalitis. However, initiation of treatment should not be delayed while waiting for the results. Thus, a provisional clinical diagnosis must often be made in the absence of confirmatory lab results. Treatment with immunosuppressive therapy should be started as soon as possible. Antibody testing can later be used

to refine or alter treatment. Even in patients with negative antibody, treatment regimen should be based on the patients' clinical response. Antibody titers do not necessarily have a strong correlation with disease processes.

Conclusion: Autoimmune encephalitis is a disease process which can often be masked by its wide clinical presentation. Therefore, a young patient with a combination of subacute onset of psychiatric symptoms, new onset seizures, abnormal neuroimaging, and thorough consideration of alternate differentials should raise a high clinical suspicion for autoimmune encephalitis. Prompt recognition and treatment is linked with substantially improved outcomes.

Abstract 2022-62
Drug Rash with Eosinophilia and Systemic Symptoms (DRESS) Caused by Amiodarone
Akriti Chaudhry, MD; Chien-Wai Chiu, MD; Shikha Mishra, MD; Kasey Radicic, DO

Introduction:
Drug rash with eosinophilia and systemic symptoms (DRESS syndrome) is a serious idiosyncratic drug reaction. Cutaneous manifestations and other organ involvement is common. We present a unique case where a patient developed DRESS syndrome after the initiation of amiodarone. Currently, there is no literature that describes DRESS syndrome caused by amiodarone.

Method: A single patient case report was conducted after IRB approval.

Case Presentation: 61-year-old male with history of hypertension, dyslipidemia, and benign prostatic hyperplasia presented with five days of fever, cough, and shortness of breath. He was hypoxemic with oxygen saturation of 84% on room air and diagnosed with COVID-19. He completed a ten day course of Dexamethasone but remained hypoxic requiring high flow oxygen after two weeks. His clinical condition deteriorated with development of atrial fibrillation (AF) with rapid ventricular response (RVR) requiring amiodarone drip. He required intubation and failed to improve, eventually requiring tracheostomy. AF with RVR required frequent boluses of amiodarone before successfully converting to sinus rhythm after cardioversion.

While on amiodarone, he developed eosinophilia up to 3.1 x 10^3 cells/µL. Initially, eosinophilic pneumonitis secondary to amiodarone was suspected and patient was switched to sotalol and started on prednisone. Bronchoalveolar lavage was negative for eosinophilic pneumonitis. Due to continued AF with RVR, amiodarone was restarted. Several days later, he developed maculopapular rash on his abdomen, forearms, and thighs, with worsening eosinophilia. Given persistent AF with RVR, he received another external cardioversion with successful conversion to sinus rhythm which was maintained with increased dosage of amiodarone. His rash worsened, became more confluent and extended to involve the majority of his body. Skin punch biopsy showed focal chronic inflammation and focal spongiosis. DRESS syndrome due to Amiodarone was suspected due to a score of six on the Registry of Severe Cutaneous Adverse Reactions (RegiSCAR) Scoring System. Amiodarone was stopped and switched to sotalol. Given the severity of DRESS syndrome, he was treated with intravenous methylprednisolone 250 mg daily for two days and followed by oral prednisone 1 mg/kg with tapering over twelve weeks. Eosinophilia resolved and the skin rash improved after discontinuation of amiodarone.

Conclusion: DRESS syndrome can be caused by many different medications. Although there is no literature describing DRESS syndrome caused by amiodarone, it can be caused by any medication as seen in our patient. The RegiSCAR Scoring System is most commonly used to confirm diagnosis. Despite treatment with steroids, the offending agent must be discontinued for resolution of disease. Even after resolution, recurrent flares are commonly seen in patients with DRESS syndrome.

Abstract 2022-63
Unusual Pattern of Skin Desquamation in a Patient with ESRD and Uremia
Chien-Wai Chiu, MD; Hobart Lai, DO; Vishal Narang, MD; Sabitha Eppanapally, MD; Ayham Aboeed, MD

Introduction: Blood urea nitrogen (BUN) and Creatinine are common lab indicators for kidney injury, but notably, the values do not correlate well with clinical presentation. Instead, electrolyte disturbances and metabolic derangements resulting from renal failure play a more pivotal role.We presented a case with unusual distribution of skin desquamation, most likely from uremia secondary to CKD. The unique presentation may also be partially attributed to the herbs our patient was taking for symptomatic relief.

Method: IRB approved retrospective case report

Case Presentation: Here, we present the case of a 40-year-old Hispanic male with a medical history of recently diagnosed hypertension, who presented with constitutional symptoms including nausea, vomiting, rash, weight loss, and diarrhea. His symptoms started 3 months ago and gradually worsened with an increase in confusion, gait imbalance, insomnia, dyspnea on exertion, orthopnea, weight loss, and progressive oliguria. He tried medicinal herbal teas using Cedrón (Aloysia citrodora, also known as lemon verbena) and Muicle (Justicia spicigera, also known as Mexican honeysuckle) for symptomatic relief. Per literature review, Cedrón decreased creatinine clearance in an animal study, and Muicle has been associated with an increase in BUN and creatinine in an in vivo study.

His physical exam was significant for extensive skin desquamation, dry scaling and flaking, from the scalp, face, neck, arms more prominent on flexor surfaces, chest, abdomen, back, and thighs to the dorsum of feet. The skin involvement extended beyond the typical locations where uremic frost presents, most commonly on the face, neck, scalp, forearms, and chest, where the skin has the most pilosebaceous units. Labs showed significantly elevated BUN (197 mg/dL) and Creatinine (48.4 mg/dL) levels, as well as imaging with atrophic kidneys, consistent with chronic kidney disease, deteriorating into end stage renal disease (ESRD). He required hemodialysis, and his symptoms improved after dialysis.

Conclusion: We wish to highlight this unusual case of diffuse skin desquamation from uremia and suspected nephrotoxicity from medicinal herbs, as well as to review the constitutional symptoms of uremia, which should trigger a timely workup to prevent irreversible organ damage.

Abstract 2022-64
Association Between Cervical Ripening Balloon and Stability of Fetal Presentation during Induction of Labor for Singleton Pregnancies
Katie Van Cleave, DO; Shelley McCormack, MD, PharmD; Austin Garcia MS IV

Introduction: Induction of labor has many indications and methods with the overall goal of a vaginal delivery. In the United States, vaginal deliveries are planned usually only with a fetus in cephalic presentation. Fetal malpresentation occurs in a small percentage of term pregnancies and without an external cephalic version usually require a cesarean delivery. There is a robust aim currently to reduce the number of cesarean deliveries. Some obstetricians believe that one method, the cervical ripening balloon, can lead to instability of fetal lie at an increased rate compared to other methods such as misoprostol or dinoprostone. This ultimately may increase cesarean delivery rates.

Purpose: Our department has noticed fetuses changing from vertex to malpresentation following the use of the cervical ripening balloon at a seemingly increased rate. The primary outcome was to measure whether cervical ripening using a mechanical balloon is associated with conversion to fetal malpresentation during the induction process compared with induction using misoprostol or dinoprostone without the use of a balloon. The secondary outcomes included length of induction and route of delivery.

Methods: This was a retrospective chart review over a one-year duration (October 2020 - September 2021) of all patients that required cervical ripening during their admission to Kern Medical's Labor and Delivery unit. Cervical ripening was defined as required if any misoprostol (oral or vaginal), dinoprostone, and/or a cervical ripening balloon was used during the labor course.

The patients undergoing cervical ripening were divided into two cohorts, based on having received or not received a balloon. All patients were 18 years or older, pregnant at the time of admission with a singleton, viable fetus. At the start of induction all patients had a fetus in cephalic presentation confirmed with a point of care ultrasound.

Results: The analysis included 429 total patients who met the eligibility criteria. The total number of patients undergoing cervical ripening with a balloon was 230. A portion of this group received other cervical ripening agents in addition to the balloon (dinoprostone, misoprostol). The total number of patients undergoing cervical ripening without a balloon was 199. There were no significant differences in the baseline characteristics of age, gravity, parity, gestational age, body mass index, estimated fetal weight, ethnicity, amount of amniotic fluid, neonatal weight, or diabetic status.

The balloon group had zero patients with ruptured membranes at the start of induction versus 26 (13%) patients in the no balloon group (p= 5e-8); it should be noted our department does not place balloons in patients with ruptured membranes. The no balloon group had zero patients with prior cesarean sections, whereas the balloon group had 17 (7.4%) patients (p=0.0002). The no balloon group did have a greater starting favorability of the cervix based on bishop score (p=0.0004) and starting cervical dilation (p=0.002). In the balloon group, 107 patients (47%) also received oral misoprostol, 4 patients (1.7%) received vaginal misoprostol, and 32 (14%) dinoprostone. In the group that did not receive a balloon, 177 (89%) received oral misoprostol, 6 (3%) vaginal misoprostol, and 37 (19%) received dinoprostone.

Analysis of the primary outcome revealed change in fetal presentation in a total of 6 (1.39%) patients. Of the patients with change in fetal malpresentation, 4 (1.7%) of these patients received a cervical ripening balloon while 2 (1.0%) did not receive a balloon, a difference with no statistical significance with p= 0.69. Adjusting the analysis to control for the initial bishop score, prior cesarean section, and membrane status continued to show no statistical significance.

In the cervical ripening balloon group, the average length of induction was 33.4 hours (SD 18.0) and in the group without a balloon length was 23.5 hours (SD 14.9) which is a statistically significant difference with p= 1e-9. In the balloon group 62 patients (27%) were ultimately delivered via cesarean section versus in the group without a balloon 20 patients (10%) with p= 0.00002.

Conclusions: Change in fetal lie is a relatively rare occurrence during the cervical ripening process and there is no statistical difference in rate of this occurrence in patients undergoing cervical ripening with or without a cervical ripening balloon. Cervical ripening balloons have a statistically significant increase in length of induction as well as an increased cesarean delivery rate. Having a multitude of tools available to achieve cervical ripening is important for obstetricians and we should not avoid cervical ripening balloons to decrease rates of fetal malpresentation, cesarean sections, and length of inductions.

Abstract 2022-65

Appropriate Use of Imaging in Patients with Non-Traumatic Low Back Pain

Mike Chin, DO; Larissa Morsky, MD

Introduction: Back pain is among the four most common outpatient presentations in the emergency department. Imaging is frequently ordered for these patients, resulting in increased medical costs, healthcare utilization, and radiation exposure.[1] Evidence-based guidelines have recommended against routine imaging (X-ray, MRI, CT scans) due to its association with poorer patient outcomes, over-diagnosis, and increased spinal surgery.[2] Thus, it is critical for providers within the emergency department to identify patients without emergent causes of low back pain and to develop effective strategies to guide patient care.

Purpose: The objective of this initiative is to reduce unnecessary imaging in the emergency department and primary care clinics for uncomplicated low back pain. In alignment with NCQA HEDIS guidelines for use of imaging studies for low back pain, Kern Medical set an allowable gap of 71% during the assignment period. Dates 8/23/21, 9/6/21, and

9/20/21 demonstrated a gap of 62%, 64%, and 65% respectfully. Due to the consistent values below the metric goal, our strategy was to provide focused retraining of identified providers with in-person consultations and supportive clinical documentation to assist in low back pain management.

Method: Captured metrics are in alignment with HEDIS metrics for use of imaging studies for low back pain. The numerator consists of an imaging study with a diagnosis of uncomplicated low back pain in the 28 days following the index episode start date. The measure is reported as an inverted rate [1– (numerator/eligible population)]. A higher score indicates appropriate treatment of low back pain.

We randomly sampled 44 patient encounters that fell into the numerator to identify and stratify fallouts. Root-cause analysis performed through auditing and tagging patient encounters with inappropriate imaging to delineate error patterns within our emergency department. It was found that a physical exam finding of straight leg raise or sciatica symptoms attributed to 31% of unnecessary imaging in uncomplicated low back pain. Retraining documentation and in-person provider consultation was tailored to target specific gap with:

1) Identifying most common errors in our emergency department

2) Red Flags Exclusion Criteria and 3) Imaging recommendations by suspected disorders. A template was additionally made available to all Emergency Medicine and Primary Care clinic providers.

Results: Review of metrics after implementation of PDSA demonstrated improvement in appropriate utilization of imaging in uncomplicated low back pain. On 10/4/21, the metric goal was reached at 71% from previously 65%, marking the first date to reach an acceptable goal since 8/10/21. However, subsequent months trended downwards below acceptable goal. 10/18/21 and 11/1/21 demonstrated 69% and 68% respectfully.

Discussion: The purpose of this Quality Improvement Project (QIP) was to initiate a small scale PDSA to identify trends in provider reasoning leading to imaging in uncomplicated low back pain and to target decision making. A significant improvement was observed and illustrated a low cost and effective strategy in reducing unnecessary imaging. However, this QIP also revealed the difficulties of a sustainable solution to a multifactorial challenge.

Our retraining documents did provide prolonged improvements. Supportive guideline documentation without recurrent in-person training demonstrated poor effectiveness in re-prompting providers. Additionally, our QIP did not consider patient education, as often a patient's desire in locating the source of nonspecific low back pain and “Imaging for reassurance” can often affect clinical decision.

Conclusion: Supporting documentation and in-person retraining have provided effective transitory improvements in reducing unnecessary imaging in uncomplicated low back pain. By providing frequent in-person training, identifying recurring fallout providers, and patient education, we hope to provide sustainable changes for this multifactorial challenge.

Abstract 2022-66
Rare Case of Idiopathic Rhabdomyolysis in a 3-Month-Old Infant with Multiorgan Dysfunction
Arti Patel MS III; Thiagarajan Nandhagopal, MD

Introduction: We present a case of a 3-month-old infant with rhabdomyolysis likely due to multiorgan dysfunction and to our knowledge, there are no documented cases of rhabdomyolysis secondary to multiorgan dysfunction in this age group.

Purpose: The patient is a 3-month-old male infant who presented with altered mentation and decreased responsiveness after falling asleep and missing a few feeds. On admission, he was febrile, hypotensive and tachycardic with signs of dehydration on physical exam. Labs were significant for hyperkalemia, elevated creatinine, hypoglycemia, prolonged PT and aPTT and elevated liver enzymes, procalcitonin, ferritin, CRP and creatine kinase. Urine toxicology was negative. Urinalysis was positive for blood and ketones. Viral molecular testing for respiratory pathogens and blood and urine cultures

were negative. CXR was unremarkable. Birth history is unremarkable, and the newborn screening was negative for metabolic conditions.

Although creatinine improved and his mentation and responsiveness improved markedly after fluid resuscitation and empiric ceftriaxone, liver enzymes and creatine kinase were up trending. He was transferred urgently for higher level of care, where further workup for metabolic etiologies was also negative.

Discussion: Severe dehydration due to the lack of feeding is presumed to be a factor for multiorgan dysfunction in this patient. However, for the degree of dehydration, the renal insufficiency, muscle and liver injury are atypical for missing a few feeds.

Although the patient showed clinical signs of dehydration, markedly increased levels of creatine kinase are more likely due to multiorgan failure. Few missed feeds are unlikely to cause multiorgan dysfunction in this infant. Other causes of rhabdomyolysis were ruled out because of negative blood and urine cultures, negative viral molecular testing for respiratory pathogens, negative newborn screen for metabolic diseases, and absence of signs of trauma. Furthermore, acute kidney injury is likely a result of dehydration in combination with rhabdomyolysis. Early diagnosis of rhabdomyolysis and subsequent resuscitation may have contributed to a favorable outcome.

End organ hypoperfusion secondary to severe dehydration likely contributed to ischemic hepatitis, as marked by the elevated aminotransferase levels. Elevated levels of ferritin, procalcitonin and CRP are typically seen in states of inflammation or infection, neither of which our patient had. Studies show that CRP and procalcitonin elevation may also be due to muscle injury and rhabdomyolysis.

Interestingly, his clinical appearance did not correlate to the severity of his laboratory derangements and abnormal vital signs. He was feeding well, playful and non-toxic soon after the administration of intravenous fluids. Adequate fluid resuscitation and monitoring of improvement in markers of tissue and organ injury is crucial in preventing irreversible multiorgan failure. The etiology of this patient's presentation is not clearly defined as many different organ systems were involved and would be an interesting recommendation for further research.

Conclusion: In infants who present with multiorgan dysfunction, evaluation of creatine kinase should be included, as fluid resuscitation plays an important role in the management of rhabdomyolysis. Furthermore, the age of this patient highlights a unique feature of this case, as there are no documented cases of rhabdomyolysis secondary to multiorgan dysfunction in an infant.

Abstract 2022-67
Intractable Leg Pain on a Diabetic Patient
Sameer Narula, MS IV; Norka Quillatupa, MD

Introduction: Diabetic muscle infarction, AKA spontaneous diabetic myonecrosis, describes spontaneous ischemic necrosis of skeletal muscle secondary to uncontrolled Diabetes Mellitus (DM). It is a rare complication, most patients will present concurrently with nephropathy, neuropathy, retinopathy, and/or hypertension. It presents with pain, swelling, and tenderness – notably in the thigh or calf. Pathogenesis involves vasculopathic changes associated with longstanding uncontrolled DM. Muscle biopsy shows necrosis and edema is seen with occlusion of arterioles and capillaries by fibrin.

Treatment includes supportive care with analgesics and anti-inflammatory medications. Short term, symptoms resolve, but most patients will relapse given their uncontrolled DM.

Case Presentation: A 67-year-old female reported to clinic for routine visit. PMH significant for hypertension, DM, neuropathy, nephropathy and retinopathy. Patient utilizes the following medications: Amlodipine 10mg, aspirin 81mg, atorvastatin 40mg, gabapentin 300mg, HCTZ 25mg, losartan 100mg, Metformin 500mg twice daily, and Glargine 15 units daily.

States right leg pain has persisted for one year, however in past 2 weeks worsened. Pain rated 10/10 (from 4/10), localized to anterior of the leg, characterized as sharp, worse with walking or touch,

improves with rest. No attempted pain medications for relief at the time. Patient checks blood sugars, ranges 120-130s, manages medications and blood sugars personally. Upon physical examination, patient is an elderly obese female, ambulates with assistance of a walker, noted in acute distress.

Examination of lower extremities: Right leg: tenderness to light palpation diffusely around the extremity, negative straight leg test, tenderness to manipulation of the hip. +1 pitting edema. Left leg: +1 pitting edema, no tenderness associated. Labs as follows:

Sodium Level	134 mmol/L Low
Potassium Level	6.4 mmol/L Critical
Chloride Level	104 mmol/L
CO2	26 mmol/L
Calcium Level	9 mg/dL
BUN	46 mg/dL High
Creatinine Level	1.39 mg/dL High
Glucose Level	384 mg/dL High
Anion Gap	4 mmol/L Low
eGFR AA	46 mL/min/1.73 m2 Low
eGFR Non-AA	38 mL/min/1.73 m2 Low
Albumin Level	2.9 g/dL Low
Alk Phos	140 unit/L High
ALT	30 unit/L
AST	22 unit/L
Bilirubin Total	0.3 mg/dL
Phosphorus Level	3.6 mg/dL
Protein Total	7 g/dL
CRP	<0.30
CK	59 unit/L
Parathyroid Hormone, Intact	37 pg/mL
T4 Free	1.4 ng/dL
TSH	1.023 mcIntlUnit/mL
Hemoglobin A1c	9.8 % High
eAvg Glucose	235 mg/dL
U MicroAlbumin	25.2 mg/L
U Creatinine	63.6 mg/dL
U Albumin/Creatinine Ratio	39.6 mcg/mg Cr High
Vitamin D 25 OH	28 ng/mL Low

Discussion: Due to the rarity of diabetic myonecrosis, it is not considered a differential when treating patients with lower extremity pain. Differentials for lower extremity pain include; DVT, cellulitis, arterial thrombosis, peripheral arterial disease, etc[2]. However, with an uncontrolled diabetic patient with other vascular complications (i.e., neuropathy, retinopathy, etc.), this pathology should be considered due to the pathogenesis of the conditions related to uncontrolled glucose levels.

As seen in our patient, she had difficulty controlling her diabetes and maintaining glucose control - and developed diabetic vascular complications, now symptoms consistent with diabetic-myonecrosis. Due to non-compliance, symptoms progressed and will continue or worsen without improved management. It would be prudent to educate the patient further about diabetes, and worsening complications. Management could include higher frequency of visits and labs to track progression to ensure glycemic control, and decreasing HBA1c levels. Additionally, requesting extensive glucose logs between visits to analyze with the patient and discuss abnormalities.

Uncontrolled DM patients with severe lower extremity pain that has resolved previously, will likely recur. We argue given the distress to patients presenting with the condition, patients should be counseled to understand the condition. Furthermore, creating a therapeutic alliance with patients to control their diabetes will yield benefits, treating other diabetic vasculopathic complications as well.

Conclusion: Diabetic myonecrosis presents in poorly controlled diabetic mellitus patients. Although a rare complication of Diabetes mellitus, should be considered in patients presenting with muscle pain, specifically in the lower extremities, broadening differentials of lower extremity pain.

Abstract 2022-68
A Cutaneous Cue for HIV: A Cryptococcosis in Primary Care Case Report
Amy Arreaza, MSN, FNP-BC; Hector Arreaza, MD

Introduction: This is a case of cutaneous cryptococcosis in a patient with no prior known immunosuppression. Recognizing the presentation of cutaneous cryptococcosis should prompt clinicians to assess the immune status of affected patients to provide comprehensive and successful treatment.

Purpose/Case Presentation: A 52-year-old generally healthy female presented to her primary care clinic with complaint of a facial skin lesion for 20 days. A review of systems was negative except for the skin lesion. She reported a new male sexual partner for the last 7 months, with 2 previous partners. The

physical exam was normal except for a sole facial lesion located adjacent to the left nasolabial fold. It was flesh colored, 1 cm in diameter, and umbilicated. Initial lab work divulged a positive HIV 1 antibody, CD4 count of 77 cell/uL, and HIV viral load of 312 copies/mL. Shave biopsy of the lesion and tissue culture revealed *Cryptococcus neoformans.* Treatment was initiated with fluconazole 400 mg daily to target *Cryptococcus neoformans* and with bictegravir-emtricitabine-tenofovir alafenamide 50-200-25 mg daily for AIDS. The patient was also started on sulfamethoxazole-trimethoprim 800-160 mg twice a day for prophylaxis for pneumocystis pneumonia and toxoplasmosis. The patient's skin lesion resolved within 2 months of beginning treatment and by that time her CD4 count increased to 82 cell/uL and HIV viral load decreased to 44 copies/mL. The patient was pleased with the skin results and stated she felt "amazing and blessed."

Discussion: In this case the patient presented with cutaneous complaints only. Cryptococcal lesions may manifest as papules, pustules, plaques, purpura, superficial granulomas, ulcers, cellulitis, and abscesses [1]. In patients with advanced HIV, skin lesions may appear to be umbilicated [2]. The lesion in this patient case was umbilicated and this warranted investigation for HIV. Immune suppression is a critical underlying factor involved in the development of cryptococcal disease. In addition to HIV/AIDS, diseases such as diabetes, chronic liver disease, chronic renal disease, and the prolonged use of steroids and organ transplantation are commonly associated with cryptococcal disease [3]. In this case a thorough patient history was conducted and diagnostic tests were performed to evaluate for any evidence of immunosuppression.

Conclusion: This patient's peculiar cutaneous presentation was a cue for the primary care provider to conduct a thorough investigation into the immune status of the patient. The investigation resulted in a diagnosis of cutaneous cryptococcosis as well as AIDS. Treatment was initiated promptly with antifungal therapy and anti-retroviral therapy. This provided for a successful patient outcome, including resolution of the skin lesion all the while reducing risk for further AIDS related morbidity or disability. Immunosuppression is a critical underlying factor involved in the development of cryptococcal disease. Early evaluation of the immune status in a patient presenting with cutaneous cryptococcal lesions is key in achieving a successful patient outcome.

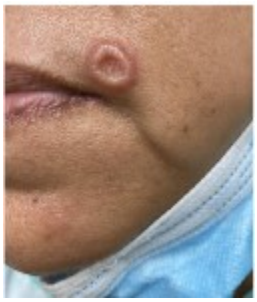

Figure 1. Skin lesion on face, day of initial primary care encounter

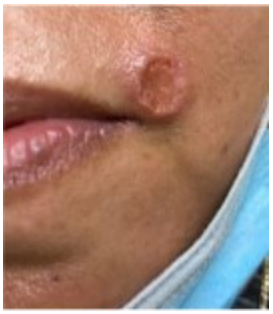

Figure 2. Skin lesion on face, day treatment was initiated

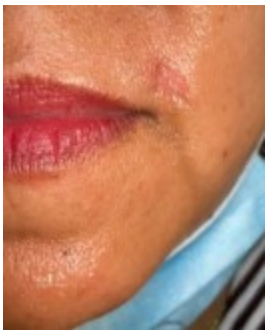

Figure 3. Skin lesion on face, healed, 2 months post initiation of treatment

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Abstract 2022-69

Antineutrophil Cytoplasmic Autoantibody Negative Pauci-Immune Glomerulonephritis in a Young Female with Systemic Lupus

Stephanie Garcia, MSIV; Roopam Jariwal, MD; Marah Sukkar, MD; Sabitha Eppanapally, MD; Shikha Mishra, MD

Introduction: Classically, Systemic Lupus Erythematosus (SLE) presents with lupus nephritis (LN), due to immunoglobulin (Ig) and complement deposits. Preformed Ig(s) deposit in the glomeruli leading to clinically evident Lupus Glomerulonephritis (GN). Up to one half of patients with SLE and 10% of patients with LN will advance to end-stage kidney disease.
Pauci-immune is a form of Crescentic GN (CrGN) lacking immune reaction, except for minimal accumulation of fibrin and presents as a renal limited vasculitis, distinguished by absence of circulating basement membrane antibodies and negative findings on renal immunofluorescence.

Case Presentation: 23-year-old Hispanic female with a history of asthma and SLE diagnosed at age 12 presented to the emergency department with progressive fatigue, body aches, shortness of breath, dark and cloudy urine. She was treated with systemic steroids, hydroxychloroquine and mycophenolate mofetil in the past with minimal symptom improvement and was now on azathioprine with disease well controlled. Physical exam was unremarkable. Labs were significant for BUN 43, creatinine 1.27 mg/dL, erythrocyte sedimentation rate >100mm/hr, C-reactive protein17.60mg/dL, Urine albumin/creatinine ratio 4,440.7mcg/mg Cr. Urine studies showed large blood, >300mg/dL protein, 2-5 red blood cells(RBC) and 20-50 WBC with WBC clumps. Antinuclear antibody (ANA), was positive at 1:320. Anti-double stranded deoxyribonucleic acid positive. Complements were normal. ANCAs and anti-glomerular basement membrane (GBM) antibodies were negative. She was started on IV steroids for possible Lupus GN. Renal biopsy showed acute tubular necrosis and tubulointerstitial nephritis likely secondary to pauci-immune CrGN and arteriolar nephrosclerosis with five glomeruli showing trace IgG, IgM, C3, and lambda light chains with less than 50% podocyte foot effacement. No diagnostic features of immune complex-mediated LN. The patient was given rituximab and responded well.

Discussion: Microscopically, ANCA positive and ANCA negative pauci-immune CrGN present with focal necrotizing CrGN with minimal to no glomerular immunoglobulins. There is a disruption of the GBM causing Bowman's space to be overtaken by cellular proliferation accompanied with fibrin deposits which are then transitioned into fibrinoid necrosis via inflammatory mediators and leukocyte infiltration. Crescentic formation of glomeruli are fashioned by matured macrophages and epithelial cell proliferation. Neutrophils are thought to have a major role in ANCA negative pauci-immune CrGN. ANCA-negative pauci-immune CrGN may be a distinct disease entity from ANCA-positive pauci-immune CrGN. ANCA negative patients are much younger with significantly decreased levels of proteinuria and prevalence of nephrotic syndrome. ANCA positive pauci-immune CrGN has a slower progression of disease and higher probability of extrarenal involvement. Both progress towards renal failure. Treatment is similar for both. Corticosteroids are the first line treatment in combination with cyclophosphamide. Definitive biopsy results of ANCA negative pauci-immune CrGN, led to a change in management in our patient and she received rituximab to preserve fertility.

Conclusion: ANCA negative pauci-immune CrGN is an uncommon presentation of kidney damage in the setting of SLE. Despite the source, progression of disease ends with renal failure in ANCA positive/negative CrGN and LN. We believe ANCA negative CrGN warrants further investigation. It may be considered a separate entity from ANCA positive CrGN.

Abstract 2022-70
Non-Convulsive Frontotemporal Lobe Epilepsy Secondary to Methamphetamine Intoxication
Vishal K. Narang, MD; Haidar Hajeh, MD; Nishan Mangat, MD; Greti Petersen, MD

Introduction: Studies demonstrate stimulants including methamphetamine have been implicated in convulsive seizures. However, frontotemporal seizures are characterized by behavioral changes and automatisms rather than convulsive seizures and have a worse prognosis when accompanied by convulsions. Methamphetamine has been shown to affect the frontal lobe resulting in behavioral changes, and a few cases also describe temporal epilepsy secondary to methamphetamine. We demonstrate a case of a 48-year-old-male who presented in a confused state with behavioral

changes and was diagnosed with frontotemporal epilepsy due to methamphetamine intoxication. Methods: Ethical approval from IRB at Kern medical was obtained (ID# 21092). A single-patient case review was conducted.

Case Report: A 48-year-old male with a history of type 2 diabetes mellitus presented with five days of headache and confusion. On presentation, he was oriented only to self and city but had limited responses to questions and an inability to follow commands. His physical exam was remarkable for blood pressure of 168/117 mmHg, and heart rate of 114 bpm. A neurological exam demonstrated an unsteady gait and lack of orientation to the exact date or situation. The remainder of the physical exam was unremarkable. Laboratory studies showed elevated glucose of 544 ng/dL with the normal comprehensive metabolic panel, complete blood count, and TSH. Infectious workup, including testing for syphilis and HIV, was negative. Urine analysis was normal however drug screen was positive for methamphetamine. He underwent CT and MRI of the head which was negative for any acute or chronic pathology. He was given insulin and his elevated glucose level was corrected. During hospitalization, he remained cooperative with the exams but would exhibit episodes of confusion and limited understanding. Lumbar puncture showed 1 WBC, 80 mg/dL glucose and protein of 69 mg/dL. CSF antibodies were positive for HSV-1 and HSV-2 IgG however HSV-1 and HSV-2 IgM antibodies were negative. During first day of hospitalization, the neurological exam remained unchanged. He underwent continuous video electroencephalogram (CVEEG) monitoring which exhibited class III abnormal seizures with onset from the left frontotemporal lobe. He was given 2 grams of Keppra and Dilantin 100mg every 8 hours intravenously and remained on CVEEG monitoring. After starting antiseizure medications, his clinical and neurological status improved remarkably with complete recovery of consciousness and alertness. The EEG revealed resolution of nonconvulsive seizures from the left frontotemporal lobe. No interictal epileptic discharges were seen.

Discussion: Epilepsy has various subtypes and can present from convulsions to aphasic and behavioral changes. These seizures may be labeled as complex focal seizures. Methamphetamine use is known to trigger convulsive epileptic events. It affects neurotransmitter uptake which may lead to metabolic derangements and seizures. Autoimmune encephalitis is also known to present similarly, as MRI findings may not always be present. However, lumbar puncture in autoimmune encephalitis typically demonstrates lymphocytic pleocytosis and elevated protein. Amphetamine use should be considered in the differential diagnosis of first-time seizures as studies have shown that 4% of all first-time seizures are methamphetamine-associated. These presentations varied from disorientation to generalized tonic-clonic seizures. We demonstrated improvement in his clinical condition with cessation of offending agents (methamphetamine) and initiation of antiepileptic therapy leading to the conclusion that this patient had non-convulsive frontotemporal lobe epilepsy secondary to methamphetamine intoxication.

Abstract 2022-71
Physostigmine Use in Delirium
Atish Vanmali, MD; Elizabeth Siacunco, DO; Kenneth Whitlow, DO

Purpose: To discuss the underutilization of physostigmine in treatment of undifferentiated altered mentation.

Introduction: Physostigmine is used to reverse known anticholinergic toxicity in overdoses with antihistamines, atropine, and TCAs. Due to its controversial history, it is now more conservatively used in ERs, though the drug can be used for both therapeutic and diagnostic purposes.

Case Report: 52-year-old male brought into the ED with AMS, found rummaging in trash with unremarkable vitals. Patient mumbles incoherently, follows commands with difficulty, and oriented to himself only. Pupils are equal, reactive, and round. No head trauma seen. Prior visit for AMS prior with similar exam, with UDS positive for methamphetamine. Labs and CT scan were negative, with patient's mental status cleared by morning (A/O x4).

Noted persistent AMS after 18 hours with incontinence and full bladder with overflow incontinence, also noted lower extremity weakness and decreased sensation. MRI brain and lumbar spine was obtained with no acute findings. Lumbar puncture was unsuccessful. Skin examination was dry despite fluid rehydration.

Given symptoms consistent with anticholinergic toxicity, physostigmine was given. Mentation returned within 5 minutes, with oriented x4 and following commands. He was admitted for further management and neurologic monitoring.

Discussion: Undifferentiated altered mental status has many etiologies, including anticholinergic toxicity. Symptoms of anticholinergic toxicity include mydriasis, dry skin/mucus membranes, flushing of skin, fever, urinary retention, and delirium. Anticholinergic medications are present in many forms. Illicit drugs are known to be adulterated with compounds to increase effect. In 1995 and 1996, at least 325 patients presenting with heroin overdose had signs of anticholinergic toxicity, thought to be due to mixing with scopolamine. Drug bulking may be the source of a patient's delirium. Specific for anticholinergic delirium, physostigmine is particularly effective because it crosses the blood-brain barrier.

Physostigmine was used empirically to reverse undifferentiated delirium, similarly to naloxone's use on unresponsive patients today. Use is now limited after a few studies have questioned its safety. Adverse reactions included two patients with seizures due to TCA overdose developing asystole after physostigmine. Another study questioned that physostigmine increased the risk of seizures in tricyclic antidepressant overdose. Newer studies are showing improved safety profiles for physostigmine. When compared to benzodiazepine, there was a significantly lower incidence of complications in those initially treated with physostigmine.

Studies are also showing effectiveness in use for anticholinergic toxicity. A study evaluated the use of physostigmine by a toxicology service, showing 80% of patients had improvement. In the ER, benzodiazepines are frequently used for agitation and delirium (especially if thought to be toxicology-related) while a retrospective study showed physostigmine significant improvement in delirium control and agitation compared to benzodiazepines.

Abstract 2022-72
Vaginal Pain and Discharge
Ty Tran, MD; Minerva Pineda, MD; Yufan B. Chen, MD; Lev Libet, MD

Introduction: This is a case of a vaginal cutaneous fistula. In our review of the literature there are no cases of vaginal cutaneous fistula secondary to a vaginal foreign body.

Purpose: A 24-year-old female presented to the emergency department for vaginal pain and discharge. She was seen four weeks prior for vaginal bleeding but chose to sign out against medical advice at that time. The patient has bipolar type schizoaffective disorder and concomitant methamphetamine use. She presents for vaginal pain and discharge. On examination she is febrile to 38.1 deg C, heart rate of 101 beats per minute, blood pressure is 112/76 with normal oxygenation on room air. Her abdominal examination is benign. Her external genitalia/perineum shows a 1cm wound to the right medial thigh just lateral to the crural fold with surrounding induration but no erythema. On pelvic examination purulent discharge is present, 3cm deep into the canal is a foreign body that crosses the vaginal vault disappearing in the left lateral vaginal wall. A CT of the pelvis revealed a bent fork at nearly 90 degrees with its neck and tines directed inferiorly into the right thigh and the handle is directed laterally into the left thigh through the obturator foramen and abutting the left internal iliac vessels. Gentamicin and Clindamycin were started and the patient was later taken to the operating room with gynecology. Two foreign bodies were removed, a plastic fork and a non-metallic washer. A 5cm vaginal-cutaneous fistula was noted on the right and was well epithelialized. The wounds were repaired and the patient made a full recovery.

Discussion: Vaginal foreign bodies are a common occurrence. The gynecological literature describes retrieval of pessaries, tampons, objects of stimulation, and illicit drugs. Polyembolokoilamania is a disorder where the insertion of a foreign body into a body orifice is associated with psychiatric illness. The presence of a foreign body for a

prolonged period of time may be complicated by infection, abscess formation, perforation, and fistula formation. Fistulas present in multiple ways; however, the presence of a vaginal cutaneous fistula is rare. The only cases of vaginal-cutaneous fistulas reported in the literature are a surgical complication secondary to insertion of tension-free vaginal tape used for stress incontinence.

Conclusion: A thorough physical examination was vital for arriving at the diagnosis in this case. This is a novel case of a vaginal foreign body causing a vaginal-cutaneous fistula. When in the context of psychiatric illness as in this case, a multidisciplinary team will be required for treatment.

Abstract 2022-73

A Case of Takotsubo in a Critical Post Op SARS-CoV Patient

Ratha Kulasingam, MD; Harendra Ipalawatte MS IV; Roopam Jariwal, MD; Leila Moosavi, MD; Aslan GhandForoush, DO; Ralph Garcia Pacheco, MD; Shikha Mishra, MD; Fowrooz Joolhar, MD

Introduction: It is well documented that Coronavirus Disease 19 (COVID-19) patients who suffer cardiac injury have a higher mortality rate, however the exact mechanism of cardiac injury and potential complications are still unknown. Takotsubo Cardiomyopathy (TCM), which was first described in 1990 in Japan, is characterized by a transient systolic and diastolic left ventricular dysfunction with a range of wall motion abnormalities predominantly affecting women often following an emotional or physical trigger. Though TCM is seen less commonly as a cardiac complication of COVID-19, with increasing rates of cardiovascular events due to COVID-19, TCM should be taken into consideration as a potential diagnosis for a COVID-19 positive patient.

Case Description: The case of a 75-year-old female with a history significant for hypertension, type 2 diabetes mellitus, hyperlipidemia, and gastroesophageal reflux disease presented to the Emergency Department after a ground level fall and subsequent left hip pain. Upon primary survey, EKG showed persistent sinus tachycardia in the 130-150s, with intermittent borderline dynamic changes and a troponin that was mildly elevated at 0.10, and an initial false negative COVID-19 test. Preoperative echocardiogram showed normal left ventricle size, no regional wall abnormalities, and a left ventricular ejection fraction (LVEF) of 60-65%. In post-operative care, EKG illustrated dynamic changes in the form of ST elevation in the lateral precordial leads, as well as an increase in the cardiac troponins, from 0.07 to 3.51. A subsequent echocardiogram illustrated a drop in her ejection fraction from 60-65% to 30-35%, with evidence of left ventricular systolic dysfunction that was not noted on previous echocardiograms.

Following the Mayo clinic diagnostic criteria, this patient met the diagnostic criteria for TCM, as evident by new electrocardiograph findings, non-obstructive cardiac catherization findings, echocardiogram findings illustrating transient left ventricular systolic dysfunction, modest elevations in cardiac troponins as well as the patient being a post-menopausal female. Subsequent echocardiogram on 2 week follow up showed a rebound in her ejection fraction to 50-55%.

Discussion: Possible outcomes of TCM include cardiogenic shock, respiratory failure, and death. It is imperative that clinicians consider TCM as a possible diagnosis when treating COVID-19 patients that may be exhibiting cardiac complications. Frequent ECG monitoring and a vigilant differential should include TCM in patients presenting with COVID-19.

Abstract 2022-75

A Case of Concurrent Disseminated Coccidioidomycosis and Embryonal Carcinoma when Lice and Fleas Coexist

Michael Ke, MD; Arash Heidari, MD; **Michael Valdez, MD**; Allen Tsiyer, MD; Rasha Kuran, MD; Royce Johnson, MD

Introduction: Coccidioidomycosis (CM) is a fungal infection endemic to the southwestern United Stated with a wide range of clinical presentations depending on the infected organ systems. CM causes a primary pulmonary infection. One percent of cases disseminate, via hematogenous or lymphatic spread. It is in these cases, that more severe symptoms may present and potentially overlap the characteristics of other systemic illnesses. Herein is a case of CM disseminated to

lymph nodes with concomitant metastatic embryonal carcinoma. It is difficult to identify the primary etiology for many components of this patient's presentation and the relationship between these two concurrent disease processes is not entirely clear. Factors that may contribute include the phenomenon of locus minoris resistentiae, comorbidity, or a shared immune response between infectious organisms and malignant cells.

Purpose of Study: A 24-year-old man from the central valley of California presented with a new rash. Examination showed periorbital edema and diffuse raised and hyperpigmented skin lesions. Differentials included psoriasis and CM. CM serology showed nonreactive IgM immunodiffusion (ID), very weakly reactive IgG ID, and complement fixation (CF) titer <1:2. The patient was lost to follow-up but returned 6 weeks later with a 17-pound weight loss, progression of the rash, and proximal muscle weakness. Examination was consistent with a heliotrope rash and CK was elevated. He was prescribed prednisone 60 mg daily for presumed dermatomyositis. 2 weeks later, he developed fevers and CM CF titer increased to 1:16. He was started on fluconazole 800 mg daily. 5 weeks later, he developed diffuse lymphadenopathy and imaging showed multiple pulmonary nodules, a destructive lesion in the iliac bone, and retroperitoneal and pelvic lymphadenopathy. Repeat CM CF titers increased to 1:64 and the patient was started on liposomal amphotericin B infusions. Shortly thereafter, new retroperitoneal and right testicular masses were identified. Histopathology from both orchiectomy and retroperitoneal mass biopsy revealed embryonal carcinoma while right inguinal lymph node excisional biopsy showed granulomatous inflammation with endosporulating spherules diagnostic of CM. The patient completed 9 weeks of amphotericin and subsequent bone scan showed no definite foci of increased uptake. He also completed 3 cycles of Etoposide, Ifosfamide, and Cisplatin. On subsequent clinic visits, weight was up-trending and improvement in rash and lymphadenopathy were noted.

Discussion: This case demonstrates a correlation between the administration of steroids and increase in CF titer. As coccidioidomycosis and several types of malignancies may have overlapping clinical presentations, a thorough physical examination and tissue sampling are necessary to distinguish. In rare cases, coexistence may occur. "Läuse und Flöhe haben." A German phrase, which translates to "Having lice and fleas," refers to having two reasons for a problem.

Conclusion: Understanding the underlying etiology or identifying the relationship between concomitant conditions is essential to formulate the most appropriate treatment plan. This patient responded well to separate treatment regimens for both disseminated coccidioidomycosis and embryonal carcinoma.

Abstract 2022-76
Effectiveness of the Altis Single Incision Sling for Treatment of Mixed Urinary Incontinence
Angelina Prat, DO; Yufan Brandon Chen, MD

Introduction: Mixed urinary incontinence (MUI) is defined as the presence of both urgency urinary incontinence (UUI) and stress urinary incontinence (SUI). The Altis sling is the only adjustable single incision device that is FDA approved for treatment of stress urinary incontinence (SUI). There is emerging evidence that traditional full length midurethral slings may reduce both SUI and UUI episodes in those with MUI, however there is currently no data reporting the efficacy of the Altis single incision sling on the treatment of women with MUI.

Purpose: The goal of this study was to determine if the Altis single incision sling could reduce both the SUI and UUI episodes in women with stress predominant MUI. The primary outcome was the percentage of women with no further SUI after sling surgery. Secondary outcomes included rates of UUI resolution.

Methods: A retrospective cohort study was conducted with all patients receiving an Altis single incision sling for treatment of MUI at a tertiary academic center between 4/2021 and 4/2022. Inclusion criteria included patients complaining of both urgency and stress incontinence, but primarily bothered by SUI, prior to receiving an Altis single incision sling. SUI was demonstrated in all patients by cough stress testing or urodynamic testing.

Surgery was considered successful if patients reported no additional episodes of urinary leakage at their post operative visits, up to 3 months after surgery.

Results: Our cohort included 26 patients with an average BMI of 31.8 and average age of 50.1 years old. Ethnicities included 88.5% Hispanic and 11.5% Caucasian non-Hispanic, with no other ethnicities reported. For the primary outcome, 96% of patients (n=25) reported resolution of their SUI, and 100% of patients reported at least 90% improvement in their SUI. Additionally, 77% of patients (n=20) reported resolution of their UUI, and 85% of patients (n=22) reported at least 90% subjective improvement in their UUI. The majority of patients (73%, n=19) experienced no complications. One patient (3.8%) experienced a mesh erosion, and one patient (3.8%) experienced urinary retention, requiring a sling revision. The most common complication was urinary tract infection, which occurred in 19% of patients (n=5).

Discussion: The majority of patients with stress predominant mixed urinary incontinence reported improvement of all urinary incontinence after receiving an Altis sling. Patients who reported resolution of their urge urinary incontinence also reported resolution of stress urinary incontinence. The success rates observed in this study are similar to those with traditional midurethral slings. The limitations of this study include short-term follow up.

Conclusion: The Altis single incision sling is an effective treatment for patients with stress predominant mixed urinary incontinence. These women can be counseled that urge urinary incontinence symptoms may also improve after surgery.

Abstract 2022-77

Pulmonary Giant Cavitary Coccidioides with Fungal Ball and Hemoptysis

Vishal K. Narang, MD; Kevin Dao MS III; Sara Jaratanian MS IV; Carlos D'Assumpcao, MD; Augustine Munoz, MD; Arash Heidari, MD

Abstract: Coccidioidomycosis (CM) is a fungal disease that results from inhalation of spores of the *Coccidioides Sp*. This disease primarily manifests as community-acquired pneumonia however, additional pulmonary manifestations such as pleural effusion, empyema, and cavitation may occur, this risk is increased in diabetic individuals. The cavitary disease may progress, leading to erosion of vasculature and pulmonary parenchyma as well as further complications. Furthermore, chronic cavities are at risk for colonization and superimposed infections. Here we present a case of cavitary CM in an uncontrolled diabetic nonadherent to treatment presenting with hemoptysis.

Methods: Approval was obtained from the Institutionalized Review Board (IRB) at Kern Medical. A single patient case report was conducted.

Case Presentation: The patient is a 48-year-old Hispanic male with diabetes mellitus and untreated pulmonary CM, who presented with hemoptysis for 1 day, night sweats, and a 45-lb weight loss. Seven years prior to presentation he was diagnosed with CM by his primary care physician. He underwent complement fixation (CF) which revealed a titer of 1:16, and he was started on Fluconazole 800mg. He presented to an outside facility four years later with shortness of breath and was found to have a worsening CF titer of 1:32. Imaging revealed a right lower lobe cavity measuring 4.6 by 3.7 centimeters with accompanying right-sided pneumothorax and bronchopulmonary fistula. He successfully underwent video-assisted thoracopic surgery with pleurodesis and continued on Fluconazole medication for 4 months, improving his titers to 1:4.

On arrival, he was found to have a giant cavity measuring 10 x 8 x 7 cm predominantly in the left lower lobe with a central filling mass within the cavity. During his hospitalization, he continued to experience up to ~300mL hemoptysis daily. Interventional radiology was consulted who performed successful arterial embolization of the right tracheobronchial and intercostal bronchial artery to control his hemoptysis. He was placed back on fluconazole and discharged home. One week later he returned in respiratory distress with fever, shortness of breath, and hypoxemia. Imaging revealed new left lower lobe and lingular

consolidations. His workup was consistent with aspiration of cavitary material to the left lung. His oxygen requirements increased significantly, and he was placed on steroids and liposomal amphotericin b with rapid improvement of symptoms. He transitioned to Posaconazole and his condition continued to improve. He was discharged home on oral Posaconazole to cover future mycetoma with other molds such as aspergillosis.

Discussion: This case describes one giant cavitary lesion from possibly two separate lesions. Poorly controlled diabetic individuals are already at increased risk for cavitary lesions. The management of giant pulmonary cavitary CM with mycetoma and bleeding remains a challenge. In a patient presenting with hemoptysis and a cavitary lesion, a multidisciplinary team consisting of pulmonary, thoracic surgery, and interventional radiology is essential.

Abstract 2022-78

Clinical Outcomes of a Pharmacist-Led Cardiology Pharmacotherapy Clinic

Jaylen Mungcal, PharmD; Rachael Jongsma, PharmD; David Lash, PharmD, Jeff Jolliff, PharmD

Introduction: Hypertension (HTN) is often referred to as the "silent killer" because patients can be asymptomatic, yet still at increased risk for heart failure, myocardial infarctions, and cerebrovascular accidents. Early detection and intervention with a multidisciplinary approach are imperative. Clinical pharmacists are integral members of the healthcare team who can control blood pressure to slow disease progression and prevent complications.

Purpose: Describe the effect of a clinical pharmacist on a cardiology-focused pharmacotherapy clinic

Methods: We performed a retrospective chart review on patients ≥ 18 years of age who were referred to Kern Medical's clinical pharmacy cardiology clinic between July 2021 and February 2022. Patients needed to have at least one follow-up visit four weeks after the initial visit to be included. Vital signs, comorbidities, labs, date of last emergency department (ED) visit, date of the last hospitalization, guideline-directed medication therapy (GDMT), and additional antihypertensive agents were recorded at the initial and last visit. This single-center study compared individualized target GDMT doses for heart failure patients with reduced ejection fraction (HFrEF) and blood pressure (BP) control for hypertension patients before and after direct medication management by a clinical pharmacist. The target GDMT dose was defined as the recommended dose provided in the 2017 Expert Consensus Decision Pathway for Optimization for Heart Failure Treatment or the patient's maximum tolerated dose. Goal BP was defined as BP < 130/80 mmHg. A higher BP goal (< 140/90 mmHg) was acceptable for diabetic patients. Continuous data were analyzed using paired t-tests, and nominal data were analyzed using McNemar's test.

Results: A total of 204 patients were screened between July 2021 and February 2022. 125 patients were excluded due to a lack of a follow-up visit and 17 were excluded as follow-up occurred before four weeks. 62 patients were included. The median number of days between visits was 80 (42-119). The mean systolic BP (143.7±20.3 mmHg vs. 131.0±20.4 mmHg) and diastolic BP (79.7±11.1 vs. 75.5±9.6 mmHg) significantly decreased from baseline (both p<0.001).
There were significantly more hypertension patients (n=61) at goal BP post-intervention (36.1% vs. 60.7%, p=0.002). Of the 26 HFrEF patients, significantly more patients achieved goal GDMT doses by their last visit (7.7% vs. 38.5%, p=0.02). For all HF patients (n=33), SGLT-2 inhibitor use significantly increased (21.2% vs. 36.4%, p=0.04). Patients were followed between visits, during which there was one cardiovascular-related ED visit with subsequent hospitalization due to medication nonadherence. There were no hospitalizations related to adverse medication events or medication titration.

Conclusion: Collaborative medication management between clinical pharmacists and cardiologists significantly improves blood pressure control and allows safe titration of GDMT to target doses. Larger studies with a longer follow-up duration are needed to determine the clinical pharmacist's impact on changes in left ventricular ejection fraction, managing adverse drug effects, and preventing cardiovascular-related hospitalizations.

Abstract 2022-79

A Case of Coccidioidal Meningitis with Low-Pressure Hydrocephalus

Michael Valdez, MD; Shikha Mishra, MD; Rasha Kuran, MD; Arash Heidari, MD

Introduction: Meningitis is the most devastating complication of coccidioidal (Cocci) infections and has a predilection for the basilar portion of the brain. Hydrocephalus, typically communicating, with elevated intracranial pressure (ICP) is the most common complication of cocci meningitis. Treatment with azoles or serial lumbar punctures (LP) are generally not adequate and patients often require cerebrospinal fluid (CSF) shunting. Despite shunting, mortality is still 10%. Shunt malfunctions are well documented and typically associated with elevated ICP. The syndrome of inappropriately low-pressure hydrocephalus (SILPAH) is an extremely rare phenomenon characterized by low ICP. Herein is a case of a 67-year-old male with cocci meningitis complicated by ventriculoperitoneal (VP) shunt failure with low-pressure hydrocephalus and abdominal pseudocyst.

Purpose of Study: A 67-year-old male with cocci meningitis and hydrocephalus post VP shunt placement presented with altered mental status. Shuntogram was negative and opening pressure (OP) on LP was 24 cmH2O. Cocci complement fixation (CF) titer was 1:8 in the CSF and 1:16 in the serum. The patient became obtunded and required intubation. Mentation improved after shunt revision and the patient was discharged on Fluconazole 1200 mg daily. CSF obtained from the shunt later grew *Coccidioides immitis*. He returned to the hospital 5 months later with encephalopathy, ataxia, and urinary incontinence. Shuntogram showed no kink or discontinuity and CT brain showed stable hydrocephalus with new small subdural fluid collections. No surgical intervention was recommended by neurosurgery at this time. CF titer increased to 1:32 in CSF and 1:252 in serum. CT abdomen showed the distal VP shunt within a ventral hernia communicating with a large abdominal pseudocyst. MRI brain 4 days later showed worsening hydrocephalus and OP was 16 cmH2O. Patient again became obtunded and required intubation for airway protection. Neurosurgery placed an external ventricular drain (EVD) set to subzero pressure and mentation subsequently improved slowly over the course of 1-2 weeks. Patient was eventually extubated and transferred to a higher level of care where a ventriculopleural shunt was placed after which he was discharged and lost to follow-up.

Discussion: In SILPAH, CSF drains to the spinal subarachnoid space, however, not via the ventricular system or CSF shunt. There is a resultant outward expansion of brain parenchyma and hydrocephalus with increased brain compliance. Recurrent episodes of acute hydrocephalus superimposed on baseline chronic hydrocephalus likely contribute to loss of brain plasticity, or increased compliance, which is responsible for the inappropriately low intracranial pressure. Treatment includes EVD set to subzero pressure followed by shunt revision or replacement thereafter.

Conclusion: Increase in brain compliance may result in hydrocephalus without associated elevation in ICP. In these cases, OP may be normal or low by definition, yet high relative to the patient's baseline. Although rare, low-pressure hydrocephalus is critically important to recognize as a complication of patients with coccidioidal meningitis who require shunt placement. The approach to management is unique and requires urgent neurosurgical evaluation as well as close interdisciplinary interaction amongst clinicians.

Abstract 2022-80

A Case Series of Coincident Coccidioidomycosis and Malignancy

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MD; Arash Heidari, MD; Royce H. Johnson, MD; Rasha Kuran, MD; Rahul D. Polineni, MD; Everardo Cobos, MD

Introduction: Coccidioidomycosis (CM) is an endemic mycosis common in the Central Valley of California. In 2019, approximately 37% of CM infections in California were reported in Kern County. CM and malignancies share many common symptoms. In proved cases of coexistence, the diagnoses were usually suspected and made sequentially rather than concomitantly. This is either due to lack of response, relapse, or accidental. The purpose of this study is to study cases with concomitant CM and malignancies.

Methods: The Institutional Review Board of Kern Medical approved this study. A retrospective chart review of patients' records between 2016 and 2019 with the diagnosis of either cancer or CM was performed. 13 patients with concomitant diagnoses were identified.

Results: All 13 patients had pulmonary CM. Five cases had dissemination from which one was to lymphatic tissue. Cancer preceded the onset of CM in 8/13 patients, CM preceded the onset of cancer in 3/13 patients and one patient exhibited a simultaneous onset of CM and Cancer. 12/13 patients underwent therapeutic treatment with fluconazole. 11 patients underwent surgical resection for cancer, 1 patient had sero-reactivation of CM post fluconazole therapy. 1 patient succumbed to life.

Conclusions: The identified coincidence of coccidioidomycosis and malignancy is less than anticipated but still requires attention. The interaction between the two conditions is not well understood and management is formidable. A close collaboration between infectious diseases and oncology teams is paramount.

Abstract 2022-81

Comprehensive Care Model for Sickle Cell Disease Care at Kern Medical

Rupam Sharma, MD; Marah Sukkar, MD; Leila Moosavi, MD; Everardo Cobos, MD

Purpose: Sickle cell disease is the most common genetic hemoglobinopathy in the US.[1] It affects over 100,000 individuals.[2] Sickle cell disease is a blood disorder causing a mutation in the hemoglobin beta chain. It is characterized by acute pain episodes, emergency department visits, hospitalizations, anemia and early mortality. This disease requires a programmatic, multidisciplinary and team-based approach. Currently there are three potential models of care for sickle cell disease patients: classic comprehensive model, embedded care model and specialized medical home model.[1] The model adapted at our institution is a blend of all the three potential models incorporating as per our institutional considerations. This study presents the results following the multidisciplinary care implementation at our institution over the last year.

Methods: This study was approved by the Institutional Review Board of Kern Medical. A retrospective review of post initiation of a multidisciplinary care intervention at a public academic medical center was reviewed.

Summary of Results: This intervention was implemented on July 13th 2020. The multidisciplinary team includes hematologist/oncologist, pharmacists, primary care physician, pain specialist, sickle cell specialist, behavioral health worker, clinical health worker, medical assistant and registered nurse. In the last six months a total of 170 patients were scheduled to be seen at the sickle cell clinic. 14 patients were admitted inpatient in the last six months which is a decrease in number compared to the data prior to implementation. 23 additional patients were newly referred from outside institutions. Our findings thus far highlight the importance of gaining patients' trust, providing social support and providing patients with appropriate resources. In the last month we have also established a virtual reality program for pain management for patients. In December of 2020 at the state level, we also gained recognition for standardizing care for sickle cell patients.

Conclusions: In conclusion, a multidisciplinary comprehensive care for sickle cell patients is a necessity. At present there are only ten sickle cell clinics in the state of California. Our academic center became one of the founding institutions of the upcoming Networking California for Sickle Cell Model. The model of care for implementation of this disease varies highly upon location, population served, financial and institutional needs.

Abstract 2022-82
A Unique Case of COVID-19 Presented as Focal Seizures with Impaired Awareness
Rupam Sharma, MD; Samantha Ratnayake, MD; Hobart Lai, DO; Shikha Mishra, MD; Arash Heidari, MD

Purpose: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) has rapidly become a global pandemic with millions of confirmed cases worldwide. Encephalitis and seizure associated with COVID-19 has been seen and reported. Here described is a unique case of SARS-CoV2 infection presented with focal seizure with impaired awareness.

Methods: A retrospective review following IRB approval.

Summary of Results: A 54-year-old man unvaccinated for COVID-19 with no known past medical history presented to the emergency department with altered mental status. Three days prior to presentation he complained of frontal headaches and blurry vision and one day prior his son noticed he was unable to speak. Minutes upon arrival he suffered a focal seizure for which levetiracetam was administered. He was found to be oriented to self and age with difficulty finding words answering only with 'yes'. EEG was performed and he was diagnosed with focal seizure with impaired awareness. His chest x-ray showed multifocal bilateral hazy infiltrations. SARS-Cov2 PCR test came back positive. His brain MRI revealed 2 acute subcortical superior right frontal lobe lacunar infarcts. His lumbar puncture was negative. He suffered nine seizures of left occipital origin despite being treated with levetiracetam and valproic acid. Phenytoin was added which eventually controlled his seizure and he became fully oriented. Overcoming a tumultuous hospital course, he was also found to have newly diagnosed poorly controlled diabetes and pulmonary cavitary coccidioidomycosis. He was discharged stably on hospital day 16.

Conclusions: Focal seizure with impaired awareness associated with SARS-CoV2 has not been reported. Further studies are warranted to understand the pathophysiology and definitive treatment.

Abstract 2022-83
Re-Anastomosis of the Uterus
Catherine Nguyen, MS III; Yufan Chen, MD; Joseph Fanous, MS III; Taide Chavez, MD

Purpose: The objective is to present a patient suffering from urachal cyst and uterovesical fistula secondary to cesarean section (CS) with urinary urgency, frequency, dysuria and hematuria.

Methods: The case information was retrieved through the electronic medical record of Kern Medical Center (KMC). Patient's demographics, medical history, physical examinations, imaging, labs, treatment/procedures and follow-up appointments were collected. Literature review was also conducted via published journal articles.

Results: The patient being presented came to the clinic complaining of recurring abdominal abscesses as well as urinary complications including urgency, frequency, dysuria and hematuria. Per imaging (CT), an anterior dome bladder mass was present which is consistent with urachal fistula remnants. A robotic partial cystectomy was performed and subsequently uncovered a uterovesical fistula. Due to severe adhesions from prior CS, the lower segment of the patient's uterus had to be transected. A hysterectomy vs re-anastomosis were considered and re-anastomosis of the uterus to the cervix was performed. Procedure was performed based on knowledge and technique from radical trachalectomies. Patient reports resolution of symptoms and is healing well.

Conclusion: Patients with history of CS have increased risk of forming adhesions in their abdominal cavity. Those who present with abnormal abdominal complications such as recurring abdominal abscesses should have high suspicion for fistulas secondary to adhesions from prior surgeries such as CS. Imaging should be performed to confirm fistula and surgery should follow to correct the fistula. Awareness of possible complications should be cautioned and salvaging the uterus if possible is recommended vs hysterectomy.

Abstract 2022-84

A Retrospective Review on the Outcomes of Amantadine Use In Traumatic Brain Injury from a Community Setting

Marissa De Freese, MD; **Laura Roberson, MS IV**; Olivia Tirado, PA-C; Essam Hashem, MS III

Introduction: As traumatic brain injury (TBI) is a major cause of morbidity and mortality, the effects of amantadine on the dopaminergic system of the brain and its role in improving consciousness levels has been studied suggesting amantadine as a reasonable therapeutic option aimed to improve cognition after blunt TBI. Although clinical use of amantadine for this purpose is highly prevalent, literature is limited and lacks evidence of the drug's efficacy.

Purpose: We are assessing the effects on cognition and motor function in hospitalized adults suffering from non-penetrating acute TBI who received amantadine plus TBI standard of care, versus patients who only received TBI standard of care. We aim to create amantadine dosing and timing guidelines to optimize cognitive function, reduce side effects in TBI, and reduce hospital length of stay (LOS) within a community setting.

Method: This is a retrospective, minimal risk de-identification records study comparing cognition and motor function via Glasgow Coma Scale (GCS) between two treatment groups. We extracted data from the Kern Medical trauma census of patients diagnosed with TBI admitted from January 1, 2019 to October 31, 2021. Eligible patients meeting inclusion criteria with GCS<10 at admission were enrolled (n=163): patients who received amantadine in the intervention group (n=41) and those who received TBI standard of care without amantadine administration in the control group (n=122). Statistical analysis of the mean GCS at admission, GCS at discharge, and hospital LOS were compared between the groups using Welch's t-test.

Results: Data was analyzed using SPSS, $P<0.05$ significant level. Findings showed significant difference between the mean GCS at admission ($P<0.05$) of the intervention ($\boldsymbol{\mu} = 4.29$, SE = 0.29) and control group ($\boldsymbol{\mu} = 5.14$, SE = 0.20). No significant difference was observed between the mean GCS at discharge ($P>0.05$) between the intervention ($\boldsymbol{\mu} = 9.76$, SE = 0.67) and control group ($\boldsymbol{\mu} = 10.27$, SE = 0.51). Additionally, there was no significant difference between the mean hospital LOS ($P>0.05$) between the intervention ($\boldsymbol{\mu} = 23$, SE = 2.24) and control group ($\boldsymbol{\mu} = 16.90$, SE = 2.42). No side effects were reported.

Discussion: Our study aimed to evaluate cognitive outcomes of amantadine use in non-penetrating TBI via analysis of the means between patients who received amantadine and those who underwent TBI standard of care. Statistical difference was seen between mean GCS at admission with the intervention group having a lower mean of 4.29 and the control group of 5.14. Nevertheless, we note that the decision in initiating amantadine treatment lacked randomization and was often started on patients with a consistently low GCS throughout hospitalization.

Additionally, no statistical differences shown in the mean GCS at discharge and mean LOS between groups suggest that amantadine does not affect cognition and motor function in blunt TBI. However, limitations in this retrospective study challenge these results as we are unable to control for variability within the sample. Systematic limitations include variability in amantadine dosing, frequency, treatment length, time of initiation post-injury, and unequal sample sizes. Other limitations consist of discontinuation of amantadine treatment by different providers and loss of follow-up after discharge. We also acknowledge the difficulty in

distinguishing between amantadine treatment versus LOS contributing to GCS improvement at discharge considering some patients received amantadine later in their hospitalization, while others who did not receive amantadine had an extensive LOS.

Lastly, although no side effects were noted as directly associated with amantadine use, literature cited symptoms such as nausea and vomiting may have occurred yet attributed to other hospital-related factors like diet advancement and other medications. This small sample study builds on the limited literature, posing as a foundation for future studies.

Conclusion: Our data suggests that amantadine did not affect cognition in acute non-penetrating TBI, lacking evidence to support amantadine as a reasonable treatment in this population. However, amantadine and other neuroprotective medications are routinely used despite limited scientific evidence. We recommend further studies with a larger sample size: we propose a prospective, double-blinded, randomized interventional cohort study that controls for time of amantadine initiation post-injury, dosing, frequency, and treatment length to eliminate variability. Furthermore, include a direct assessment of patients' cognition in addition to GCS, such as the Disability Rating Scale and Glasgow Outcome Scale for assessment after discharge. If amantadine positively affects consciousness levels in acute blunt TBI, this may expedite transfer to a neurorehabilitation center; hence, enhancing long-term outcomes, reducing hospital LOS and further decreasing costs of inpatient stay per day.

Abstract 2022-86

A Double Whammy Pneumonia: The First Reported Case of Concurrent Neisseria Meningitidis and SARS-CoV-2 Pneumonia

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Introduction: Meningococcal pneumonia (MP) is a rare manifestation of meningococcal disease, first described in 1907 when *Neisseria meningitidis* (NM) isolates were identified in sputum samples from soldiers with pneumonia.

During the 1918-1919 influenza pandemic, an increase in MP cases were reported in patients with preceding influenza infection. Despite the end of the last H1N1 influenza pandemic in 2010, seasonal influenza infections still pose a risk for simultaneous MP. History appears to be repeating itself with concomitant bacterial and viral coinfection amidst the SARS-CoV-2 pandemic. Herein is a case of an elderly woman with, to the best of our knowledge, the first reported case of concurrent SARS-CoV-2 and MP infections.

Purpose of Study: 88-year-old woman with diabetes and hypertension presented with 3-days of dyspnea, cough, and fevers. She met SIRS criteria and was hypoxic. Labs revealed lactic acid 2.5, procalcitonin 3.62, and testing for SARS-CoV-2 positive. CXR showed a 7cm RUL opacity. CTA chest demonstrated a large RUL consolidation with scattered ground-glass opacities. She was initially started on Ceftriaxone 1g Q24H and Azithromycin 500 mg Q24H for community acquired pneumonia as well as a 10-day course of dexamethasone for hypoxia associated with SARS-CoV-2. Preliminary blood cultures grew gram-negative diplococci and final speciation revealed NM. Ceftriaxone was subsequently increased to 2g Q24H. Suspicion for meningitis was low as patient remained alert and oriented without headaches and neck was supple without nuchal rigidity or signs of meningismus. Bronchoscopy was considered but was eventually deferred in the setting of concurrent covid pneumonia and clinical improvement. Repeat blood cultures showed no growth and the patient was discharged with oral Amoxicillin/Clavulanic acid to complete a 14-day total course of antibiotics for MP. Three months after discharge, symptoms had completely resolved, patient was no longer hypoxic, and repeat CXR showed near complete resolution of the previously noted consolidation.

Discussion: The clinical presentation of MP is indistinguishable from pneumonia caused by other infectious organisms. Risk factors include older age and preceding viral infection, possibly due to nasopharyngeal mucosa damage during viral illness in an induvial already colonized with meningococcus. There are 2 proposed pathophysiologic pathways for the development of MP. The airway pathway includes aspiration of colonized upper airway secretions or inhalation of airborne droplets. The blood pathway includes seeding of the lung after primary bacteremia. At least 13 serogroups of meningococci have been identified; B, Y, and W-135 are most associated with pneumonia. Treatment of choice includes third generation cephalosporins, but fluoroquinolones are frequently used.

Conclusion: NM as the underlying etiology for pneumonia should be considered when blood or sputum cultures identify gram-negative diplococci. Early recognition is critical to reduce the risk of transmission to close contacts and health care personnel. Given high mortality rates associated with untreated meningococcal disease, early initiation of appropriate antibiotic therapy is essential. Finally, this case represents how history appears to be repeating itself in that just as NM pneumonia cases increased during the influenza pandemic in 1918, to the best of our knowledge this is the first reported case of concurrent SARS-CoV-2 and NM pneumonia.

Abstract 2022-88
Risperidone Induced Sialorrhea
Angad Kahlon, MD; Tyler Torrico, MD; Muhammad Shauib MS IV; Vineeta Damineni MS IV

Introduction: Sialorrhea is a known adverse reaction of clozapine and likely occurs due to its metabolite norclozapine (N-desmethylclozapine) having potent muscarinic M1 agonism. Sialorrhea occurring with other antipsychotics is generally very rare. In contrast to clozapine, risperidone has negligible muscarinic activity. Despite this, there have still been very few reports of risperidone-induced sialorrhea.

Purpose: We present a case of a 46-year-old Caucasian male with a past medical history of hypertension, who was psychiatrically hospitalized and treated with risperidone for psychotic symptoms and developed severe sialorrhea. The patient initially tolerated low dose risperidone without any adverse reactions.

The patient's risperidone was titrated until 6mg daily was reached. Simultaneously, the patient had been receiving daily as needed clonidine for treatment of uncontrolled hypertension. After risperidone titration was complete, the patient's hypertension management was changed from clonidine to amlodipine. The patient abruptly developed severe sialorrhea and required treatment with atropine 1% ophthalmic drops administered sublingually, with limited relief. Shortly thereafter, the patient developed risperidone-induced parkinsonian symptoms leading to eventual discontinuation of risperidone. Over the following days the patients' sialorrhea resolved as he was transitioned to treatment with quetiapine, which he tolerated without adverse reaction.

Discussion: Risperidone has potency for alpha$_2$-receptor antagonism. Although sialorrhea is generally associated with antipsychotics that have potency at muscarinic receptors, this case report furthers evidence that an alternative etiology can occur via alpha-adrenergic-mediated production of saliva. New onset sialorrhea after initiation of any antipsychotic should be considered as a potential adverse reaction even for those with relatively low muscarinic activity due to the potential of alpha$_2$-receptor antagonism etiology. Clonidine is an alpha$_2$-autoreceptor agonist, which in this case report had an intended use for treatment of hypertension, but appears to have masked initial sialorrhea during risperidone titration. Sialorrhea is typically symptomatically managed with atropine ophthalmic drops administered sublingually but can also be treated with atropine (a competitive anticholinergic medication). The findings of this case report suggest that clonidine can also be considered in the treatment of antipsychotic-induced sialorrhea due to its adrenergic agonist properties.

Conclusion: Drug-induced sialorrhea is a very rare adverse reaction of risperidone which occurs due to alpha$_2$-receptor antagonism. Clonidine reduces

symptoms of risperidone-induced sialorrhea due to its mechanism of action as an alpha$_2$-autoreceptor agonist.

Abstract 2022-89
Hypervirulent Klebsiella Septicemia with Multiple Solid Organ Abscess Formation
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Purpose: We present a unique case of hypervirulent klebsiella septicemia with multiple organ abscess formations in a diabetic patient.

Discussion: 57-year-old male with type 2 diabetes mellitus on an SGLT2 inhibitor and hypertension was sent to the hospital by his primary care physician for low blood pressure. He had fever, chills, night sweats, nausea, vomiting, and abdominal pain for the past month. His symptoms progressed to bilious emesis, urinary retention, and worsening left lower quadrant pain. Vitals were remarkable for a temperature of 103F, blood pressure 87/55 mmHg, heart rate 109 beats per minute. He was ill-appearing with diffuse abdominal tenderness to palpation. Laboratory studies showed a white blood cell count of 40.2 cells/mm^3 with 21% bandemia. The comprehensive metabolic panel was significant for sodium of 124, BUN 30, Cr 1.66, Glucose 335, ALP 454, ALT 295, AST 326, total bilirubin 1.1, lactic acid 3.9. Urine analysis showed >1,000 glucose, large leukocyte esterase, RBC 5-10, WBC >50 with clumps.

He was started on broad-spectrum antibiotic therapy. Imaging studies found multiple abscesses in his liver, around his right kidney, and in his prostate. Blood cultures grew *K. pneumoniae*, that demonstrated positive string test of greater than 20 centimeters. He endorsed travel to Thailand five years prior. Antibiotics were narrowed to ceftriaxone based on sensitivities. Drains were placed in the liver, in the right kidney pararenal abscess, and in the prostate. He also underwent partial trans-urethral resection of the prostate. Furthermore, he gradually developed right eye medial and lateral nerve palsy and left-sided weakness. CT and MRI of the brain revealed multiple ring-enhancing brain abscess. Ciprofloxacin was added for prostate and brain penetration. He was transferred to higher level of care for possible stereotactic drainage of brain abscess. Fortunately, he continued to clinically improve with intravenous antibiotics and did not require any further neurologic intervention. Drains were eventually removed, and he underwent cholecystectomy. He was successfully discharged with close outpatient follow up.

Conclusion: Early recognition of hypermucovirulent Klebsiella may help anticipate degree of spread in the body. Drainage of large abscesses is key to therapeutic success. Drainage of abscesses in sensitive areas such as the brain should be evaluated as case-by-case basis in a facility capable of managing such abscesses. Fortunately, antibiotic resistance did not factor into this case, but physicians should be vigilant for the possibility of both antibiotic resistant and hypermucovirulent phenotype Klebsiella pneumonia infections in the future.

Abstract 2022-90
Apical Hypertrophic Cardiomyopathy Mimicking as Myocardial Infarction
Vishal K. Narang, MD; Pearl Chan, MS IV; Aslan GhandForoush, DO; Fowrooz Joolhar, MD; Theingi T. Win, MD

Purpose: Hypertrophic cardiomyopathy (HCM) is known to have a wide spectrum of patterns and this care will highlight a rare form of HCM called apical hypertrophic cardiomyopathy (ApHCM) which can mimic myocardial infarction.

Methods: Retrospective Study was conducted. Ethical approval was obtained from the IRB at Kern Medical (Study #21095). A single patient case report was conducted.

Summary: A 46-year-old Punjabi male with hypertension presented to an outside hospital with chest pain and was to have elevated troponin levels of 0.31 ng/mL. Nuclear Lexiscan stress test at that time showed "reversible defect of the cardiac apex

suggestive of ischemia", cardiac catheterization was negative, and transthoracic echocardiogram (TTE) showed preserved left ventricular function and mild mitral regurgitation. Troponin trended down to 0.23 ng/mL and the patient was discharged. Patient then comes to the medicine clinic to establish care and was complaining of palpitations that are intermittent and last about 2-3 minutes per episode. Patient reports that the episodes are initiated by physical activity such as walking about 100 feet and alleviated with rest. Patient denied any chest pain or shortness of breath. Positive history for heavy alcohol use, drinks 6-8 alcoholic beverages 2-3 times a week. Electrocardiogram (ECG) done in the clinic showed left ventricular hypertrophy and abnormal T waves in inferior leads. Repeat TTE showed left ventricular ejection fraction is estimated at >65% and apical to mild LV is unusually thickened which is consistent with ApHCM. Patient was then referred to the cardiology clinic for further management. The patient will be treated with appropriate beta-blocker and cardiac monitoring for further risk stratification.

Conclusion: There are many different spectrums to hypertrophic cardiomyopathy with the most common form being asymmetric septal hypertrophy (ASH). There is a more rare form called ApHCM which is more prevalent in the Asian population (25%) than in non-Asians (1% to 10%). Compared to the ASH, it is more sporadic and associated with more atrial fibrillation (AF) and different risk factors for sudden cardiac death (SCD). There are no current guideline recommendations for diagnosis, screening, or patient risk stratification available for ApHCM. This case illustrates the importance of understanding and diagnosing patients with ApHCM since patient symptoms mimicked a myocardial infarction. The accurate and timely diagnosis may highly improve the clinical outcome and overall well-being of the patient.

Abstract 2022-91

Extensive Left Ventricular and Mitral Valve Thrombus in a Gastric Cancer Patient on Direct Oral Anticoagulants

Vishal K. Narang, MD; Pearl Chan MS IV; Aslan Ghandforoush, DO; Fowrooz Joolhar, MD; Tiffany Theingi Win, MD

Purpose: Thrombotic events are a common complication of cancer, but it is rare to have arterial thrombosis. This is an unusual case of left ventricular thrombus and multiple thrombi on the mitral valve while taking direct oral anticoagulants (DOAC) in a patient with stage IV gastroesophageal signet ring adenocarcinoma.
Methods: Approval was obtained from the IRB at Kern Medical (Study #21094). A single patient chart review was conducted.

Case Report: A 45-year-old female with no past medical history presented to the emergency department (ED) with decreased appetite, fatigue, dysphagia, abdominal pain, and unintentional weight loss for 4 months. Esophagogastroduodenoscopy (EGD) showed an epigastric mass that was biopsied. The pathology came back showing stage IV gastroesophageal signet ring adenocarcinoma. During this hospitalization, the patient also had a computerized tomography (CT) of the chest done which showed pulmonary emboli (PE), and was started on apixaban for PE therapy. Four weeks later, a CT of the chest, abdomen, and pelvis was ordered for evaluation of port-a-cath placement evaluation which demonstrated a filling defect within the left ventricular apex measuring 19 x 17 mm. The patient was referred for a transthoracic echocardiogram (TTE) which revealed a large left ventricular thrombus and multiple thrombi on the mitral valve. The patient was then admitted to the hospital for initiation of anticoagulation with therapeutic Lovenox. The patient was then discharged home with therapeutic Lovenox and instructions to follow up with cardiology outpatient.

Conclusion: It is well known that there is a link between thromboembolism and cancer but the underlying mechanism is poorly understood. It is believed that there are many ways the cancer cells activate the coagulation system such as having the ability to produce and secrete procoagulant/fibrinolytic substances and inflammatory cytokines. Deep vein thrombosis (DVT) and pulmonary embolism (PE) are common complications in patients with cancer but arterial thrombosis secondary to malignancy is rare. The case highlights a rare presentation of a large left ventricular thrombus and multiple thrombi in the

mitral valve in a patient with stage IV gastroesophageal signet ring adenocarcinoma that was already on a DOAC for a known PE.

Abstract 2022-92
The First Reported Case of Auto Coronary Bypass
Vishal K. Narang, MD; Matthew J. Budoff, MD

Purpose: Coronary artery bypass graft surgery is a major advance in cardiovascular disease that allowed revascularization of the myocardium in cases where single stenotic lesions cannot be revascularized. The first coronary bypass surgery was conducted in 1960 at Albert-Einstein College of Medicine and has slowly made its way as the standard of care in treating coronary artery disease in the setting of multi-vessel obstruction. Anomalous coronary arteries may congenitally appear in various locations and may be of uncertain significance until complications arise, however they may exist outside these settings. We highlight a case of an anomalous coronary artery creating a native bypass, leading to the first reported case of an auto coronary artery bypass graft in an asymptomatic individual.

Methods: A single patient chart review was conducted. IRB approval was not obtained.

Case Report: A 63-year-old male with no past medical history presented to an outpatient diagnostic center for clinical research purposes. The patient endorsed a healthy lifestyle and denied chest pain, shortness of breath, or any other symptoms. He subsequently underwent cardiovascular CT-angiography to evaluate coronary arteries and was found to have a severely atretic and short ostium of the left main coronary artery (blue arrow panel A & panel B). He was also noted to have an anomalous vessel arising from the anterior wall of the aorta, above the sino-tubular junction, supplying and creating a native bypass the left coronary artery (red arrow panel A & Panel C). No atherosclerotic disease was identified in this individual and the patient remains asymptomatic. This anomalous coronary vessel effectively bypasses the critical left main, rendering the patient asymptomatic.

Conclusion: Anomalous origin of coronary artery is not a new phenomenon. Patients with anomalous coronary arteries may present with exertional chest pain, syncope, or may even suffer sudden cardiac death. Our patient presented for anatomical evaluation of his coronary arteries where coronary CT-A revealed a short atretic course of the left main artery. However, the presence of an anomalous right coronary artery was seen, feeding into the left main coronary artery creating a native bypass. He was found to be free of atherosclerotic disease and remained asymptomatic.

Abstract 2022-93
Fetal Alcohol Spectrum Disorder in a Newborn
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Introduction: Fetal Alcohol Spectrum Disorder can be evaluated in newborns based on maternal history of alcohol use during pregnancy and compelling physical attributes present at birth. The infrequency with which it is assessed during infancy makes FASD evaluation in newborns a formidable diagnostic challenge.

Case Presentation: A 3-day-old male born at 37 weeks gestation via spontaneous vaginal delivery was evaluated for Fetal Alcohol Spectrum Disorder due to presence of smooth philtrum, thin upper lip, and “railroad track” ears. History was obtained from his birth mom, referred to as Ms. Smith.
Ms. Smith is a 29-year-old G11P4 with a past medical history of insufficient prenatal care, drug dependency, premature delivery, cholestasis of pregnancy, microcytic anemia and HPV infection. Based on interview, she qualified for Maternal Alcohol Use, endorsing alcohol consumption up to 750 mL of vodka daily throughout her pregnancy until the day before delivery. FASD is typically diagnosed in early childhood, rather than infancy, upon discovering developmental and neurological concerns.

However, since our patient presented with significant dysmorphic features of FASD, and an admitted maternal history of alcohol use during gestation, we advised Ms. Smith to seek neurological and ophthalmologic care.
Early detection of common issues such as learning and language difficulties can improve the child’s

quality of life. Interventional services are available for children to develop important social and educational skills. With the assistance of various providers involved in child development, such as special education teachers, and speech physical and occupational therapists - children can learn social, language, physical, and educational skills to prevent or mitigate delays in development. Additionally, medications can be prescribed by a psychiatrist for different symptoms such as distractibility, similar to ADHD. Visual symptoms, like strabismus, can be corrected and treatment may include eyeglasses, prisms, vision therapy, or eye muscle surgery. Cardiovascular pathologies can also be detected and observed for asymptomatic patients, and surgical intervention is an option for symptomatic patients.

Although there is no guideline to reverse Fetal Alcohol Syndrome (FAS), early identification and intervention can slow progression and manage secondary neurodevelopmental symptoms.

Discussion: This case illustrates the necessity of prompt evaluation of suspected Fetal Alcohol Spectrum Disorder in infancy leading to optimal patient outcome.

Abstract 2022-94

Methicillin Resistant Staphylococcus Epidermidis Endocarditis, From Tunnel to Spine

Vishal K. Narang, MD; Harjinder Sidhu, MS IV; Carlos D'Assumpcao; MD; Leila Moosavi, MD; Theingi Tiffany Win, MD; Arash Heidari, MD

Purpose: Staphylococcus epidermidis is a common clinically encountered species of coagulase-negative staphylococci. Its ability to produce biofilm particularly in the presence of central lines can lead into serious infections including endocarditis. Here we demonstrate a case of a 68-year-old female on hemodialysis with exposed tunnel part of her dialysis catheter resulting in infective endocarditis and spinal osteomyelitis.

Methods: Approval was obtained from IRB (ID# 21078). A single patient case report was conducted.

Case Presentation: Patient is a 68-year-old female with End Stage Renal Disease on hemodialysis who presented with 4 weeks of worsening lumbar spine pain. Upon presentation she was afebrile. Her examination was significant for lumbar spine point tenderness and left jugular tunneled catheter entry site dehiscence exposing the catheter. Patient stated the skin over the tunnel opened five months prior. Her laboratory studies showed ESR of 100 and CRP of 25. Her blood culture grew Methicillin-resistant S. epidermidis (MRSE). Her tunneled catheter was removed, and a new catheter was place in same area due to lack of access and stenosis of central venous on the other side. MRI lumbar spine showed near complete loss of the intervertebral disc at L4-L5 with severe erosive endplate changes. An Interventional radiology (IR) guided bone biopsy of lumbar spine also grew MRSE. The patient persistently remained bacteremic with MRSE despite IV antibiotics. Transesophageal echocardiogram revealed sub-aortic 0.6x0.9 cm with no signs of abscess or valvular dysfunction. Despite lack of alternative access for dialysis due to stenosis there was no choice but to remove the tunneled catheter again and temporary catheter was placed at an alternate site. IR performed balloon angioplasty for central venous stenosis and insertion of left, IJ tunneled dialysis catheter after blood cultures remained negative.

Conclusion: Persistent bacteremia with Staphylococcus epidermidis in the presence of central line can lead into serious and metastatic infections. This requires successful source control in addition to antibiotic therapy.

Abstract 2022-95

Type Ib and III Vieussens Arterial Ring, A Duo of Rare Coronary Variants

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Purpose: Vieussens arterial ring (VAR) is thought to be an embryologic remnant that provides collateral from the right coronary artery to the left anterior descending artery. Pathology has been described and divided into four variants, with type Ib as the least common type. Diagnosis is not common as patients are typically asymptomatic until complications develop. We describe two individual cases who were found to have a type Ib and type III VAR, respectively, on coronary computed

tomography angiography.

Methods: Retrospective chart review. IRB approval was not obtained.

Case 1: An 81-year-old with pacemaker implantation secondary to sick sinus syndrome presented for outpatient follow-up. Physical exam was remarkable for grade 2/6 systolic murmur at the apex. She underwent an investigation of her pacemaker which suggested one episode of nonsustained supraventricular tachycardia, lasting 23 beats at 193 beats per minute. A coronary CT- angiography was ordered which revealed mild coronary atherosclerotic disease but was notable for an aneurysmal and fistulous connection from the VAR to the left atrial appendage and left anterior descending artery. No significant coronary artery stenosis was seen.

Case 2: A 40-year-old male presented for evaluation of stable anginal chest pain. He denied any tobacco use, hypertension, diabetes mellitus, or family history. He underwent left heart catheterization however the left coronary arterial system was unable to be engaged. Coronary CT-A which revealed a single coronary artery anomaly—the left coronary arterial system was absent, and the conus branch from a large dominant right coronary artery was seen supplying the anterior and left areas of the heart. No significant stenoses or occlusive disease was identified.

Discussion: VAR is a rare anatomy variant, described as a ring-shaped structure around the pulmonary outflow tract connecting the conus branch of the right coronary artery and left anterior descending artery. It is thought to be an embryologic remnant and can be a source of a collateral network in cases of coronary artery disease and stenotic lesions. Studies demonstrate it may preserve flow despite significant obstruction and supply distal arterial segments. Pathologic conditions related to VAR, such as aneurysms and fistulas exist. Multidetector computed tomography is increasingly used to provide anatomic information and confirm the diagnosis. Four variants of VAR have been defined to characterize VAR. A type Ib is the rarest variant and indicates the presence of pathology other than atherosclerosis, such as an aneurysm or fistula directly associated with the VAR. A type III variant is a VAR with single coronary artery anomaly. In cases where fistula and/or aneurysms develop, the next step typically involves surgical correction to prevent complications such as rupture.

Abstract 2022-96

Acute Pericarditis Leading to a Diagnosis of SLE: A Case Series of Three Patients

Vishal K. Narang, MD; Jonathan Bowen, MD; Omar Masarweh, MD; Shane Burnette, MD; Michael Valdez,MD; Leila Moosavi, MD; Fowrooz Joolhar, MD; Theingi Tiffany Win, MD

Purpose: In Systemic Lupus Erythematosus (SLE), cardiac manifestations are known to be present in up to 50% of patients. However, it is rare for acute pericarditis to be the leading symptom at the time of diagnosis of SLE occurring in up to 1% of patients. We present a case series in which three patients with no prior history of SLE presented with acute pericarditis. This was found to be the leading manifestation of their disease which ultimately led to the diagnosis of SLE. These patients were initially treated with NSAIDs and colchicine however steroids and disease-modifying anti-rheumatologic agents were ultimately added to their medical therapy.

Case 1: A young Hispanic male in his early 20s with no past medical history presented to the emergency department (ED) with a two-day history of new onset of shortness of breath with chest pain. A 12-lead ECG showed sinus tachycardia with diffuse ST elevation and PR-depressions. Full autoimmune workup with laboratory studies demonstrating an elevated ANA 1:1280 with positive anti-dsDNA, Smith, and SM/RNP antibody confirming the diagnosis of SLE.

Case 2: A young African American female in her early 40s with hypertension, heart failure with preserved ejection fraction, schizophrenia, and polysubstance abuse presented to the emergency department with progressively worsening chest pain and dyspnea for 2 days. Laboratory studies demonstrated an elevated white blood cell count, C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR).

Transthoracic echocardiogram (TTE) revealed moderate circumferential pericardial effusion Autoimmune workup demonstrated positive serologies of ANA 1:1280 with positive ds-DNA, smith, and SM/RNP antibody confirming the diagnosis of SLE.

Case 3: An elderly Hispanic female in her late 70s, with history of hypertension and heart failure with preserved ejection fraction, was found to have pericardial effusion. They were significant for positive ANA with titer of 1: 1280 with a speckled distribution, positive SSA antibody greater than 8.0, and low complements levels C3-64 and C4-10. ESR and CRP were unexpectedly negative. Patient was followed up with rheumatology outpatient, diagnosed with elderly onset SLE, and started on azathioprine which resulted in improvement of clinical condition.

Discussion: Pericarditis is diagnosed in the acute setting and treated with anti-inflammatory agents. However, further investigation is warranted as it is crucial not to exclude an autoimmune etiology, as it is associated with high morbidity and mortality. Typical findings of may not be present and require a thorough history, physical, with laboratory and diagnostic studies. Despite acute treatment, many patients are dismissed from the primary setting without thorough workup. The continued workup will provide adjunctive therapeutic regimen upon confirmation of SLE. Steroids and anti-rheumatologic agents may have to be added to further control acute condition and chronic progression of the disease. Keeping the autoimmune etiology upon presentation is crucial in the continued management of pericarditis.

Abstract 2022-97
Superior Mesenteric Artery Syndrome - A Rare Imaging Finding in the Emergency Department
Sean Heavey, MD; Larissa Morsky, MD

Introduction: Abdominal pain is a common presenting complaint in the emergency department (ED), with a broad differential diagnosis. Superior mesenteric artery (SMA) syndrome is a rare cause of abdominal pain and can cause small bowel obstruction. This case discusses the presentation, diagnosis, and management of SMA syndrome.

Case Presentation: A 46-year-old female presented to the ED for 6 months of unexplained weight loss with occasional abdominal pain, now with acute worsening of her abdominal pain and persistent vomiting. Prior to this visit, the patient had been seen multiple times by her primary doctor, with no explanation for her symptoms despite outpatient testing. Physical exam revealed a cachectic appearing woman with a moderately distended and exquisitely tender abdomen. Light palpation provoked prompt and forceful vomiting.

Computed tomography (CT) of the abdomen and pelvis was obtained and revealed a severely distended stomach and duodenum due to compression of the duodenum from the superior mesenteric artery, consistent with SMA syndrome. A nasogastric (NG) tube was placed to decompress the stomach and the patient was admitted to the hospital for further management. During this admission, the patient underwent upper endoscopy which showed a distended J-shaped stomach, extrinsic compression of the proximal duodenum and severe gastropathy. The patient was managed conservatively with medications to promote gastric emptying and was eventually able to tolerate oral intake. Upon discharge, the patient was placed on a high calorie diet and at her most recent outpatient follow up had begun to gain weight.

Discussion: The overall incidence of SMA syndrome is between 0.1% to 0.3%, making it a rare cause of abdominal pain and small bowel obstruction. SMA syndrome is precipitated by loss of the mesenteric fat pad between the SMA and aorta, leading to a decrease in the aortomesenteric angle and compression of the third portion of the duodenum. This occurs in patients with significant weight loss due to hypermetabolic states, cachexia syndromes, or gastrointestinal conditions that lead to decreased oral intake.

Due to insidious onset, initial diagnosis is challenging, and diagnosis is not typically made until symptoms become significant. Diagnosis is based on

clinical suspicion and imaging. Multiple imaging modalities exist, however in the ED, CT imaging is the most feasible and allows for measurement of the aortomesenteric (AO) angle. A normal AO angle is between 38 to 65 degrees. An AO angle less than 25 degrees is highly suggestive of SMA syndrome.

Once recognized, initial management should focus on fluid resuscitation, correction of electrolyte derangements, and decompression of the stomach via NG tube. Hyperalimentation via high calorie diet or total parenteral nutrition is needed to restore the mesenteric fat pad and increase the AO angle. If conservative management fails, patients may need surgical intervention, with laparoscopic duodenojejunostomy being the most common operative intervention.

Conclusion: Although rare, SMA syndrome is an important diagnostic consideration in patients with weight loss, abdominal pain, vomiting, or small bowel obstruction.

Abstract 2022-98
Kocuria Kristinae Bacteremia in an Asymptomatic Newborn

Robert Dunn, MS IV; Licet Imbert-Matos, MD; Nandhagopal Thiagarajan, MD; Murugesan Chezhiyan, MD

Introduction: Kocuria kristinae is a common and usually benign part of our human skin flora. Cases where it has been identified as a pathogen are very few, notably about 20 case reports in the last 20 years. In all these cases, the patients had some level of being immunocomprimsed. Only 3 cases were pediatric patients, and none were newborns. This case presents Kocuria kristinae bacteremia in an asymptomatic immunocompetent newborn.

Purpose: A 10-hour old female patient presented to the Labor and Delivery ward status post at-home delivery with no prenatal care noted. Patient and mother were admitted for lab work, IV Vancomycin and monitoring for neonatal sepsis. Mother had a history of syphilis with treatment 2 months prior to delivery. Mother's RPR titers were 1:1 inpatient. The patient's labs were significant for a CRP elevated at 0.6 mg/dL, but down trending to 0.34 mg/dL, and a non-reactive RPR titer test. Blood cultures initially showed Gram Positive Cocci resembling Staphylococcus, but then returned positive for Kocuria kristinae on the day of admission. The patient remained asymptomatic, without clinical signs of neonatal sepsis such as hypoxemia, hypoglycemia or temperature instability, throughout the entire admission. Patient was given Penicillin G Benzathine 119,000 unites IM once for syphilis prophylaxis and was discharged with family.

Discussion: Kocuria kristinae is a facultative anaerobe and a non-motile, catalase-positive, coagulase-negative and a gram-positive coccus which is arranged in tetrads. It populated up to 7.3% of skin flora in a healthy human. However, over the last 2 decades, there has been an increasing number of cases that note K. kristinae as a pathogen. These cases include patients being treated for leukemia, gastric cancer, end stage renal disease, and patients that have central venous catheters in place. In this case report, I will include a summary of all of these cases to demonstrate the relationship of an immunocompromised state relative to the presentation of a symptomatic K. kristinae bacteremia. This case specifically is unique because no other case reported to date has included a newborn patient. Furthermore, this patient's immunocompetent state appears to have been a protective factor in maintaining an asymptomatic state. However, the detection of K. kristinae in a patient with less risk factors further contributes to the emerging research that supports K. kristinae being considered as an emerging pathogen. Research toward antibacterial resistance or virulence factors may help with treatment in patients who are infected in the future an provide clinicians with more tools than are available now, to treat their patients.

Conclusion: Kocuria kristinae is being considered an emerging pathogen in the microbiology world as incidence of infection is increasing. Here we present a unique case of an immunocompetent newborn with asymptomatic bacteremia. The increasing possibility of infection with less risk factors speaks to the emerging risk of K. kristinae and warrants further attention and preparation for treatment in a clinical

setting.

Abstract 2022-99

Primary Disseminated Nocardia brasiliensis in an Immunocompetent Patient

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Introduction: Nocardiosis is caused by partially acid-fast gram-positive branching filamentous rods from the genus Nocardia. Over 90 species have been identified with 54 known to causes disease in humans. Nocardiosis often involves pulmonary, cutaneous, or CNS manifestations. *Nocardia brasiliensis*, which accounts for 14% of 765 isolates sent to the CDC between 1995 and 2004, most often presents with dermatologic manifestations such as subcutaneous nodules, abscesses, panniculitis, or mycetomas. Dissemination involves 2 non-contiguous sites of infection. Risk factors include immunosuppression, specifically impaired cell mediated immunity. Disseminated nocardiosis is rarely found in patients without overt immunodeficiency. Prolonged treatment duration of 6-12 months is often required however selecting an appropriate antibiotic regimen is often challenging given that antibiotic susceptibilities vary greatly amongst species.

Purpose of Study: 50-year-old male gardener originally from Peru presented with bilateral lower extremity painful nodules for three weeks. Physical examination and diagnostic imaging were consistent with multiple deep tissue abscesses on bilateral thighs and lower legs. Empiric antibiotics including Vancomycin and PIP/TAZ were initiated and all of the abscesses were surgically incised and drained. Cultures grew Nocardia species and antibiotics were subsequently changed to trimethoprim-sulfamethoxazole (TMP/SMX) two double strength tabs twice a day (10 mg/kg/day) and meropenem 2g IV every 8 hours. Work-up for occult malignancy was unremarkable as CT revealed no masses in the chest, abdomen, or pelvis. Immunodeficiency work-up revealed persistent leukopenia when compared to baseline labs one year prior but was otherwise unremarkable with negative HIV Ag/Ab screen. He incidentally tested positive for SARS-CoV-2 while in the hospital but remained without dyspnea or hypoxia. The Nocardia isolate speciated to *Nocardia brasiliensis,* at which time antibiotics were transitioned to TMP/SMX DS 2 tabs twice a day and linezolid 600mg twice a day. Several weeks after discharge, susceptibly testing confirmed sensitivity to TMP/SMX. Linezolid was discontinued and regimen was narrowed to TMP/SMX monotherapy with anticipated duration of 6-12 months. Finally, further outpatient immunodeficiency work-up 6 weeks after presentation revealed elevated IL-10.

Discussion: In the absence of known immunosuppression, patients diagnosed with disseminated nocardiosis should undergo thorough investigation for underlying malignancy and immunocompromising conditions, specifically impairment in cell mediated immunity. Significant variability in antimicrobial susceptibility across the Nocardia species has been well documented. Discrepancies in susceptibility results amongst different laboratories has also been reported. Due to high variability in antimicrobial susceptibility, empiric therapy with a 2-drug regimen including Amikacin plus a carbapenem or TMP/SMX is recommended for immunocompromised hosts or disseminated disease not involving the CNS. Disseminated disease involving the CNS or life-threatening infections warrant a 3-drug regimen with TMP/SMX plus a carbapenem plus amikacin, Ceftriaxone, or Linezolid while awaiting susceptibility results from a specialized reference lab.

Conclusion: Work-up for occult malignancy and underlying immunocompromising conditions is warranted for presumed immunocompetent patients diagnosed with disseminated nocardiosis. For all patients with disseminated nocardiosis, isolates should be sent to a specialized reference lab for susceptibility testing and, depending on the severity of disease and organ systems involved, empiric therapy with 2 or 3-drug regimens should be continued in the interim.

Abstract 2022-100

From Covid to Bovid to Ovid: A Case of Disseminated Cryptococcus neoformans

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Introduction: Cryptococcosis is an opportunistic pathogen caused by the encapsulated yeast Cryptococcus, with *C. neoformans* and *C. gattii* being the most common species to cause human disease. Immunocompromised individuals are predisposed to infection with *C. neoformans*, which has known predilection to CNS and pulmonary lymph nodes. We present a unique case of disseminated cryptococcosis in the setting of end-stage renal disease (ESRD), cirrhosis, and recent steroid use. This case not only describes a rare case, but also highlights potential treatment challenges.

Methods: A single patient case report was conducted after IRB approval.

Case Presentation: A 55-year-old woman with uncontrolled diabetes, lupus and rheumatoid arthritis on adalimumab, hepatitis C status post boceprevir, cirrhosis, former IV drug use, and ESRD on hemodialysis via bovine arterial-venous fistula graft presented with progressively worsening dyspnea, cough, and altered mental status. Three months prior, patient was admitted to an outside hospital for COVID19, complicated by pulmonary embolism status post anticoagulation therapy. She was treated with an unknown steroid regimen, which was continued by a second outside facility when symptoms failed to improve after discharge. She then presented to our facility 24 hours after discharge due to continued symptoms.

On admission, patient was noted to have altered mentation and hypoxia with pulmonary edema on chest x-ray. She was urgently hemodialyzed with improvement of mentation and hypoxia. Further work-up and imaging were obtained due to non-resolving symptoms, including blood and sputum cultures, cocci serology and QuantiFERON gold. CT chest revealed bilateral consolidations. Patient was started on antibiotics for presumed hospital-acquired pneumonia as well as prednisone for suspected COPD exacerbation.

During the hospital stay, preliminarily blood cultures grew yeast and patient was started on Micafungin. However, Micafungin was changed to Liposomal Amphotericin B as ovoid shape structures seen on gram stain could not confirm nor rule out cryptococcus. Subsequent bronchial wash and bronchoalveolar lavage cultures as well as final blood cultures resulted *Cryptococcus neoformans*. Serum cryptococcus antigen returned reactive, titer 1:512. Antibiotics and steroids were discontinued and Isavuconazonium was started with Liposomal Amphotericin B. Due to recurrent headaches, lumbar puncture was obtained and revealed WBC of 54 with 74% lymphocytes, negative cryptococcus antigen, non-reactive Cocci IgM and IgG, and negative culture. MRI Brain without contrast was inconclusive for cryptococcomas. Patient received 14 days of Liposomal Amphotericin B from negative fungal blood culture and Isavuconazole was continued upon discharge.

Conclusion: Disseminated cryptococcus is rare with few documented cases in literature. While cryptococcus meningitis has a well-known association to HIV, complex forms of disease can be seen in patients with other compounding comorbidities. Clinicians should consider it in immunocompromised or patients with multiple comorbidities. In patients with cirrhosis and ESRD, treatment may deviate from standard first line therapy given altered pharmacokinetics. Specifically, in patients with chronic liver disease and ESRD as well as disseminated cryptococcosis with CNS involvement, studies show an improved survival with the addition of Isavuconazole.

Abstract 2022-101

Takotstubo Syndrome, A Case Series of Twelve Patients

Vishal K. Narang, MD; Pearl Chan, MS IV; Aslan Ghandforoush, DO; Theingi Tiffany Win, MD; Fowrooz Joolhar, MD

Introduction: Takotsubo syndrome was first described in 1990 and carries a clinical presentation like that of acute coronary syndrome and since has gained increased recognition. The onset is frequently triggered by emotional or physical stress resulting in

a transient decrease in cardiac function. Some patients develop complications such as heart failure, arrhythmias, and cardiac arrest. Diagnosis is typically suspected in patients who may be having acute coronary syndrome. However coronary angiographic typically reveals normal or mild to moderate atherosclerosis with identification of left ventricular dysfunction.

Management is typically with supportive therapy as it is generally a transient disorder. Most patients recover however a risk of in-hospital complications is similar to those with acute coronary syndrome. The left ventricular systolic function typically recovers within 1 to 4 weeks. We reviewed 12 patients who were found to have Takotsubo syndrome after suffering various physical and/or emotional insults and evaluated characteristics such as insult, echocardiographic findings, and time to recovery.

Purpose: To review characteristic findings in patients identified with Takotsubo syndrome.

Methods: Approval was obtained from the IRB at Kern Medical (Study ID# 21003). Retrospective chart review was conducted.

Results: We demonstrate twelve cases with various causes and various risk factors resulting in Takotsubo syndrome. Four patients demonstrated prior history of psychiatric conditions including substance abuse, with two of them presenting as suicide attempts. The etiology of the disease was multifactorial as our patients often presented with multiple comorbidities combined with triggers consisting of syncopal episodes, the ground-level falls, motor vehicle accidents, and acute respiratory failure. Two patients even developed Takotsubo syndrome postoperatively

Discussion: We established the diagnosis of Takotsubo syndrome using the InterTAK criteria. Two patients were unable to receive an angiogram given their high risk due to advanced comorbidities. The wall motion abnormalities were otherwise classically present without evidence of flow-limiting stenoses attributed to the findings. Patients typically were found to have apical ballooning however involvement of various segments including mid-distal, inferior, and lateral walls were also seen. Our case series demonstrated two patients with nonobstructive coronary artery disease, which did not exclude the diagnosis of Takotsubo Syndrome.

Patients were managed acutely with supportive therapy. Patients with reduced ejection fraction were started on guideline directed medical therapy for acute heart failure management. Beta-blockers have been proposed to further assist in reducing the effect of catecholamine excess. Complications seen in our patients were typically arrhythmias. We identified only one patient who required mechanical ventilatory and vasopressor support. The quickest recovery time seen in our patient was two weeks with nine demonstrating recoveries of systolic function. Seven of them returned to normal systolic function while two patients demonstrated mild recovery of ejection fraction. Three patients were lost to follow-up and unable to obtain an indication of recovery.

Conclusion: Takotsubo cardiomyopathy is a cardiac disorder where patients present with acute cardiac dysfunction and can mimics one of the most life-threatening conditions. It carries a similar risk profile however is found to be a transient disorder if patients survive. Takotsubo syndrome was seen as a complication to an insult or trigger that led to a significant decrease in cardiac function. Patients that survived were diagnosed and treated. However, it still remains to be seen how many cardiac deaths are a direct result of Takotsubo syndrome.

Abstract 2022-102
Psychosis Linked to Kratom - A Case Study
Salwa Sadiq-Ali, MS IV; Sarayu Vasan, MD

Introduction: *Mitrangyna speciosa*, commonly known as kratom, is a tropical plant native to Southeast Asia and Africa. The plant has widely been used in herbal medicine and religious ceremonies, however, has recently become a drug of abuse. To date, literature has hypothesized the relationship between psychoactive components of kratom and medical and psychiatric conditions with the first documented case in 1957. Despite existing literature, the relationship between kratom and psychosis has been poorly studied and, thus, understood. This case report presents the evaluation

of a patient who presented with symptoms of psychosis after kratom use thus adding to the expanding literature relating to the mechanism by which kratom may cause psychosis.

Purpose/Case: A 22-year-old African American male with a high functioning job and a self-endorsed history of schizoaffective disorder and polysubstance abuse presented to the psychiatric emergency center with symptoms of psychosis including hallucinations, delusions, and hyper-religiosity after reported kratom use. The patient was admitted to the psychiatric unit for observation and treatment. Over the course of admission, the patient improved significantly on Zyprexa. On discharge, the patient was free of symptoms and was prescribed Zyprexa 25 mg for outpatient treatment.

Discussion and Conclusion: Several medical and psychiatric conditions, including psychosis, have been associated with kratom use. Evidence to directly link kratom and psychosis is currently lacking however, evidence exists to support a relationship between the two. Previous studies investigating kratom users and the psychoactive components of kratom itself have reported frequent use, action on certain receptors, and psychoactive components may be the cause of psychotic symptom manifestation. The study of the effects of kratom holds relevance to health care and public health as kratom becomes a globally abused substance. Further research should include clinical trials and investigation into dose dependent effects, the abuse potential, and the exact mechanism by which psychotic symptoms occur. By doing so, health care providers may better understand kratom and provide better care for their patients. This case report describes a patient with a complex medical history who presented with symptoms of psychosis after kratom use in an effort to add to existing literature related to kratom uses' manifestation.

Abstract 2022-103
Atypical Presentation of Hyperuricemia and Tophaceous Gout
Maria Beuca, MS III; Jade Douglas, MS III; Ngon Trang, MD; **Nabhan Kamal, MS III**; Hobart Lai, DO; Everardo Cobos, MD, Sabitha Eppanapally, MD

Introduction: Uric acid is the final product of the purine metabolism pathway and hyperuricemia leading to deposition of monosodium urate crystals in and/or around joints are strongly correlated with disorders such as Gout, Lesch-nyhan syndrome, Familial Juvenile Hyperuricemic Nephropathy and Autosomal-Dominant Medullary Cystic Kidney Disease.

Methods: A single patient case report was conducted after IRB approval

Case Presentation: We present a case of a 36-year-old man from Mexico with history of severe gout with tophi and chronic kidney disease (CKD) who presents to hospital with 1 week history of generalized weakness, oliguria, facial edema, and occasional nausea without vomiting. Patient has strong family history of gout from great grandfather, grandfather, father, and paternal uncles. He has 3 female siblings, one of whom suffers from hyperuricemia with pain in the joints without deformed tophi. Per sister, patient developed gout symptoms when he was 13 years old, and he had a learning disability while growing up. Physical exam shows numerous nonpainful tophi present on both hands, elbows, bilateral knee, ankle, and foot joints with calcification. Laboratory results show CKD5A3 (sub-nephrotic proteinuria 2.6 grams), hyperkalemia with metabolic acidosis, hyperphosphatemia, normocytic anemia, and uric acid level 10.3. Complete retroperitoneal ultrasound revealed chronic renal parenchymal dysfunction and fluid separation of both renal collecting systems without frank hydronephrosis. Nephrology was consulted and recommended urgent hemodialysis as patient has advanced kidney disease with uremic symptoms and is oliguric. Regarding his gout, allopurinol and prednisone are started without NSAIDs due to concern of worsening kidney function. Patient was also started on calcitriol, and sevelamer. Genetic testing for purine metabolism disorders was negative which necessitate further investigation on this rare disease.

Discussion: Hyperuricemia occurs when the uric acid blood levels reach 6.8 mg/dL or greater, leading to deposition of monosodium urate (MSU) crystals particularly in the kidneys and joints. Hyperuricemia can be caused by an increased production of uric

acid, decreased excretion by the kidneys, or both. High rates of purine breakdown are seen in tumor lysis, hemolysis, and rhabdomyolysis. Decreased excretion is seen in renal insufficiency and metabolic acidosis. Crystal deposition in joints leads to gout and in the kidneys leads to uric acid nephrolithiasis. Chronic deposition in joints causes tophaceous gout characterized by hard nodular masses known as "tophi". Tophi first deposit in fingers, toes, and elbows, but can deposit in any tissue as the condition progresses.

Conclusion: Genetic causes of hyperuricemia include deficiencies in the enzymes hypoxanthine guanine phosphoribosyl transferase or glucose-6-phosphate in the purine metabolism pathway that results in excess accumulation, which subsequently results in elevated serum levels of uric acid. Genetic mutations at the renal level are associated with the gene that codes for uromodulin that results in under-secretion of purines in the renal tubules. Clinically speaking, this typically manifests as a reduced fractional excretion of uric acid and hyperuricemia. Two types of such genetic conditions are Familial Juvenile Hyperuricemic Nephropathy and Autosomal-Dominant Medullary Cystic Kidney Disease, both having normal uric acid production but defects in excretion.

Abstract 2022-104
To Close or Not to Close: A Case of Patent Foramen Ovale in a Sickle Cell Patient Presenting with Stroke
Haidar Hajeh, MD; Everardo Cobos, MD; Theingi Win, MD

Introduction: Sickle cell disease (SCD) is a type of hemoglobinopathy that causes formation of hemoglobin S (HbS). Low oxygen causes polymerization of HbS molecules and sickle cell formation. Sickled cells interact with endothelial cells of vessels and form clots. This could explain the higher incidence of ischemic strokes in SCD patients as 24% of SCD patients develop a clinically evident stroke by the age of 45.

The presence of a PFO in a SCD patient with stroke complicates the clinical presentation. It is necessary to understand the pathophysiology of clot formation to determine whether PFO closure should be done.

We present a case of a 60-year-old female with history of SCD who was admitted for vaso-occlusive crisis. During hospitalization, she became altered and MRI showed innumerable shower emboli to the brain. Transthoracic echocardiogram (TTE) showed a patent foramen ovale (PFO). Discussion about PFO closure was deferred to the outpatient setting. Patient was discharged, however presented again for altered mental status due to a new left occipital stroke on CT.

Transesophageal echocardiogram (TEE) and heart catheterization were done followed by percutaneous closure of the PFO with no recurrence of the strokes afterwards.

Case presentation: A 60-year-old female with history of SCD was admitted for a vaso-occlusive crisis. Vitals were stable and patient was managed with resuscitation and pain control. On the following day, she was difficult to arouse to verbal and painful stimuli. She was admitted to the ICU and intubated for airway protection. MRI of the brain showed innumerable punctiform foci of restricted diffusion throughout both cerebral hemispheres concerning for acute strokes. Exchange transfusion was delayed due to having a rare blood type with history of transfusion-related reactions.

TTE was done and showed a PFO. Discussion about PFO closure was deferred to the outpatient setting and decision to discharge the patient on antiplatelet therapy was made.

Patient was brought in again due to altered mentation and severe agitation. CT and MRI of the brain both showed left occipital subacute infarct. She received exchange transfusion and decision to close the PFO was made.

Patient underwent a TEE and a heart catheterization to better visualize the PFO which showed 80% stenosis of left circumflex artery. Patient underwent percutaneous PFO closure and percutaneous coronary intervention (PCI) with no stroke recurrence since.

Discussion: In SCD patients with PFO, it is difficult to determine the etiology of the stroke. It could be due

to SCD causing sickling of RBCs and clot formation, or a systemic embolus passing through the PFO. If SCD was the direct cause of the clot, then clot formation in the left heart or in brain vessels might happen, rendering PFO closure pointless.

Multidisciplinary meetings between cardiology, cardiothoracic surgery, hematology and neurology are usually needed to make the decision of PFO closure.

Conclusion: PFOs in SCD patients with strokes complicates the decision making. Multidisciplinary meetings are needed to make the decision of PFO closure.

Abstract 2022-105
Neonate with Rare Congenital Anomaly of Right Aortic Arch with Aberrant Left Subclavian Artery
Rehana Rafiq, MD; Salma Arechiga, RA; Daisy Arechiga, RA; Se Won Park, RA

We describe a case of a rare congenital anomaly of right aortic arch with aberrant left subclavian artery (ALSA) in a neonate presenting minimal physical examination findings. Signed consent was obtained from a legal guardian, including IRB approval for the case report.

A 10-day-old male who presented to the pediatrics department for a newborn check was diagnosed with a rare congenital anomaly. Parents reported the infant was feeding well with no episodes of respiratory distress. Upon physical examination, gray-blue discoloration of the mouth, lips and tongue was observed. Mom denied previous cyanotic spells. Father reported he had previously seen perioral cyanosis, but states discoloration resolved. Electrocardiogram showed normal sinus rhythm, intervals, QTC and voltages for age. No evidence of pre-excitation. A complete congenital, trans thoracic echocardiogram including: two-dimensional imaging, color Doppler and spectral doppler were performed. Results showed a patent foramen ovale with a left to right shunt and a right aortic arch with ALSA. Normal segmental intracardiac anatomy, normal chamber dimensions and good ventricular function. Cardiologist informed parents there was no evidence of respiratory distress or difficulty feeding related to vascular ring due to diagnosis of right aortic arch and ALSA. This particular patient did not have a diagnostic record of retroesophageal diverticulum. Parents were informed that no intervention was needed at the time. Surgical intervention or advanced imaging will be performed in the future if the patient develops symptoms. The patient's two month well child check was normal, no new symptoms reported. The patient will continue care with the cardiologist and the pediatrician.

This case demonstrates an incidental finding of a congenital anomaly. Congenital anomalies of the aortic arch are important to recognize as they may be associated with vascular rings and can lead to significant diagnosis. Vascular rings can form around the trachea and esophagus, which may be symptomatic or asymptomatic[1]. Symptoms should be closely monitored by the cardiologist or the pediatrician for prognosis and management. The incidence of the right aortic arch is about 0.1%, where it can divide into mirror-image branching or ALSA[2]. ALSA is a more rare phenomenon observed with right aortic arch variants. A right aortic arch can be rarely accompanied by an aberrant left subclavian in the absence of a retroesophageal diverticulum[3]. Patients with absent retroesophageal diverticulum tend to have absent ductus arteriosus, a right-sided, or originates from the left carotid. Therefore, absent a vascular ring however symptoms may develop due to extrinsic compression of the esophagus by the retroesophageal trajectory of the ALSA. Further studies will help clinicians determine the prognosis and necessary intervention.

Aortic arch cardiovascular anomalies are rarely seen in neonates, therefore it is crucial for physicians to monitor and consider several differential diagnoses for chief complaints such as difficulties feeding, and respiratory distress. The diversity of aortic arch anomalies demands further imaging on patients with these diagnoses to rule out any further abnormalities and to monitor symptoms. This congenital anomaly is easily detectable in utero, but rarely symptomatic and diagnosed in neonates.

Abstract 2022-106

Streptococcus Gordonii Empyema: An Unlikely Culprit

Jeremy Miller, MD, MPH; Haidar Hajeh, MD; Ayham Aboeed, MD

Introduction: Empyema is defined as pus within the pleural space, often requiring hospital admission and a multidisciplinary approach to treatment, spanning both medical and surgical subspecialities. Symptoms range from a mild cough and chest pain to respiratory distress requiring intubation and mechanical ventilation. Common pathogens found to be associated with empyema formation include Streptococcus pneumoniae, Staphylococcus aureus, various anaerobes as well as a variety of gram-negative organisms. We present a complicated case of empyema caused by an unlikely culprit, Streptococcus gordonii which required intubation, mechanical ventilation, and chest tube placement.

Case Presentation: A 51-year old Hispanic male with poorly-controlled diabetes mellitus presented to an outside facility with 3 weeks of non-productive cough, chest pain and shortness of breath. Physical exam demonstrated diminished breath sounds on the right and a CT chest confirmed a large right pleural effusion. During that hospitalization, an U/S-guided thoracentesis pleural fluid sample cultured Streptococcus gordonii and patient was discharged with a PICC line and a 6-week course of Zosyn after sensitivity studies.

Patient presented 2 weeks later to clinic and was found to be lethargic and hypoxic, with an O2 saturation of 81% on room air and was sent to the emergency department. CT Chest demonstrated a large right-sided loculated pleural effusion with near collapse of the right lower lobe with multifocal consolidations and scattered bilateral nodules. Patient was subsequently admitted to the ICU and required intubation. Patient was started on antibiotic therapy and thoracostomy tube was placed. Patient improved clinically and imaging showed progressive resolution of the effusion. He was extubated on ICU Day 4 and chest tube was later removed. Multidisciplinary meeting was held and decided in favor of conservative management in the light of the clinical and radiographic improvement. Patient was discharged on hospital day 11 on antibiotics with follow up for possible decortication.

Discussion: Streptococcus gordonii (member of the Streptococcus viridans group) is an inhabitant of the oral cavity and has been associated with cases of endocarditis. S. gordonii empyema is far less common and more aggressive than other causes of empyema. Since initially debuting in the literature in 2017, S. gordonii empyema has appeared in three case reports. Antibiotics resistance has been reported and is possibly attributed to biofilm formation. In such circumstances, Video-assisted thoracic surgery (VATS) for decortication and possible thoracotomy is recommended.

In 2 out of the 3 reported cases of S. gordonii empyema, infections of more distant sites have been reported (spleen abscesses, pyogenic spondylitis). In one of these cases S. gordonii was also isolated from blood cultures which warrants detailed investigation of other sites of infection in cases of S. gordonii empyema.

Conclusion: Prompt management of S. gordonii empyema is warranted with most cases requiring multidisciplinary medical and surgical management. It is important to evaluate for bacteremia and distant foci of infections in all cases of S. goronii empyema.

Abstract 2022-107

Managing Erythrodermic Psoriasis Complicated by MSSA Bacteremia and Infective Endocarditis

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Introduction: Documented cases of erythrodermic psoriasis are treated with systemic immunomodulators, however, we present a case managed with conservative methods instead due to concurrent bacteremia and endocarditis.

Purpose: The patient is a 57-year-old male with a history of one previous episode of erythrodermic psoriasis. One month prior to presentation, he began to have a diffuse, erythematous and pruritic skin rash that began abruptly over his entire body with subjective fevers, chills, and swelling over bilateral

lower extremities. Three days since the onset of the rash, he also noticed pus drainage over the rash present on the upper extremities bilaterally with diffuse, spontaneous sloughing of skin.

Upon arrival, the patient was tachycardic and febrile. Once the diagnosis of erythrodermic psoriasis was established via skin biopsies, topical corticosteroids and broad-spectrum antibiotics due to the unclear source of infection were initiated. Initial blood cultures grew methicillin sensitive *Staphylococcus aureus* (MSSA) and subsequently, nafcillin was started. Repeat cultures showed no growth. Echocardiogram revealed a vegetation along the mitral valve concerning for infective endocarditis secondary to MSSA bacteremia. Nafcillin was continued for 42 days. Skin lesions improved clinically after six days of topical corticosteroid and wet dressing use. He tolerated antibiotic therapy well with continuation via home health.

Discussion: The immunopathogenesis of erythrodermic psoriasis is not fully understood. Silvery plaques are due to T-cell infiltration causing keratinocyte hyperproliferation. Predominance of Th2 differentiation compared to Th1 with subsequent increased IL-4, IL-10 and IgE levels are seen in erythrodermic psoriasis. Systemic agents, such as second-generation retinoids, methotrexate, and cyclosporine, and biologics including TNF- **α** inhibitors, IL-12/23 and IL-17 inhibitors have shown great clinical improvement. Topical steroids and vitamin D analogs are less commonly used as more efficacious therapies are available. Further investigation of the dysregulation of inflammatory pathways and related cytokines is recommended to develop more targeted therapies. Secondary infections of the skin and blood, commonly due to *Staphylococcus aureus* and Group A Streptococcus, must be treated with appropriate antibiotics. Breaks in the skin, which worsen with touching or scratching, put patients at an increased risk for infections.

In the setting of erythrodermic psoriasis where treatment with immunomodulators is known to be the first-line treatment for controlling the disease, we had to forgo such treatment for more conservative and supportive measures secondary to the patient's confounding infective endocarditis. Though our treatment of topical corticosteroids and wet dressings was significantly more conservative than immunomodulators, we believe it achieved comparable results in the patient's resolution of symptoms and reversal of the disease process in a reasonable manner. Symptoms of pruritus, erythema, and skin flaking significantly improved after six days of topical treatment alone.

Conclusion: When a patient with erythrodermic psoriasis also has an infection, as seen in our patient, treatment options become a challenge as immunosuppressive medications, the mainstay treatment, impair the patient's ability to clear the infection. Consider conservative treatment including topical corticosteroids and wet dressings in such cases. We also stress the importance of close monitoring and possible hospitalization due to embolic and septic complications.

Abstract 2022-108
Large Unilateral Pleural Effusion Secondary to Coccidioidomycosis
Jacqueline Uy, MD, MPH; Cecilia Covenas, MD; Danish Khalid, MS IV

Introduction: Coccidioidomycosis, also known as Valley Fever, is a dimorphic fungus endemic to Southwest USA, Mexico, and Central America. Over the last few years, there has been an increase in prevalence raising concerns about this infection. It occurs through inhalation of airborne arthroconidia and primarily affects the respiratory system. Many patients with pulmonary coccidioidomycosis experience resolution of this fungal infection without treatment or through administration of antifungal therapy. However, numerous patients with coccidioidal illness fail to resolve despite appropriate treatment and are accompanied by complications which may ultimately require surgical intervention.

Patients with persistent refractory coccidioidomycosis can present with either nodules or cavitary lesions as complications. Although nodules are benign in nature, they remain a diagnostic challenge as this radiologic finding can mimic cancer. On the other hand, cavitary coccidioidomycosis can be more severe and have

complications such as superimposed bacterial infection or rupture causing an empyema, pneumothorax, and pyopneumothorax.

Case Study: A 47-years-old Hispanic female presented with progressive shortness of breath and dry cough with hypoxia requiring oxygen supplementation. Recently, she had a positive cocci serology ratio of 1:2 and started on Fluconazole appropriately. Subsequent imaging revealed a large pleural effusion obscuring the majority of the left lung field. Thoracentesis yielded 1.5 L of turbid fluid with lymphocytic-predominance. However, despite being initially therapeutic the patient continued to require oxygen supplementation and later started to experience worsening symptoms. Repeat imaging failed to show any resolution of the left lung despite yielding fluid and being on antifungal therapy. Thus the patient underwent diagnostic bronchoscopy with left thoracoscopy with partial decortication. Biopsies taken from the procedure revealed necrotizing granulomatous coccidioidomycosis without any signs of malignancy, superimposed bacterial infection, or tuberculosis. Postoperatively, the patient showed signs of improvement with better oxygen saturation. However, the patient's lung was not able to entirely expand due to the extent of the damage done by the infection and continued to require antifungal therapy.

Conclusion: Approximately two-thirds of patients exposed to arthroconidia experience few or even no symptoms. However, the other third of patients can develop moderate to severe symptoms. The most common presentations are nodules and cavities. As in this case, our patient developed a cavitary lesion leading to empyema due to persistent disease.

With primary coccidioidomycosis presenting more frequently due in part to an influx of susceptible hosts, the need for surgery has increased as well. Azoles are currently the preferred agents for the treatment of most forms of coccidioidomycosis. However, patients should undergo surgical treatment if they experience continued symptoms, lack of resolution or development of cavity despite being on appropriate therapy. Thus, just like in this case, surgical intervention should be considered in those who present with a large pleural effusion requiring decortication to aid antifungal therapy.

Abstract 2022-109

Social Stories: A Novel Application for Treatment of Stalking Behaviors in Patients with Autism Spectrum Disorder

Christina Downing, DO, MPH; Nandhini Madhanagopal, MD; Daven Early, MS IV

Introduction: This is a new application of an established therapeutic approach, social stories, which has potential to decrease stalking behaviors in patients who are unresponsive to traditional cognitive therapies.

Purpose: This case represents an intelligent patient who was previously diagnosed with autism spectrum disorder (ASD). He became obsessed with online acquaintances and requested therapy so that he would no longer stalk the victims. He did not respond to cognitive therapies recommended in the literature. However, with the help of customized social stories, the patient was able to reduce the frequency and the severity of his stalking behaviors.

Discussion: The success from this case shows a possible alternative therapy to reduce recidivism. Future studies would benefit in comparing the re-offense rate, subject retention, and length of treatment when compared to the established therapies, namely cognitive behavioral therapy and dialectical behavioral therapy.

Conclusion: Social interaction, empathy, verbal, and nonverbal communication can be difficult for people with ASD. Social stories are an established behavioral therapy used to address these difficulties. The purpose of this report is to introduce a new application of this established technique with the hope of decreasing stalking behaviors in patients with ASD. Therapists utilizing an eclectic approach may want to consider this method as it could result in a more successful and expedient resolution of stalking behaviors.

Abstract 2022-110

Total Body Subcutaneous Emphysema Presenting as Eye Swelling

Nanse Mendoza, MD; Rachel O'Donnell, MD

Introduction: Subcutaneous emphysema (SE) often results from spontaneous alveolar rupture or uncommonly, disruption of the airway or gastrointestinal tract. The objective of this case report is to review an atypical presentation of pneumothorax (disguised as periorbital edema), highlight a case of severe subcutaneous emphysema, and discuss management.

Purpose: A 49-year-old male presented to the emergency department (ED) for bilateral periorbital edema. The patient was intoxicated, appeared paranoid, and was unable to provide a reliable history, however his complaint was eyelid swelling. He had no other complaints and his vital signs were unremarkable. On examination, he was noted to have symmetrical periorbital edema limiting his ability to open his eyes and diffuse crepitus thought his body including the scalp, face, trunk, scrotum, and extremities with mild tenderness to the chest wall. A chest radiograph showed severe SE (image 1). Laboratory evaluation was only remarkable for the presence of amphetamines on urine toxicology. Given the unknown etiology of the diffuse SE and unreliable history, computed tomography (CT) of the brain, c-spine, chest, abdomen, and pelvis was performed to evaluate for traumatic injuries. Studies revealed bilateral rib fractures with associated small bilateral pneumothoraces, left greater than right (image 2), pneumomediastinum, and severe total body SE (image 3,4). A CT esophogram showed possible esophageal injury and was suspected to be the cause of the SE. The patient was transferred to an outside facility for thoracic surgery evaluation where aerodigestive injury was ruled out via bronchoscopy and re-evaluation of CT esophogram. The patient had a left sided chest tube placed. After observation and routine chest tube care, he was discharged in good condition with improvement of the SE.

Discussion: The differential diagnosis considered for bilateral periorbital edema was wide including anaphylaxis, facial trauma, infection, and nephrotic syndrome. Pneumothorax as the etiology of eyelid swelling and total body SE was initially not considered in this differential as it is an extremely rare presentation. In reviewing the literature, SE to this degree is usually only seen in iatrogenic cases. Diffuse body crepitus calls for more sophisticated imaging such as CT in order to rule out underlying life-threatening injuries such as aerodigestive injury. Although this patient did not have any evidence of respiratory distress and had radiographically small pneumothoraces on presentation, eventually the patient did have one chest tube placed in order to relieve the source of the air leak which was presumed to be the pneumothorax after other causes were ruled out. Delay of drainage of massive SE has been reported to lead to respiratory arrest and thus surgical drainage should be considered via incisions, needles (“blow holes”) or drains. It is also critical that SE be managed promptly as increasing pressure of air can impede blood flow to the skin of sensitive areas such as the genitals leading to skin necrosis.

Conclusion: This case serves to emphasize the importance of a thorough clinical exam, especially in patients who are intoxicated or have psychiatric illness. Finally, it is important to keep a wide differential diagnosis when evaluating periorbital edema.

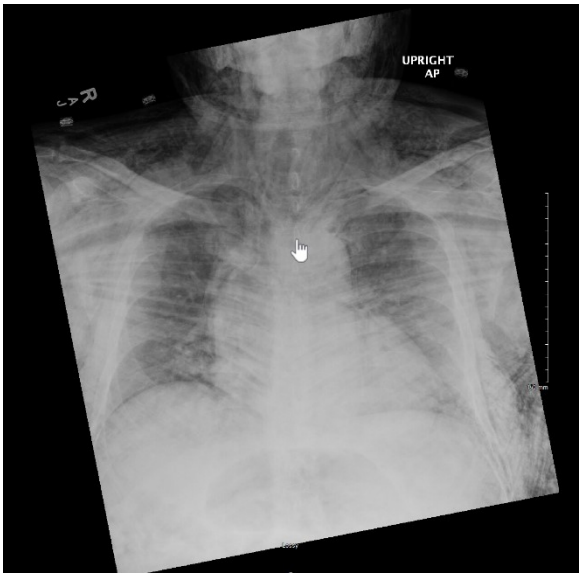

Image 1. Initial chest radiograph showing severe subcutaneous emphysema tracking to the neck, shoulders, chest, and lower jaw.

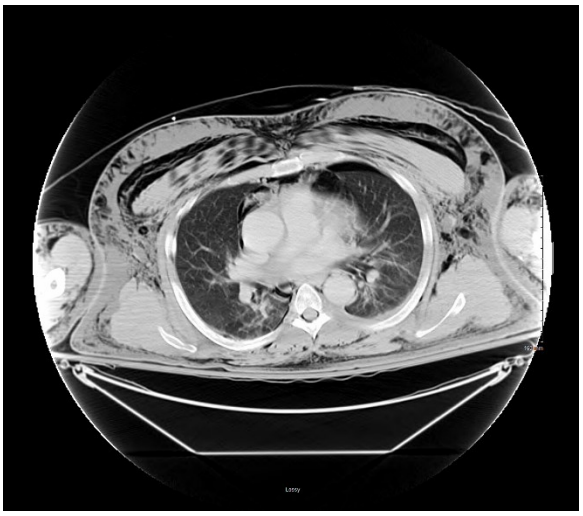

Image 2. Axial view of CT showing small bilateral pneumothoraces, left greater than right.

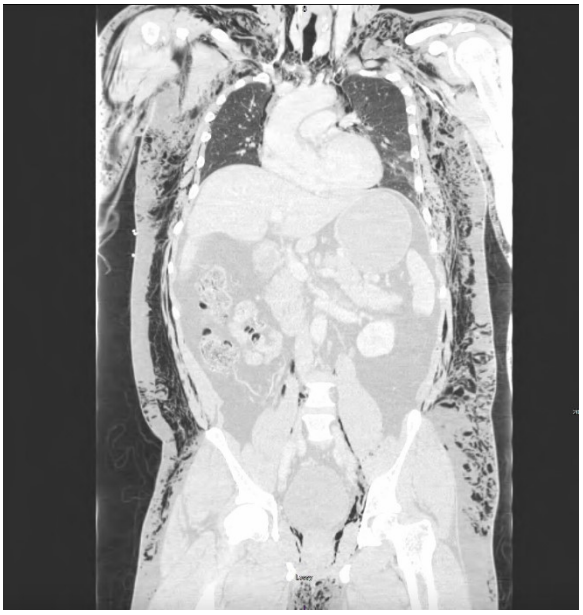

Image 3. Coronal view of CT chest/abdomen/pelvis showing extensive neck, extremity, trunk and genital subcutaneous emphysema.

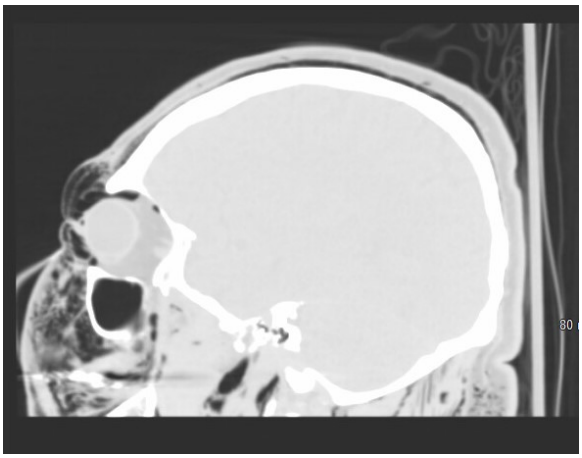

Image 4. Sagittal view of head CT showing eyelid, facial and scalp subcutaneous emphysema.

Abstract 2022-111
COVID-19 Vaccine Failure in a Patient with Chronic Prednisone Therapy for Giant Cell Temporal Arteritis
Sameer Narula, MS IV; Leila Moosavi, MD

Introduction: Corticosteroids are used for a variety of autoimmune pathologies, their mechanism creates inhibitory effects on the immune system decreasing the burden of the disease. Due to this response, corticosteroids have become the mainstay of treatment in inflammatory and autoimmune disorders. While effective for inflammatory or autoimmune diseases, it presents an issue with vaccinations - which relies on a healthy immune response to provide immunity to the target disease. We present a case of COVID19 vaccine failure, and suggestions for the future.

Case Presentation: Patient is a 71-year-old male with a history of giant cell temporal arteritis on chronic prednisone therapy (ranging 10mg/day to 60 mg/day) admitted with worsening shortness of breath for 3 days and cough, chest pain, dyspnea - eventually worsened to the point of lightheadedness on ambulation which prompted him to seek medical attention. Of note, patients received both doses of the Moderna vaccine approximately 3 months prior to this admission.

When presenting to the emergency department, the patient was saturating at 76% on room air, requiring nasal cannula. Patient tested positive for COVID19,

and CXR consistent with multifocal pneumonia. Patient's oxygen requirements fluctuated and declined rapidly and eventually required intubation.

Multiple code blues were called during the hospital course, the patient eventually remained in asystole after multiple resuscitative attempts, and expired.

Discussion: In consideration of this case there are some points we can consider for future vaccinations in patients with chronic autoimmune or inflammatory pathologies on corticosteroids or other immunosuppressive medications.
Although corticosteroids dampen autoimmune and inflammatory disorders, chronic use predisposes patients to infections. This effect can be impacted by dosage, use, underlying disorders and comorbidities, etc. In addition, patients on corticosteroids are more susceptible to invasive fungal and viral infections.

It has shown if a patient receives doses of prednisone ≤20 mg/day patients can receive vaccines and have sufficient immune response. However, if patients require doses ≥20mg/day, it is better to vaccinate the patient, when receiving the lowest dose of corticosteroids, ≤20mg, with/without the concomitant addition of steroid sparing drugs. This allows the patient to receive vaccines, and provide immunity. It has been shown in cases of autoimmune hepatitis, with the addition of Azathioprine, Prednisone dosage can be decreased by 50%.

In this case, it could have been possible to collaborate with the patient's rheumatologist during vaccinations to decrease dosage for response, or with the addition of steroid sparing medications, like azathioprine, to decrease prednisone dosage. By doing so, it could have provided a robust immune response to the vaccine, providing COVID19 immunity and preventing mortality.

More investigations are required to consider vaccinations in patients with autoimmune or inflammatory conditions treated with immunosuppressive medications like corticosteroids.

Conclusion: While corticosteroids have become a mainstay of treatment for inflammatory and autoimmune disorders, it is important to consider this when providing patients with vaccinations. In addition, as medical providers, understanding immunosuppressive effects of corticosteroids in patients while receiving vaccines should be considered and potentially.

Abstract 2022-112
A Case of Inferior MI with Right Ventricular Extension in a Critically Ill Patient
Ryan Roleson, MD; Daniel Quesada, MD

Introduction: 40% of acute myocardial infarction (AMI) involves the inferior wall and generally confers a good prognosis. However, extension to the right ventricle (RV) with bradycardia, complete heart block, and cardiogenic shock drastically reduces likelihood of survival, as demonstrated here.

Purpose: A 58-year-old female with diabetes presented with altered mental status and recent chest pain. Limited history was obtainable, but family reported that the patient had not taken insulin for an extended period.

Initial vital signs included BP 74/48, HR 52, RR 16, temperature 34.5C, oxygen saturation 90% RA with blood sugar > 600mg/dl. Physical exam demonstrated regular rhythm, while bedside ultrasound showed intact left ventricular squeeze and > 50% IVC collapsibility. EKG demonstrated third degree heart block and ST elevations in lead III greater than II and reciprocal iso-electric changes in V1 with depressions in V2.

As a 2L NS bolus resulted in only modest BP improvement and the patient's HR further declined, we initiated transcutaneous pacing and gave calcium chloride with ACS protocol. Minimal BP improvement compelled us to initiate norepinephrine, ultimately to maximum allowable dosing. Hs-troponin resulted at >25,000. Additional labs included blood sugar of 1,248mg/dl with osmolality 343mOsm/kg, and urinalysis demonstrated findings consistent with pyelonephritis. We started insulin and antibiotics, but also noted the patient's heart rate deteriorating despite previous interventions. We initiated transvenous pacing and transferred the patient for

therapeutic catheterization. The patient ultimately expired in the catheterization suite.

Discussion: Extension to the right ventricle of an inferior AMI can feature the development of cardiogenic shock, demonstrated in this case study. Unsurprisingly, it has long been noted that patients presenting with additional complications, including hypotension, heart block, and bradycardia, fare worse for an otherwise survivable diagnosis. ST segment elevation in leads III greater than II with reciprocal depressions in aVL and I is 71% specific for RV involvement and is associated with more complications and increased mortality. A meta-analysis of over 1,100 patients with inferior AMI with RV involvement demonstrated a higher likelihood of cardiogenic shock, advanced heart block, and ventricular dysrhythmias. Results appeared to relate to the presence of RV involvement less than size of infarct territory.

Conclusion: RV involvement in inferior AMI precipitates considerably higher likelihood of morbidity and mortality. This case study describes a death due to RV involvement in the setting of cardiogenic shock, hypotension, and bradycardia with advanced heart block.

Abstract 2022-113
Bilateral Hypopyon in a Fatal Case of Infective Endocarditis

Carlos D'Assumpcao, MD; Christopher Logan, MS IV; Austin Garcia, MS IV; Frederick Venter, MD; Isabel Fong, PharmD; Katayoun Sabetian, MD; Rasha Kuran, MD; Royce Johnson, MD; Arash Heidari, MD

Introduction: Endophthalmitis can be caused by direct inoculation or endogenous spread. Left atrial appendage thrombus can rarely embolize to the retinal arteries causing progressive blindness. If thrombus is infected, it can theoretically cause endophthalmitis, especially in bilateral cases. However, culture dissociation between eye culture and blood culture raises concern for direct inoculation.

Purpose: We report a fatal case of tunneled dialysis catheter-associated MSSA infected left atrial appendage thrombus in an end-stage renal disease patient with left atrial fibrillation complicated by Enterococcus faecalis bilateral hypopyon and vision loss.

Discussion: 67-year-old male with hypertension, diabetes mellitus, atrial fibrillation on rivaroxaban, end stage renal disease on hemodialysis, methamphetamine abuse, and history of right occipital lobe cerebral vascular accident presented with generalised weakness and acute change in vision within three days after undergoing hemodialysis.

Right eye vision loss was worse than left with central darkness and peripheral light vision. Computed tomography angiography found right ophthalmic artery occlusion. MRI found an old large left parietal occipital lobe infarct associated with narrowed left posterior circulating arteries. Cardiac echocardiogram found left atrial appendage thrombus. Blood cultures were positive for methicillin sensitivity staphylococcus aureus. Hemodialysis catheter removed three days after hospitalization had catheter tip cultures with greater than 100 colony-forming units of MSSA.

He was started on nafcillin. Transfer to a higher level of care for neuro-ophthalmology for catheter-directed thrombolysis was pending. Dialysis was continued through a temporally placed hemodialysis catheter. Daily physical exam noted new development of bilateral hypopyons not present on admission.

Blood cultures failed to sterilize after seven days and meropenem was added based on recent literature suggesting penicillin binding protein saturation strategy in refractory MSSA bacteremia. Local ophthalmology aspirated anterior chamber which initially grew beta hemolytic streptococcus. Patient unfortunately had increasing vasopressor requirements during dialysis, which was converted to continuous renal replacement therapy. Patient suffered several cardiac arrests requiring cardiopulmonary resuscitation. Family elected for comfort measures. Anterior segment cultures speciated to ampicillin sensitive Enterococcus faecalis after the patient's death.

Conclusion: Bilateral hypopyon is rare in presentation and raises concern for endogenous spread. Cultural data can help confirm or refute this. Local immunity decrease from ischemia can increase the change of exogenous infection. Patient likely had bilateral ocular ischemia from embolic phenomena leading to external inoculation with Enterococcus faecalis causing bilateral hypopyon. Vitreous humor was not sampled to see if there was the endogenous spread of MSSA from infective thrombophlebitis from his infected left atrial appendage thrombus.

Abstract 2022-114
Meningovascular Neurosyphilis Presenting with Anomic Aphasia
Carlos D'Assumpcao, MD; Christopher Logan MS

Introduction: Ischemic cerebral vascular accidents are more commonly caused by embolic phenomena and more rarely by vasculitis. Imaging can appear tumor like or abscess like as well. Subtle causes of infective vasculitis include tuberculosis, endemic fungal infections, and syphilis. Laboratory testing and neuro imaging can help. Meningovascular syphilis is a potential complication of syphilis that can lead to ischemic stroke by causing focal endarteritis of the medium and large vessels, as well as causing perivascular inflammation.

Purpose: We present a case of chronic ischemic cerebrovascular accident in the left medial temporal region presenting with anomic aphasia with positive serum and CSF testing for syphilis.

Discussion: 61-year-old male from Mexico with uncontrolled diabetes mellitus with hemoglobin A1c 13% presented initially as a low-speed motor vehicle accident brought in by emergency personnel for evaluation due to patient not able to name "cell phone" and asked for help use it to call his family. Neurological exam was only significant for anomic aphasia, where he could describe a hospital as "a place where sick people go". There was no attention deficit on standardized mental status testing. Neuroimaging found low attenuation lesion in the left medial temporal lobe that was non-enhancing and had abnormal T2/flair hyperintensity and significant diffusion restriction as well as other chronic microvascular ischemic changes in the bilateral cortex.

Further history revealed high-risk sexual contact four years prior and two-month history of confusion per family. Embolic stroke evaluation including telemetry monitoring, cardiac echocardiography, and carotid artery angiography was negative. Incidental finding of left posterior circulatory artery occlusion with distal reconstitution could not explain the left medial temporal lobe lesion. There were also numerous dental caries with periapical abscesses.

Lumbar puncture found mild lymphocytic pleocytosis with normal glycorrhachia and protein when adjusted for uncontrolled diabetes. The syphilis enzyme immunofluorescence assay was positive. Rapid plasmin antigen titer was 1:256. The fluorescent treponemal antibody test absorption test was positive. Venereal disease research lab titer in cerebral spinal fluid was 1:8. TB QuantiFERON gold, CSF Biofire, toxoplasma antibodies, HSV 1/2 PCR, coccidioidal serologies, and CSF cultures were negative. He is undergoing treatment for neurosyphilis and is improving.

Conclusion: The radiographic differential most likely suggested acute temporal lobe infarction, less likely cerebritis, or low-grade astrocytoma. Further advanced magnetic resonance imaging such as cerebral digital subtraction angiography, spectroscopy, and perfusion studies are pending at higher level radiology settings. Meningovascular neurosyphilis is the most likely cause of this patient's acute medial temporal lobe infarction, followed by tuberculosis and dental infection.

Abstract 2022-115
The Effectiveness of Anticoagulation in the Setting of COVID-19
Karen Cruz Pelham, PharmD; Jeff Jolliff, PharmD, APh; David Lash, PharmD, APh, CDCES, MPH

Introduction: Systemic hypercoagulability is a feature of COVID-19 that contributes to significant morbidity and mortality. Patients with COVID-19 and admitted to the hospital are at a high risk of developing thrombosis, especially venous

thromboembolism (VTE).

Purpose: To evaluate the effects of varying intensities of anticoagulation dosing on patient outcomes in patients admitted for the treatment of COVID-19.

Methodology: A single-center, retrospective, observational chart review of hospitalized patients with COVID-19 from September 1, 2020 to January 31, 2022 at Kern Medical. Data were collected on demographics, COVID biomarkers, use of non-monoclonal antibody therapies (remdesivir, baricitinib, tocilizumab), use of convalescent plasma, use of corticosteroids, radiology to detect presence of a VTE, anticoagulation regimen and duration, and reason for discontinuation of anticoagulation therapy. The anticoagulation groups assessed were those treated with intermediate dosing (e.g., enoxaparin 40 mg Q12h) versus prophylactic dosing versus full-therapeutic dose anticoagulation treatments. The duration of therapy for each group was evaluated as well if there was any anticoagulation change during the admission. Eligibility criteria included patients in non-ICU and ICU settings who were confirmed to be SARS-CoV-2 positive by polymerase chain reaction (PCR). The primary outcome was mortality, development of a VTE, and bleed rate. Secondary outcomes consisted of development of suspected VTE, assessing anticoagulation changes, poor anticoagulation at initiation, and length of stay.

Results: A total of 607 patients were reviewed between October 2020 through January 2022. 257 patients were excluded due to individuals that were less than 18 years of age, patients that came in with a VTE on admission, less than 2 days of anticoagulation treatment, and not a chief complaint on admission for COVID-19. After exclusion criteria was met, 350 patients were included in the study with 59% male and 40.9% female. The study population had a mean age of 54.5 (20-91) years. The average BMI was 33 (17-81). In terms of race, there was a higher percentage in the Caucasian population with 92.3% followed by African American with 5.4%, Other 2%, and Asian 0.3%. Those that are Hispanic were 266 (76%) individuals and non-Hispanic with 84 (24%) individuals.
Patients that developed a VTE rate was significantly different between the three groups, with 3.0% in the standard prophylaxis group, 4.3% in the moderate-intensity group, and the highest incidence in 12.5% in the therapeutic group (p=0.022). The incidence of bleeding was significantly different with 7.2% in the standard prophylaxis group, 4.3% in the moderate-intensity group, and 22.5% in the therapeutic group (p=0.003). There was no significant difference noted in the mortality rate with 23.2% in the standard prophylaxis group, 17% in the moderate-intensity group, and 32.5% in the therapeutic group (p=0.232). The overall mortality rate was 23.4% between all three anticoagulation groups.

Discussion: In this single-center, retrospective, observational chart review of patients with COVID-19 that were admitted to both non-ICU and ICU, moderate-intensity anticoagulation was associated with the least incidence of bleeding (p=0.003) and had numerically less mortality than the other groups though it failed to reach statistical significance as the study was underpowered to detect such a difference.
The limitations of the study include a lack of COVID-19 variant testing, unable to differentiate the severity of bleeding, and the retrospective nature of the study. However, the data produced shows promise in the use of moderate-intensity anticoagulation. Previous studies found a benefit in using a full therapeutic dosing regimen in non-critically ill COVID-19 patients. Previous investigators did not study moderate-intensity anticoagulation. Based on our findings, this warrants further investigation with a prospective randomized trial.

Conclusion: Moderate anticoagulation may be advantageous among hospitalized patients with COVID-19 admitted to both non-ICU and ICU. Moderate-intensity anticoagulation showed to have less bleeding rates and similar rates of death and VTE. A larger prospective trial should be conducted to confirm that moderate-intensity treatment indeed benefits individuals who are admitted to the hospital with COVID-19.

Abstract 2022-116

A Retrospective Analysis of the Trauma Activation at a Level II Trauma Center During the 2020 Stay-At-Home Order in California

Larissa Morsky, MD; Daniel Quesada, MD; Amber Jones, DO

Introduction: In March of 2020, a stay-at-home order was mandated in Bakersfield, California during the COVID-19 pandemic in an attempt to decrease

community transmission of the virus. This order was lifted in June of 2020. Similar community lockdowns worldwide have led to findings of reduction in trauma injuries of various mechanisms, patient volume and admissions.

Purpose: The purpose of our study was to determine if the data of trauma activations collected at our Level II trauma center followed the trends of other trauma centers in the United States and globally during the COVID-19 pandemic stay-at home order.

Methods: We analyzed the data from all trauma activations that occurred at Kern Medical from March 2020-June 2020 during the mandatory stay-at-home order that was in place in the state of California. We compared this data to the same months of 2019 and 2021 in order to analyze the demographics of the patients and mechanisms of injuries.

Results: During the months of March-June 2020 there were a total of 901 trauma activations. There were 851 during the same time period in 2019 and 1180 in 2021. Motor vehicle accidents constituted the largest proportion in all years with 636 in 2019, 638 in 2020 and 889 in 2021. Assaults were the second largest category with 151 in 2019, 175 in 2020 and 221 in 2021. Mechanical falls also made up a significant portion with 53 in 2019, 70 in 2020 and 61 in 2021. Based on a Chi-squared test there was no relationship between age and year ($p=0.3937$) or gender and year ($p=0.4289$).

Discussion: The COVID-19 pandemic presented unprecedented stress to communities and the healthcare systems worldwide. Upon review of the literature we found that in general there was a reduction in patient volume, admissions, length of stay, trauma activations, and specific mechanisms of injury such as motor vehicle collision and sport injuries.

The observed reduction of trauma activations and certain mechanisms of injury could be due to a patient's reluctance to seek medical attention in the emergency room due to fear of contracting the COVID-19 virus. Our total number of trauma activations during the stay-at-home order was found to be higher than during the same period in 2019, likely due to the fact that we did not see a decrease in the number of motor vehicle collisions. This was incongruent with reports from most of the other trauma centers.

Although there was a decrease in most trauma from outdoor activities, there appeared to be an increase in domestic related trauma as well as household, bicycle and self-inflicted injuries compared to the respective year. Specific injury types such as mechanical falls remained a predominant mechanism of injury during the 2020 lockdown period. We saw a higher number of mechanical falls compared to both 2019 and 2021, which could be explained by elderly patients spending an increased amount of time at home and in isolation along with falls secondary to alcohol or illicit substance intoxication. Our data did not show any correlation or change in the age or gender of patients during the stay-at-home order compared to the same time period in the prior or subsequent years.

Conclusion: While there was an overall decline in trauma activations, admissions, and trauma observed in many trauma centers worldwide, there was an acute increase in specific injury patterns during the COVID-19 stay-at-home order. Data collected at our hospital followed some of these trends including an increased number of mechanical falls and injuries due to self-harm or assault.

Further investigation should be conducted on how patient demographics, numbers, and types of traumas changed in specific regions based on resources available. This would allow healthcare organizations to better prepare for and anticipate needs should a similar situation arise in the future.

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