Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 1: Poster 1

Name of Applicant: Kathryn Andrews
Educational Level: MS4
Institution Name: The Ohio State University College of Medicine

Title: Progressive obstructive uropathy, perinephric fibrosis, bone pain and polyuria lead to the rare diagnosis of Erdheim-Chester Disease

Introduction: Erdheim-Chester Disease (ECD) is a rare, non-Langerhans' cell histiocytosis with the potential to cause multi-system organ dysfunction. Diagnosis requires a high index of suspicion in conjunction with characteristic clinical, radiographic and histopathologic findings, including histiocytes with CD68 positivity.[1]

Case Presentation: A 35-year-old male with a past medical history of retinitis pigmentosa, femoral avascular necrosis, chronic polyuria, and progressive bilateral hydronephrosis secondary to ureteral strictures managed with bilateral ureteral stents and nephrostomy tubes presented with pyelonephritis. Prior to admission, abdominal MRI showed perinephric fibrosis while x-rays revealed long bone sclerosis raising the possibility of ECD. A renal biopsy revealed an interstitial nephritis with CD68 (+) histiocytic cells but was BRAF (-) and therefore less supportive of ECD.

Discussion: Additional workup included a nuclear bone scan showing diffusely increased uptake at the periarticular surfaces. A nuclear PET lymphoma revealed bilateral hypermetabolic uptake in the tonsils, cervical lymph nodes, adrenal glands, kidneys, retroperitoneal, and portocaval nodes along with diffuse perinephric soft tissue thickening. Bone marrow biopsy showed only a hypercellular marrow without atypical histiocytes or fibrosis. After multidisciplinary discussion, maxillary and mandibular biopsies were pursed which revealed xanthogranulomatous and lymphocytic inflammation with CD 68(+), S-100(-), consistent with ECD. Additional workup of the patient's polyuria included a positive DDAVP trial and an MRI brain consistent with central diabetes insipidus due to inflammatory hypophysitis, which can also be seen in ECD.

Conclusion: Less than 600 cases of ECD have been described worldwide and more than half are associated with somatic BRAF mutations.[2] Clinical manifestations typically include long bone pain from osteosclerosis, xanthelasma, and retroperitoneal infiltration. Manifestations involving the hypothalamus-pituitary axis, neurologic, pulmonary, and cardiac systems are also seen. Affected individuals are predominantly middle-aged males, with variable severity.[3] In addition to characteristic clinical findings, diagnosis is histopathologic including CD68/CD163 (+), S100 (-) histiocytes.[4] Due to extensive fibrotic surroundings, histopathologic diagnosis via biopsy may be challenging, as was the case with our patient.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 1: Poster 2

Name of Applicant: Nathan Callender, BA
Educational Level: MS3
Institution Name: The Ohio State University College of Medicine

Title: Birth in the Era of SARS-CoV-2: Evolving Neonatal Care and a Case Presentation

Introduction: SARS-CoV-2 (COVID-19) is a novel virus. The clinical presentation in diverse. Best practices for prevention and care of infected patients are evolving. This case demonstrates a unique neonatal presentation of SARS-CoV-2.

Case Presentation: MA is a full term male born via spontaneous vaginal delivery to a G4P2 mother. The neonatal period was unremarkable and he was discharged on DOL 1 successfully breastfeeding and supplementing with formula per his mother's choice. On DOL 5 the mother noted that MA was no longer feeding well at the breast nor taking formula. He was evaluated by his primary care physician who noted difficulty feeding and jaundice that did not meet criterion for intervention. Close follow-up was arranged in case of a lack of clinical improvement. MA did not improve in the next 24 hours, so he was admitted to the hospital on DOL 7. Surveillance COVID-19 nasopharyngeal swab RT-PCR testing was negative. A full septic workup was negative. He received 24 hours of antibiotics plus IVF. OT and lactation were consulted, and he met discharge criterion on DOL 11. However, on DOL 12, the baby was readmitted for persistent feeding difficulties. Surveillance COVID-19 nasopharyngeal swab RTPCR testing was positive on DOL 13. Supportive care was provided, and MA was discharged on DOL 16 with appropriate weight gain and levels of activity. No sick contacts were identified and it remains unclear where the infant contracted COVID-19.

Discussion: According to studies available at this time, the presentation of COVID-19 in neonates is often centered around respiratory distress and/or pneumonia. One study reported 18% (12/67) of neonates who tested positive in the early neonatal period were admitted to the NICU for these reasons [1]. Other notable presentations have been disseminated intravascular coagulation and asphyxia [1, 2]. The presentation of MA is varied from these studies and is important to note as a possible presentation of COVID-19 in the first days of life. More importantly, though, MA's presentation brings to light the importance of minimizing the possibility of COVID-19 exposure in our vulnerable populations – especially as the details of this virus are further characterized. Also, it prompts further investigation into the sensitivity and specificity of current screening assays, as there have been false positive and false negative
results reported [3].

Conclusions: Lethargy and feeding difficulties may be a presentation of COVID-19 in the neonatal period. Promoting exposure precautions is paramount to avoiding horizontal transmission of COVID-19. Further research is needed to elucidate the transmission characteristics, most effective exposure precautions, and efficacy of current screening tools of the COVID-19 virus.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 1: Poster 3

Name of Applicant: Bipul Gnyawali, BS
Educational Level: MS4
Institution Name: The Ohio State University College of Medicine

Title: Point of Care Ultrasound in the Diagnosis of Leukostasis

Introduction: Leukostasis is a rare condition characterized by clinically manifested hyperleukocytosis in which accumulation of immature white blood cells can be seen in microvasculature. The resulting white cell plugs typically lead to neurological and pulmonary compromise which, if left untreated, have a one-week mortality rate of 40%[1]. Rapid diagnosis and treatment are required to prevent life-threatening complications. However, diagnosis can often be delayed in patients with non-specific symptoms and lack of radiologic findings. Point of care ultrasound (POCUS) is a potentially viable imaging modality to evaluate pulmonary leukostasis.

Case Presentation: A 74-year-old male with history of hypertension presented to the ED with 5 days of dyspnea and fatigue. He was alert, oriented and in no acute distress. Vitals signs were afebrile, pulse 102, and SpO2 90%. He had diffuse crackles on bilateral lung bases. Labs showed WBC 159,000/uL, platelets 62,000/uL, INR 1.6, creatinine 2.28 mg/dL, serum uric acid 16.5 mg/dL, LDH 1841 U/L, and lactate 2.83 mmol/L. Chest X-Ray showed no concerning acute findings. Bedside cardiac and pulmonary ultrasound demonstrated no pericardial effusion and normal ejection fraction, but there was evidence of bilateral B-lines in the lungs. Hematology was consulted emergently for concern of leukostasis and the patient was diagnosed with AML. He received IV fluids, hydroxyurea, and rasburicase. Emergent leukapheresis was performed and he was started on induction chemotherapy. However, the patient had worsening kidney failure and respiratory failure and passed away on hospital day 11.

Discussion: This case demonstrates the utility of POCUS in aiding the diagnosis of leukostasis. This condition can cause rapid deterioration, as seen here, and high clinical suspicion is necessary to diagnose and manage such patients. Currently, leukostasis is a presumed clinical diagnosis based on presenting clinical symptoms, hematologic testing and radiologic imaging. However, chest X-ray can often have negative findings at presentation2. In this patient with an initially unremarkable chest X-ray and no previous history of hematologic disease, POCUS was a rapid and accessible imaging modality that aided in the eventual diagnosis. B-lines on pulmonary ultrasound are indicative of interstitial edema which has been studied in other conditions such as cardiogenic pulmonary edema. Sonographic findings have been shown to have greater accuracy in acute pulmonary pathologies such as pneumonia3. Future research is thus warranted to evaluate the accuracy of POCUS in pulmonary leukostasis.

Conclusion: Leukostasis is a life-threatening hematologic condition that leads to rapidly progressing organ failure with high mortality rate. White blood cell plugs in the microvasculature commonly lead to pulmonary and CNS dysfunction. This patient presented with non-specific signs of dyspnea and fatigue but was quickly found to have pulmonary manifestations in the setting of hyperleukocytosis with the use of POCUS. This finding allowed expedited diagnosis and management of the patient.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 1: Poster 4

Name of Applicant: Rajshri Joshi
Educational Level: MS4
Institution Name: Ohio University Heritage College of Osteopathic Medicine

Title: Recurrent Acute Pancreatitis in the Setting of Superior Mesenteric Artery Syndrome

Introduction: Various causes of recurrent acute pancreatitis have been identified in the past. This is a novel case of "recurrent" acute pancreatitis in the setting of superior mesenteric artery syndrome (SMAS). SMAS is characterized by compression of the third part of duodenum between the aorta posteriorly and the superior mesenteric artery anteriorly1.

Case Presentation: A 45-year-old man presented with worsening upper abdominal, bilateral flank pain and nausea without emesis. He was hemodynamically stable with history significant for unintentional weight loss of 35Ibs. Physical examination was significant for epigastric tenderness. Laboratory data demonstrated normal kidney function, glucose, albumin, calcium, unremarkable urinalysis, but elevated lipase enzyme. Diagnostic imaging included contrasted-computed tomography (CT) of the abdomen and pelvis, which showed inflammation in the tail of pancreas without necrosis. Dilation of the second and third portion of the duodenum with an abrupt change in caliber along with narrow aortomesenteric angle was observed. The patient was managed conservatively with intravenous fluids, intravenous morphine and nothing per mouth status. Diet was advanced gradually. Other potential causes of acute pancreatitis like gall bladder stones or biliary obstruction, alcohol or drug induced pancreatitis were ruled out. Based on the patient's clinical presentation, laboratory and radiographic findings, he was diagnosed with SMAS -associated acute pancreatitis. Patient was readmitted again two months later with a similar presentation. CT of the abdomen and pelvis showed acute pancreatitis complicated by splenic vein thrombosis with resolution of duodenal dilation. During the recurrent episode, he was again conservatively treated as well with subsequent excellent recovery.

Discussion: Acute pancreatitis complicated by SMAS is an extremely rare presentation, with only very few cases, reported.1,2,3 This is the first report to describe SMAS in association with "recurrent" acute pancreatitis. In this case, recent excessive and rapid weight loss resulted in a loss of retroperitoneal fat and, subsequently, a decrease in aortomesenteric angle, which lead ultimately to duodenal compression. The exact mechanism of pancreatitis in SMAS is still unknown, but it is proposed that the secondary occlusive post-papillary syndrome due to duodenal compression could cause reflux of bile into pancreas causing inflammation. As it was shown in our patient, SMAS complicated by acute pancreatitis is usually conservatively treated by correcting electrolyte disturbances, gastroduodenal decompression and nutritional support, with an ultimate goal of weight gain to allow for retroperitoneal fat pad reinforcement.4 Surgery is indicated for patients where conservative management fails.

Conclusion: Timely diagnosis and treatment of SMAS is pivotal to avoid serious complications such as fatal electrolyte abnormalities, gastric rupture, gut perforation, upper gastrointestinal bleeding, hypovolemic shock, oliguria, or sudden cardiovascular collapse. [5] Since recurrent pancreatitis due to SMAS is a rare condition, increased awareness of its existence to facilitate early diagnosis and prompt treatment that is paramount.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 1: Poster 5

Name of Applicant: Kenna Koehler
Educational Level: MS4
Institution Name: The Ohio State University College of Medicine

Title: Treatment of Extreme Hypertriglyceridemia and the Severity of Related Pancreatitis

Introduction: Hypertriglyceridemia is the third most common cause of pancreatitis after alcohol and gallstones. The risk of developing pancreatitis is 5% with triglyceride levels over 1000 and 10-20% with triglyceride levels above 2,000 (1). Treatment options for hypertriglyceridemia include nutritional intervention, antihyperlipidemic drugs, and pheresis (2). Most cases of pancreatitis are uneventful and result in complete recovery, however a subset of patients experience a prolonged, challenging disease course (3).

Case Presentation: A 47-year-old male presented to the ED with severe epigastric abdominal pain, elevated lipase, hypocalcemia, and triglycerides greater than 10,000. Blood was noted to be grossly lipemic. BISAP score was 1 on admission. History was notable for recent several month period of heavy alcohol use. Patient was initially treated with insulin drip and one session of apheresis, after which triglyceride levels dropped to 200 and remained stable. Calcium was carefully corrected over one week until it stabilized. Patient initially improved until day 4 after which he had increased oxygen requirements and worsening abdominal pain and distension. He continued to have worsening peripancreatic, intraabdominal, and retroperitoneal fluid collection noted on repeat CT scans over the next two weeks. He then developed a fever concerning for infection in the setting of persistent intraabdominal fluid collection, however blood cultures remained negative. He was started on empiric Zosyn for 7 days, after which inflammatory markers and leukocytosis began to resolve. Patient then began to slowly improve over next two weeks but had persistent severe pain, distension, and oxygen requirements throughout hospital course. Length of stay was 3 weeks.

Discussion: Identifying severe hypertriglyceridemia is important for urgent treatment planning and counseling patients on expected illness course and outcome. This case represents acute pancreatitis complicated by severe hypertriglyceridemia, which has been shown to result in longer disease courses and a higher rate of complications such as shock and infection (3-4). One study showed that patients with pancreatitis due to hypertriglyceridemia had a higher incidence of pancreatic necrosis, infected pancreatic necrosis, and organ failure compared to patients with pancreatitis due to other causes (5). They also showed a positive correlation between triglyceride levels and disease severity (5-6). Apheresis is indicated in severe cases of hypertriglyceridemia, such as this patient, and early timing is crucial in reducing morbidity and mortality (2). Reduction of triglyceride levels by 70% in cases of extreme hypertriglyceridemia have typically been observed, however interestingly our patient's triglycerides reduced by 98% (2). Benefits of apheresis in severe hypertriglyceridemia include rapid lowering of LDL that is not attainable with drug therapy alone (7).

Conclusions: Degree of hypertriglyceridemia may predict severe outcome and prolonged disease course in pancreatitis. This is vital for treatment planning as urgent apheresis is indicated in cases of severe hypertriglyceridemia.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 2: Poster 1

Name of Applicant: Mara Leyendecker
Educational Level: OMS IV
Institution Name: Ohio University Heritage College of Osteopathic Medicine

Title: Psoriasiform Eruption in Recalcitrant Kawasaki Disease: A Case Report

Introduction: Kawasaki disease (KD) is a systemic inflammatory illness that commonly occurs in children. Symptoms include fever, rash, mucosal changes, erythema of the hands and feet, lymphadenopathy, and conjunctivitis (Menni). The cutaneous rash is most commonly polymorphous, and rarely presents in a psoriasiform manner (Eberhard). First line treatment for KD involves aspirin (ASA) and intravenous immune globulin (IVIG). For refractory cases, cyclosporine, infliximab, and corticosteroids can be used (Saneeymehri). This paper presents a case of refractory KD with a psoriasiform eruption developing in a 5-month-old.

Case Presentation: A 5-month-old male presented with a history of intermittent fever, an erythematous rash, and redness of his lips and tongue. He was febrile on exam with mucopurulent conjunctivitis, swelling of the distal extremities, and desquamation of the hands and feet. Erythematous papules and plaques with a fine white scale and focal areas of crust were noted on the bilateral upper extremities and cheeks. Laboratory workup revealed a leukocytosis, thrombocytosis, elevated ESR and CRP. No discrete aneurysm was identified on echocardiogram; however, he was started on high-dose ASA and IVIG infusion. He was monitored for 72 hours, remained afebrile, and was discharged home on low-dose ASA and clopidogrel. Three days later a follow-up echocardiogram demonstrated worsening disease status. He was started on enoxaparin and received additional IVIG and started infliximab infusions. Due to his progressive and resistant KD, he was started on IV cyclosporine and transitioned to oral cyclosporine on discharge. During his second hospital admission, a punch biopsy of the rash demonstrated a psoriasiform dermatitis with the following findings: uniform psoriasiform hyperplasia with mild spongiosis, thinning of the suprapapillary plates, hypogranulosis, hyperkeratosis with parakeratosis, vascular dilation in the dermal papillae, and prominent neutrophilic inflammation. After starting cyclosporine, his rash completely resolved. Five months after discharge, he remained stable on oral cyclosporine.

Discussion: The case above demonstrates a rare psoriasiform exanthem in a patient with KD. While the cutaneous findings appear similar to psoriasis vulgaris, the lesions behave differently and are thought to be a distinct phenotype (Haddock). The cause of psoriatic lesions in patients with KD is currently unknown. Since KD is an autoinflammatory condition, some theorize the release of cytokines “unmasks” psoriasis in predisposed patients. The release of cytokines may activate T- cells to release interleukin-1a, which could subsequently lead to psoriasis due to an increase of T- cells in the skin (Eberhard).

Conclusion: In summary, this patient had recalcitrant KD with the development of a psoriasiform rash. He was started on cyclosporine due to worsening of his disease. This resulted in stabilization of his psoriasiform skin eruption and coronary artery aneurysms.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 2: Poster 2

Name of Applicant: Tassiana Maloof
Educational Level: MS4
Institution Name: The Ohio State University College of Medicine

Title: Challenges in determining the etiology of cirrhosis

Case Presentation: A 37 year old Caucasian woman with alcohol use disorder presents with three weeks of jaundice and two weeks of abdominal distension. Her physical exam was remarkable for jaundice, scleral icterus, abdominal distension, bilateral lower extremity pitting edema. Her initial labs were significant for ALT 30, AST 70, Alk Phos 111, Total Bilirubin 23.2, INR 4.2, MELDNa 39, Madry score 150. The patient underwent a RUQ US which was significant for cirrhosis and ascites and she was given the diagnosis of decompensated alcoholic cirrhosis and alcoholic hepatitis. Upon further cirrhosis workup, the patient's anti-smooth muscle antibody was found to be 1:320 and her HCV antibody was positive but HCV RNA PCR was negative. She was then given the diagnosis of decompensated cirrhosis caused by mixed alcohol and autoimmune hepatitis etiologies. The patient was started on diuretics as well as Budesonide and Imuran for autoimmune hepatitis. The patient is currently undergoing extensive workup for a liver transplant.

Discussion: The most common causes of liver cirrhosis are NASH, alcoholism and viral hepatitis with as many as 20% being caused by alcoholism.2 Although alcohol is the likely etiology of cirrhosis in an alcoholic, a mixed picture is still possible as was evident in this case where the patient had both alcoholism and autoimmune hepatitis contributing to her disease. This case highlights the importance of performing complete workups in order to accurately diagnose and therefore appropriately treat a patient with cirrhosis. In addition, patients with anti-smooth muscle antibody seropositivity can result in a false positive HCV antibody test which is again illustrated by this case.[1] The possibility of a false positive HVC antibody test highlights the importance of both recognizing situations in which a false positive test can result as well as the importance of obtaining a HCV RNA PCR to confirm a positive HCV antibody.

Conclusions:

1. There are many etiologies to consider when working up a patient for cirrhosis
2. Although alcohol is a common cause of cirrhosis, it is important to perform an appropriate workup in a patient with both cirrhosis in order to rule out a mixed etiology leading to the cirrhosis
3. In a patient with a positive HCV antibody it is necessary to obtain a HCV RNA PCR to confirm the diagnosis and rule out a possible false positive test or a resolved infection.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 2: Poster 3

Name of Applicant: Nisha Ganesh
Educational Level: MS4
Institution Name: The Ohio State University College of Medicine

Title: Posterior Reversible Encephalopathy Syndrome Following Orthotopic Liver Transplant in a Sickle Cell Patient

Introduction: Posterior Reversible Encephalopathy Syndrome (PRES) is a neurologic disorder characterized by nonspecific symptoms including seizures and altered mental status. PRES has been described in relation to solid organ transplantation, immunosuppression, elevated blood pressure, and sickle cell disease (SCD). Here we present a case of a patient undergoing liver transplantation with SCD complicated by development of PRES.

Case Presentation: A 54-year old male with a history of cryptogenic cirrhosis and sickle cell disease presented for orthotopic liver transplantation (OLT). He underwent OLT with no operative complications and his postoperative immunosuppressive medications included Tacrolimus.

On postoperative day five, the patient developed two episodes of witnessed seizure activity. The episodes consisted of two minutes of bilateral upper and lower extremity tonic-clonic movements and facial grimacing, followed by a postictal period of confusion. Further evaluation demonstrated AKI and acute hypertension with a MAP of 117.
Hypertension was treated, Keppra was administered, and Tacrolimus was discontinued. MRI was significant for bilateral hyperintensities involving parietal lobes, superior frontal lobes, and temporal-parieto-occipital watershed regions consistent with a diagnosis of PRES.

The patient's further post-operative course was unremarkable, and he was discharged on post-operative day 13. His discharge immunosuppression regimen included Everolimus, Mycophenolate, and prednisone as well as Keppra and neurology follow up. He recovered well and has experienced no additional seizures since discharge.

Discussion: Posterior Reversible Encephalopathy Syndrome (PRES) is an acute neurological disorder characterized by subcortical vasogenic edema thought to be due to breakdown of the blood-brain barrier. Factors such as elevated blood pressure, organ transplantation, and immunosuppression can all predispose patients to PRES. A relationship between PRES and cytotoxic medications, especially Tacrolimus, has been well documented in the literature (Qisi, 2010). Symptoms of PRES are non-specific and may include headaches, visual disturbances, tonic-clonic seizures, and focal neurologic abnormalities. The diagnosis is made clinically, but magnetic resonance imaging is the most sensitive diagnostic test. Treatment is aimed at reversing the precipitating cause, including blood pressure control, stopping immunosuppression, and administration of anti-epileptic medications (Fischer, 2017; Fugate, 2015).

PRES has an incidence ranging from 0.5-5% in solid organ transplant patients (Barbas, 2013) PRES has also been reported more frequently in SCD patients. One review of twelve patients with SCD who underwent OLT suggests that these patients may be more susceptible to the neurotoxic effects of tacrolimus due to their underlying vasculopathy (Hurtova, 2011). In these patients, it may be beneficial to initiate regular neuro checks, achieve aggressive blood pressure control, and even consider prophylactic use of anti-epileptics.

Conclusions: This case highlights the importance of maintaining PRES in the differential in all patients undergoing immunosuppression who develop neurologic changes, especially those with SCD. Maintaining a high index of suspicion is crucial for prompt detection, treatment, and prevention of long-term neurologic consequences.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 2: Poster 4

Name of Applicant: Jasneet Singh
Educational Level: MS4
Institution Name: The Ohio State University College of Medicine

Title: Cyclical Fever of Unknown Origin in Young Male

Introduction: Since first described in 1961, fever of unknown origin (FUO) remains a diagnostic challenge for physicians. Atypical presentations of disease contribute to the difficultly in establishing a diagnosis.

Case Presentation: A 26 yo Caucasian male presented to the ED with multiple episodes of fevers, cervical lymphadenopathy, fatigue and tonsillar swelling over the preceding three months. The most recent episode also included non-bloody diarrhea and polyarthralgia. His presenting temperature was 101.9oF and physical exam showed enlarged tonsils, cervical adenopathy, joint effusions, and erythema nodosum. Initial labs displayed a leukocytosis (15.94 K/ul) and mildly elevated CRP, ESR and LDH. He was admitted and thorough FUO workup was obtained.

His ASO titers were elevated; however, further infectious workup was unrevealing, including: rapid strep test, monospot, HIV, syphilis, TB quantiferon, Fungitell, molecular enteric panel, and EBV/CMV PCR. Serologic testing was negative for ANA, RF, CCP, ACE, ANCA, anti-smooth muscle, dsDNA, SS-A/Ro. His ferritin was mildly elevated to 390 ng/mL. CT imaging showed splenomegaly and inflammatory stranding of the colon. Colonoscopy was performed but biopsies were negative for IBD. PET scan showed hyper-metabolic bilateral cervical lymphadenopathy. An excisional lymph node biopsy identified necrotizing granulomas as well as EBER+ cells likely due to reactivation in the setting of immune dysfunction. Flow cytometry of the biopsy did not reveal any monoclonal cell populations. Without evidence of infectious or malignant etiology, the patient was discharged with a presumptive rheumatologic disorder.

Discussion: Adult onset Still's disease (AOSD) accounts for 5% of rheumatologic disease found in FUO cohorts1. The most sensitive criteria for AOSD is the Yamaguchi criteria (sensitivity 93.5%)2. This patient satisfies 3 out of 4 major criteria: fever, arthralgias, leukocytosis; and 4 out of 5 minor criteria: sore throat, lymphadenopathy, splenomegaly, negative ANA and RF. Classification necessitates the exclusion of mimicking conditions. The lymph node pathology shows histologic features favoring a reactive or infectious process; however, necrotizing granulomatous lymphadenitis has been described in the setting of AOSD3. This patient's presentation is also atypical as AOSD is often associated with very high levels of ferritin; though, the specificity of this marker is 40.8%4. A combination of clinical clues and process of exclusion drives the diagnosis in this patient, who has had symptomatic relief with immunosuppressive medications since discharge.

Conclusion: Lack of definitive diagnostic testing and atypical presentation of disease contribute to the growing number of undiagnosed patients in FUO cohort studies. This patient's constellation of symptoms are best explained by AOSD, but his uncharacteristic features led to a challenging workup. With a growing number of FUO patients being diagnosed with a rheumatologic disorder, this case exemplifies the need to continue investigating uncommon presentations of rheumatologic disease.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 2: Poster 5

Name of Applicant: Lauren Spaeth
Educational Level: OMS I
Institution Name: Ohio University Heritage College of Osteopathic Medicine

Title: Gemella morbillorum: A rare cause of Infective Endocarditis

Introduction: Gemella morbillorum is a Gram-positive coccus, catalase negative facultative anaerobe that is normal flora in the oropharynx and gastrointestinal and genitourinary tracts. It is a rare pathogen in infective endocarditis, accounting for <1% of cases.1

Case Description: A 23 year old male presented to the emergency department complaining of a three day history of nocturnal cough producing bloody, yellow sputum. He denied fever, intravenous drug use, significant past medical history or ill contacts. He had immigrated from Guatemala to Colorado eight months before presentation to work as a painter. In the ED, he developed respiratory failure, presumed a result of pneumonia, and rapidly decompensated into cardiogenic and distributive shock. A transthoracic echocardiogram showed a bicuspid aortic valve and large vegetations on the mitral and aortic leaflets, severe mitral and aortic regurgitation with perforated leaflets, findings consistent with infective endocarditis. Blood cultures were positive with Gram positive cocci in clusters. His tenuous condition required urgent cardiothoracic surgery to replace both mitral and aortic valves. G.morbillorum was identified employing matrix-assisted laser desorption/ionization using time-of-flight mass spectroscopy. (MALDI-TOF MS).3 Consequently, he began intravenous gentamicin and ampicillin. The source of infection was identified on dental panorex as a lucency in his left lateral incisor; on subsequent questioning, the patient disclosed a history of dental carrie with filling that fell out and was replaced before arriving in the US. His postoperative course was complicated by recurrent pneumothoraces, complete heart block, atrial fibrillation with rapid ventricular response, and cardiac arrest due to torsades de pointe and ventricular fibrillation ultimately requiring pacemaker/defibrillator implantation prior to discharge. The aforementioned antibiotics were completed over his 31-day hospitalization.

Discussion – This case highlights pre-disposing factors associated with endocarditis: male sex, a congenital bicuspid aortic valve and recent dental work. G. morbillorum is not easily identified with traditional microbiologic methods and requires more sophisticated techniques utilizing mass spectroscopy. Biofilm production and downregulation of Interlukin-12 / Interferon-γ support this organism's opportunistic pathogenicity.2 A recent case series from Cleveland Clinic identified this Gemella species in <1% of endocarditis patient registry.1

Conclusion- G. morbillorum, although normal flora, may become pathogenic and cause endocarditis in patients with underlying risk factors such as valvular abnormalities, intravenous drug use and prosthetic heart valves. Utilization of advanced identification microbiologic technology facilitates identification and consequent treatment with appropriate antibiotics.

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Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 3: Poster 1

Name of Applicant: Kimberly Sycks / Steffen Simerlink
Educational Level: MS4
Institution Name: The Ohio State University College of Medicine

Title: A Case of Dry Beriberi from Alcohol Use Disorder and Disordered Eating

Case Presentation: In this case report, a 20-year-old female with no past medical history presented with three weeks of ascending paralysis. At presentation, she could not grasp objects, walk, or rise from a seated position. She reported consuming excessive alcohol and an otherwise limited diet due to picky eating. Laboratory evaluation revealed transaminitis with a hepatocellular pattern, macrocytic anemia, low thiamine, low niacin, low folate, elevated cobalamin, low ascorbic acid, and hypomagnesemia. Glucose, riboflavin, pyridoxine, vitamin E, and copper were within normal limits. Cerebrospinal fluid studies were without albuminocytologic dissociation. Neuroaxial MRI was normal. The patient was ultimately diagnosed with acute inflammatory demyelinating polyneuropathy secondary to dry beriberi from severe protein-calorie malnutrition and alcohol abuse. She received an aggressive thiamine replacement regimen as well as physical and occupational therapy. She spent 18 days in a rehabilitation facility and was discharged home with continued outpatient therapy 24 days after her initial presentation.

Discussion: Thiamine, vitamin B1, is a water-soluble vitamin acquired through diet and is utilized in chemical reactions in every organ system in the body (1, 2). Thiamine is converted to its active form, TPP (thiamine pyrophosphate), in the blood, which requires magnesium. TPP is essential in the Krebs cycle, pentose-phosphate pathway, and neurotransmitters for neuronal excitation and inhibition (1). Common clinical manifestations of low thiamine levels include dry beriberi (peripheral neurologic sequelae), wet beriberi (fluid overload), and Wernicke's encephalopathy (acute mental status changes and ataxia) (1). This patient's diet of unenriched carbohydrates and excessive alcohol explains her thiamine deficiency. Furthermore, hypomagnesemia related to alcohol use inhibits the conversion of thiamine to TPP.

Conclusion: This patient case offers a unique presentation of ascending paralysis without albuminocytologic dissociation due to severe dry beriberi from a diet of unenriched carbohydrates and excessive alcohol in an otherwise young, healthy adult in the United States. Our goal is that in reviewing the unusual details of this case, providers will be equipped for timely diagnosis and treatment of similar cases in the future.

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Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 3: Poster 2

Name of Applicant: Jordan Vojtush
Educational Level: OMS-IV
Institution Name: Ohio University Heritage College of Osteopathic Medicine

Title: Neuroblastoma in Children: A Critical Differential

Introduction: Neuroblastoma, a tumor consisting of neural crest cells, causes 15% of pediatric cancer fatalities each year. The disease is known to range in severity depending on the patient's age, tumor stage, and genetic abnormalities.

Case Description: Patient is a 3-year-old healthy male, who presented to the ED in January complaining of worsening left sided abdominal pain, decreased appetite, lethargy, and emesis in the days prior. Intermittent pain began in November, but abdominal exams at outpatient follow-ups were unremarkable. Congenital umbilical hernia repair surgery was completed in December, in hopes of resolving the pain. On exam, left sided abdominal tenderness prompted initial labs and imaging. Labs indicated a CRP of 3.9, leukocytosis of 14.5, lactate dehydrogenase of 654, vanillylmandelic acid of 125.3 mg/g, and homovanillic acid of 121.9 mg/g. An abdominal x-ray and ultrasound were obtained, followed by a CT scan that confirmed a large left sided adrenal mass with coarse calcifications and extensive lymphadenopathy in the ipsilateral retroperitoneum that crossed midline. An exploratory adrenal gland biopsy revealed poorly differentiated neuroblastoma with an intermediate mitosis karyorrhexis index. It was found to be MYCN non amplified, ploidy 1.1, with unfavorable segmental chromosomal aberrations (11q loss, 1q, 17q gains). A MBIG and bone marrow biopsy showed a MBIG avid tumor with enlarged lymph nodes in the mediastinum suggestive of metastatic disease. The patient was enrolled in a clinical trial consisting of five induction cycles and started stem cell therapy. An adrenalectomy was performed with excision of the retroperitoneal tumor, and the patient was admitted two weeks later for pleural effusion and significant ascites that required multiple paracentesis procedures and a chest tube placement. Multiple admissions were required due to neutropenic fever, poor weight gain requiring a gastrostomy tube, and thrombocytopenia requiring infusions throughout care.

Discussion: Most neuroblastomas present on the adrenal gland and commonly present with abdominal pain, with or without a mass. The prognosis is favorable in children under 18 months at diagnosis, and best outcomes are associated with being under one year old. Prompt diagnosis is necessary and can be difficult due to the vagueness of presentation. While not all tumors are palpable, this puts emphasis on the importance of the abdominal exam in practice and performing it with clear goals. In this case, the growth of the tumor may have been masked by the coinciding diagnosis of an umbilical hernia. The question could be asked as to how neuroblastomas could be better screened for in the pediatric population during the first 18 months of life when prognosis is most favorable.

Conclusion: Neuroblastoma awareness should be increased and should be on the differential diagnosis for children that present with abdominal pain. Abdominal exams should be performed thoroughly and with intent in the pediatric population.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 3: Poster 3

Name of Applicant: Benjamin Weiner
Educational Level: MS4
Institution Name: The Ohio State University College of Medicine

Title: Case of Leptospirosis in a Pediatric Patient in Central Ohio

Introduction: This case illustrates the presentation and diagnosis of a rare infectious disease found in central Ohio.

Case Presentation:
A previously healthy 9-year-old male presents with a 2-day history of fever (T-max 102.8 °F), headache, myalgias, abdominal pain, emesis, and decreased appetite. He denied cough, diarrhea, or rashes. His brother had similar symptoms, but there were no other sick contacts or known COVID-19 exposures. He has recent exposure to several creeks and lakes in Ohio. Family history is notable for lupus and celiac disease.

Physical exam showed RUQ and LUQ abdominal tenderness, mild bilateral thigh tenderness without swelling or joint pain, several insect bites, and a slightly raised malar rash.
Labs were significant for pancytopenia, transaminitis, elevated inflammatory markers, mild hyponatremia, and mildly elevated creatinine. Initial infectious and autoimmune workups were non-contributory, including SARS-COV-2 PCR and antibodies. A Karius study was ordered.
Abdominal imaging illustrated an edematous gallbladder wall, mild hepatomegaly, bilateral echogenic kidneys with preserved corticomedullary differentiation, and pelvic, iliac, and inguinal lymph node uptake. Chest x-ray and echocardiogram were normal.

Discussion: Several days into admission, the patient was started on doxycycline for presumed tick-borne illness. His symptoms resolved, and lab abnormalities improved. On the day of planned discharge, the Karius Test for infectious diseases resulted positive for Leptospirosis kirschneri, at 675 DNA molecules/microliter (reference interval < 10). He was continued on doxycycline to complete a 7-day course.
Leptospirosis is a spirochetal zoonotic disease that most commonly spreads via exposure to contaminated water sources and infected animal reservoirs. It is typically found in tropical regions; however, cases do happen in the United States. It is more commonly found in California, Hawaii, Texas, and Puerto Rico, but cases and outbreaks elsewhere are associated with recreational water exposures.
Symptoms develop 1-2 weeks from exposure, commonly presenting as a nonspecific and acute febrile illness with headache, myalgias, conjunctivitis with conjunctival suffusion, and gastrointestinal involvement. Typical lab abnormalities include transaminitis, conjugated hyperbilirubinemia, leukocytosis, and thrombocytopenia. However, without treatment, leptospirosis can progress to severe disease with significant hepatic, renal, pulmonary, and hemorrhagic dysfunction.

Conclusion:
- Leptospirosis is a spirochetal zoonotic disease that spreads via exposure to contaminated water sources with infected animal urine.
- The highest reported incidences in the United States are in Hawaii, Texas, California, and Puerto Rico, but sporadic outbreaks have occurred in the Midwest.
- Leptospirosis commonly presents as a nonspecific, acute febrile illness.
- The Karius Test for infectious diseases detects microbial cell free DNA (mcfDNA) in plasma from bacteria, DNA viruses, fungi, and protozoa using next-generation sequencing. It can test for hundreds of bacteria, fungi, DNA viruses, eukaryotes, and archaea. Common clinical applications include complicated and atypical pneumonia, immunocompromised patients with invasive fungal or viral infections, neutropenic fever, and endocarditis.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 3: Poster 4

Name of Applicant: Audrey White
Educational Level: MS4
Institution Name: The Ohio State University College of Medicine

Title: Eosinophilic Gastroenteritis Disguised as Crohn's Disease

Introduction: Eosinophilic gastroenteritis (EGE) is a rare disorder characterized by eosinophilic infiltration of the stomach and/or duodenum without known cause. A history of allergies is present in about half of cases1. Presenting symptoms vary with depth and extent of invasion to the ileum and colon. Common symptoms include episodic abdominal pain, nausea, vomiting, diarrhea, and weight loss; malabsorption and ascites are rare. Initial diagnosis is challenging, since symptoms can mimic more prevalent gastrointestinal conditions. Here we report a case of undiagnosed EGE during acute recurrence of symptoms.

Case Presentation: A 33-year-old male with a history of asthma and chronic rhinosinusitis was admitted with worsening episodic abdominal pain of six months' duration. The pain was associated with nausea, emesis, diarrhea, and constipation. His sister carried a diagnosis of Crohn's disease. He reported no NSAID use, hematochezia, melena or recent travel. His admission labs were remarkable for a hgb of 14.3g/dL, WBC of 8.91K/□L, absolute eosinophilia of 1.41K/□L, and ESR of 62mm/hr. A CT abdomen and pelvis showed no acute abnormalities. Clostridium difficile PCR and routine stool studies were negative. Colonoscopy and esophagastroduodenoscopy showed healthy colonic mucosa as well as esophageal and gastric mucosa but erosive duodenopathy. Biopsies revealed duodenal intraepithelial eosinophils in the lamina propria. HIV and hepatitis serologies, stool ova and parasites, and stool parasite antibodies were negative. He had mildly elevated IgE (369.1 IU/mL), IgG (1715 mg/dL), and tryptase (17.5 mcg/dL). He was discharged on a six-food elimination diet and followed up in gastroenterology clinic two weeks later with resolution of symptoms.

Discussion: EGE is easily overlooked in the differential diagnosis, making this a useful learning case for hospitalists. The chronic, relapsing symptoms mimic several gastrointestinal conditions. Here the patient's family history makes Crohn's disease likely. Key features which should raise suspicion for EGE are the history of asthma, chronic rhinosinusitis, and peripheral eosinophilia.
The pathogenesis of EGE remains poorly understood. Normally, eosinophils are present within the gastrointestinal lamina propria. EGE is diagnosed when biopsy reveals increased eosinophils in the absence of associated disease. Alternative etiologies such as infection, inflammatory bowel disease, peptic ulcer disease, cancer, eosinophilic vasculitides, and hypereosinophilic syndrome should be ruled out.
Mainstay treatments include a six-week elimination diet and corticosteroids. Notably, the patient began dupilumab for uncontrolled asthma three days prior to admission, which may have hastened clinical remission. Allergy-directed therapies including cromolyn, ketotifen, montelukast, and omalizumab have been described in small series and case reports for refractory symptoms, but data is limited.

Conclusions: A history of allergies and peripheral eosinophilia are key features of EGE. Elimination diet and corticosteroids are mainstay treatments; the role of allergy-directed therapies remains unknown.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 4: Poster 1

Name of Applicant: Matthew Schreier
Educational Level: PGY-2
Institution Name: The Ohio State University College of Medicine

Title: Embryologically Circumventing Obstruction: A Unique Configuration of a Rare Congenital Cardiac Lesion

Introduction: Cor triatriatum is a rare congenital cardiac defect where a fibromuscular septum forms within the atrium, often associated with other cardiac anomalies.[1] Timing of presentation ranges from early infancy to late adulthood.[1,2]

Case Presentation: A 5-week-old male presented with intermittent respiratory distress since birth. He had no fevers or activity changes. His prenatal course was unremarkable with normal congenital heart disease screening. He was hypoxic with retractions and tachypnea but was perfusing well. Cardiac exam was normal without murmurs. Initial workup showed no signs of infection or sepsis. Chest X-ray demonstrated cardiomegaly with pulmonary congestion. Electrocardiogram was consistent with right atrial and ventricular hypertrophy. Echocardiogram revealed a severely obstructive membrane in the left atrium consistent with cor triatriatum. Further imaging demonstrated partial anomalous pulmonary venous return (PAPVR) where the left pulmonary veins combined into a common pulmonary vein entering the left atrium, but with a vertical vein arising from the left upper pulmonary vein ultimately inserting into the innominate vein. Repair was completed via right atriotomy with resection of the membrane and ligation of the vertical vein. The patient recovered without complications.

Discussion: This is the first reported case of cor triatriatum with this pulmonary venous configuration. In cor triatriatum, a restrictive fibromuscular membrane creates two distinct atrial chambers, causing pulmonary venous congestion similar to the upstream effects of mitral stenosis.[1-3] Neonates and children commonly present with respiratory distress or cardiac asthma.[1] Delayed symptom onset occurs when progressive membrane fibrosis obstructs blood flow.[1,2] Adults can present with fatigue, exertional dyspnea, atrial fibrillation, heart failure, or thromboembolic events.[1-3] Diagnosis is made on echocardiogram, with advanced imaging used for delineating associated cardiac lesions. Surgical management has often excellent outcomes.[1]
Cor triatriatum is often associated with other congenital heart anomalies, including septal defects, hypoplastic left heart syndrome, Tetralogy of Fallot, and total anomalous pulmonary venous return.[1] While there are other reported cases of cor triatriatum with PAPVR, including some with forms with vertical and innominate venous drainage, none show the anatomy of the patient presented here.

Conclusions: This is the first reported case of cor triatriatum with PAPVR where the left pulmonary veins form a common pulmonary with a vertical vein draining one pulmonary vein into the innominate vein. While this is a rare congenital defect, it puts patients of all ages at risk of rapid decompensation and often presents with non-specific symptoms requiring a high index of suspicion.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 4: Poster 2

Name of Applicant: Prabjot Parmar, DO, MS
Educational Level: PGY-2
Institution Name: Mercy Health St. Vincent Medical Center Pediatric Residency Program

Title: A Concerning Case for Subclinical Systemic Juvenile Idiopathic Arthritis

Introduction: Systemic Juvenile Idiopathic Arthritis (sJIA) is a rheumatologic disease that typically presents in adolescence and requires the following criteria for diagnosis: arthritic involvement of one or more joints; association with a fever for at least two weeks duration that is documented to be daily for at least 3 days and is quotidian in nature; and, one or more of the following: evanescent erythematous rash, generalized lymphadenopathy, hepatomegaly and/or splenomegaly and serositis.

Case Presentation: The patient is a 13 year old male who presented with multiple left-sided joint swelling and pain along with self-reported fevers for one month duration. On initial presentation to ED, basic lab work was remarkable for a CBC showing an elevated WBC of 14.1, Hgb of 10.4 and Hct of 33.6, elevated platelets of 599 and elevated ESR and CRP of 108 and 87, respectively. Patient also admitted to using 600mg ibuprofen daily for the last month for alleviation of symptoms. Patient was admitted to Mercy St. Vincent Pediatric floor for further workup.

Initial lab work, including celiac panel, rheumatoid factor, ANA, peripheral smear, Lyme titers, EBV titers, Strep DNA, FOBT, were all negative. Urinalysis was unremarkable, and blood culture showed no growth. Due to presentation of quotidian fevers with temperatures fluctuating between 99F-103F, along with negative ANA and multiple joint involvement, patient's symptoms were thought to be more consistent with sJIA. Fecal calprotectin was also obtained to rule out extra-intestinal manifestations of IBD, and found to be mildly elevated at 201, disproving IBD. Prolonged ibuprofen use could have also falsely elevated fecal calprotectin.

Adult rheumatology was consulted due to the unavailability of pediatric rheumatology, and it was surmised that patient may have ANA-negative polyarticular JIA, due to the lack of rash with fevers. It was recommended that patient be started on oral steroids, but this was held until recommendations from pediatric rheumatology were received. Pediatric rheumatology from Cleveland Clinic was consulted, and agreed that patient's presentation was more consistent with sJIA rather than polyarticular JIA; however, patient could not be definitively diagnosed without meeting criteria for systemic involvement. Naproxen 375mg BID was started for treatment of subclinical sJIA. Patient's symptoms improved, and condition stabilized with naproxen therapy. Patient was accepted for outpatient management of subclinical sJIA and started on Celebrex, Sulindac and Methotrexate by the University of Michigan Pediatric Rheumatology.

Discussion: The patient's presentation is likely attributable to sJIA, however due to subclinical presentation, it was difficult to establish diagnosis. Also, due to patient's daily usage of 600 mg of ibuprofen, he was already being partially treated with NSAIDs which could have prevented the full manifestation of the patient's disease course. In addition, workup for other etiologies was negative making sJIA much more probable. Based on patient's presentation, sJIA treatment should have been considered sooner despite sub-clinical features of patient's disease course.

Conclusion: If there is high clinical suspicion for a sub-clinical presentation of sJIA and other pathologies have been ruled out, treatment should be started early to improve disease course and quality of life for pediatric patients.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 4: Poster 3

Name of Applicant: Sneha Centala, MD MS
Educational Level: PGY-2
Institution Name: Trihealth Good Samaritan Hospital

Title: Surviving Covid-19 Infection with a Ring Enhancing Brain Lesion

Introduction: Sars-CoV-2 appears to be an unprecedentedly unique virus. There has been a wide range of presenting symptoms, including but not limited to, fevers, chills, malaise, dysosmia, cough, and shortness of breath. Even more impressive are the presenting neurologic symptoms of encephalopathy, seizure, and thromboembolic phenomena. The underlying mechanisms of how this virus leads to these clinical syndromes are still being studied and not yet fully understood. One theory involves a neural pathway beginning at the olfactory nerve epithelium.

Here, we present a case of a previously healthy male who experienced a prolonged disease course of Covid-19, with likely Sars-CoV-2 related CNS findings.

Case Presentation: The patient is a 63 year old male with no known past medical history, prior to this clinical presentation. Patient initially presented to the emergency department with chief complaint of dyspnea, worse with exertion. He also endorsed symptoms of myalgias, decreased appetite, cough, generalized weakness, and fatigue for four weeks. On workup, patient was found to be hypoxic and infected with Sars-CoV-2. He required a prolonged hospitalization due to acute respiratory distress syndrome (ARDS), requiring mechanical ventilation. During his disease course, the patient experienced a worsening decline, and was subsequently found to have a ring enhancing lesion as well as multiple other contrast enhancing lesions on brain imaging. These findings were worked up extensively for other concurrent infectious etiology, but eventually, were attributed to Covid-19. With time and supportive care, this patient gradually improved, regarding both his mental and respiratory status. He was hospitalized in the critical care unit for 49 days and then transitioned to a long-term care facility for further care.

Discussion: With the increasing number of Covid-19 cases worldwide, more and more symptomatic presentations have been reported. When evaluating these patients, reliable lab testing methods have become of utmost importance. For our patient, the ability to test for Sars-CoV-2 in the CSF was not available. This would be a useful lab test to help confirm clinical suspicions and guide additional management. At this point in time, only the acute findings of this disease are known. The long term sequelae are still to be determined, so it is absolutely critical that these patients are monitored over time. There continues to be so much to discover regarding this virus, as more individuals are impacted.

Conclusions: As in the case of our patient and many other reported cases, Sars-CoV-2 has not only caused severe ARDS but has also resulted in varying neurologic phenomena. Such a wide variety of clinical presentations further illustrates the importance of keeping Covid-19 among the list of differential diagnoses when evaluating a patient.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 4: Poster 4

Name of Applicant: Ammar Ahmad
Educational Level: PGY-2
Institution Name: Wright State University Boonshoft School of Medicine

Title: Erosion of Inferior Vena Cava Filter into adjacent organs with Staphylococcal Bacteremia

Introduction: Inferior vena c pulmonary emboli in patients with known deep venous thrombosis (DVT). Validated indications for IVC filter placement include venous thromboembolism with an absolute contraindication to therapeutic anti-coagulation or failure of anticoagulation in patients with recurrent DVTs. Complications of IVC filters include bleeding or infection at the puncture site, malposition or migration of the filter, and acute venous thrombosis after placement. We present a unique case in which the IVC filter eroded into adjacent organs with concomitant staphylococcal bacteremia approximately 3 years after placement of the IVC filter.

Case Presentation: Our patient was a 68-year-old gentleman with an IVC filter (Greenfield filter) placed for recurrent DVTs 3 years ago who presented to the hospital with acute abdominal pain and fever. His symptoms started 3 days prior to presentation. Physical exam was normal except for mild abdominal tenderness on palpation and a temperature of 101 F. CT scan of the abdomen revealed that the IVC filter had eroded into the right ureter, the third portion of duodenum, and the aorta. Blood cultures came back positive for methicillin-sensitive staphylococcus aureus (MSSA). No external source of infection was identified. The skin was intact without any ulcers or wounds. No abscess or infection was noted in the oral mucosa. He denied ever using intravenous drugs. Vascular surgery removed the IVC filter without any complications. A urogram was performed and did not show any urine leak but did reveal a ureteral stricture at the site of erosion. Abdominal pain and fever resolved, and patient was discharged home on intravenous antibiotics and anticoagulation.

Discussion: The abdominal pain was explained by the IVC filter eroding into the adjacent organs, but the source of bacteremia could not be determined. It is unlikely that the duodenum or ureter were the source of bacteremia because they do not harbor staphylococcus aureus. It is unclear whether bacteremia from another source could have contributed to this complication or if bacteremia was caused by this complication. We suspect it was a coincidence. Based on literature review, we found two cases of MSSA bacteremia with IVC filter erosion into the duodenum. One of them was an IV drug user, and the other case was like our patient in which no clear source of bacteremia was identified [1].

Conclusions: The use of IVC filters has increased over recent years [2]. With increasing use, the complications arising from these filters have been on the rise, hence it is very important for clinicians to be aware of these complications to avoid delays in diagnosis and patient care.

References:

1. Pokharel, S. Bartholomew, C. Cheng, Z. Duodenal perforation by an inferior vena cava the staphylococcal bacteremia: A case report. Journal of medical case reports. 2016 Jun 23.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 4: Poster 5

Name of Applicant: Brant Bickford DO
Educational Level: PGY-3
Institution Name: Wright State University Boonshoft School of Medicine

Title: Recurrent Microscopic Polyangiitis in setting of Gastrointestinal Neuroendocrine Tumor

Introduction: Microscopic Polyangiitis (MPA) is an autoimmune small vessel vasculitis within the spectrum of disorders of anti-neutrophil-cytoplasmic-antibody (ANCA). ANCA associated vasculitides (AAV) include MPA, granulomatosis with polyangiitis (GPA), eosinophilic granulomatosis with polyangiitis. Between 70-90% of patients with MPA and GPA reach clinical remission through use of immunosuppressive therapy. There is a temporal relationship between AAV and increased rates of malignancy, however very few cases of neuroendocrine tumor induced MPA recurrence exist. This case had a rare clinical presentation in which new onset anemia requiring EGD revealed a carcinoid tumor with subsequent MPA recurrence.

Case Description: A 61-year-old Caucasian female with history of P-ANCA glomerulonephritis with resultant chronic kidney disease stage III, hereditary hemorrhagic telangiectasia, and von Willebrand Disease was admitted to Wright Patterson Medical Center for acute anemia evaluation. During this hospitalization she underwent EGD, which revealed two small low-grade carcinoid tumors in her stomach. Subsequent nephrology clinic follow up revealed worsening renal function, hypertension, and abnormal urinalysis with proteinuria and hematuria. Further laboratory investigation revealed P-ANCA >1:640, C-ANCA 1:160, proteinase 3 (PR3) negative, Hepatitis B/C/HIV/RPR, and C3/C4 within normal limits. She underwent a kidney biopsy confirming relapse of her ANCA vasculitis and subsequently treated with steroids and rituximab per 2010 RITUXVAS trial guidelines. At her most recent follow up she continued to have active disease. She was transition to low-dose cyclophosphamide and extended steroid course. Her carcinoid tumor is undergoing active surveillance, as she is not having any associated symptoms.

Discussion: Retrospective studies identify AAV with an elevated malignancy risk. The mechanism between ANCA associated vasculitides and malignancy remains undefined with ANCA titers not predictive of disease flare or activity. Some have speculated that vasculitis or recurrence may represent a paraneoplastic syndrome. Current investigations propose a correlation between cancer response to treatment and AAV activity. In addition, failure of vasculitis response to conventional treatment should prompt further investigation for malignancy.

Conclusions:

1. Neuroendocrine gastrointestinal tumor related ANCA vasculitis recurrence is an extremely rare clinical presentation
2. The diagnosis of any malignancy should prompt increased surveillance for vasculitis relapse

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 5: Poster 1

Name of Applicant: Nathan Sherrer
Educational Level: PGY-4
Institution Name: The Ohio State University College of Medicine

Title: A case of rapid onset diffuse parenchymal disease in a healthy 19 y/o, Acute Idiopathic Eosinophilic Pneumonia

Introduction: Diffuse parenchymal lung disease is a relatively common cause of acute hypoxic respiratory failure. The differential for diffuse parenchymal lung disease is broad. Here we present a case of Acute Eosinophilic Pneumonia presenting in a 19 year old male as a framework for approaching parenchymal lung disease.

Case Presentation: A 19 y/o M presented to an outside facility with dyspnea and was found to have acute hypoxic respiratory. He was in his normal state of health until 2 days prior to presentation and developed worsening dyspnea while climbing stairs. His oxygen requirements quickly escalated to 15L HFNC. He admits to recent tobacco use after having previously stopped months prior. OSH work up included negative COVID, BAL with 14% eosinophils. Labs significant for leukocytosis to 22, mild eosinophilia. CT obtained and showed diffuse interlobular septal thickening and lower lobe predominant ground glass opacities. He was given a one-time dose of Steroids and he was started on empiric antibiotics after which his oxygen requirements greatly improved. Serologies for autoimmune and fungal etiologies were obtained. Pulmonary medicine was consulted and felt presentation with BAL and CT findings were consistent with a diagnosis of acute eosinophilic pneumonia. The treatment with Glucocorticoids rapidly improved his symptoms. After initiation of steroids, he returned to room air and pleuritic chest pain improved within 48 hours and he was discharged

Discussion: Acute Idiopathic Eosinophilic Pneumonia is a rare condition most often seen in young patients who have previously smoked, stopped and then resumed smoking. It presents as a febrile illness, with worsening dyspnea, myalgias, malaise and pleuritic chest pain. The typical diagnostic criteria include BAL differential cell count showing eosinophilia >25 percent. This patient's BAL eosinophil count was 14%, but he had received steroids the day prior to his BAL which can greatly alter the yield of the exam. The other criteria including: short febrile illness, hypoxic respiratory failure, diffuse pulmonary opacities on chest radiograph, and absence of alternative diagnosis which he met all of these criteria as well as his rapid clinical improvement with steroids.

Conclusion: Acute Eosinophilic Pneumonia is an important cause of acute hypoxic respiratory failure and can be diagnosed in patients with an acute respiratory syndrome found to have >25% eosinophils on BAL. It is typically very responsive to steroids. Considerations for concomitant testing for strongyloides should be considered as this can also cause an eosinophilia and respiratory symptoms but can worsen with steroid therapy.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 5: Poster 2

Name of Applicant: Sumayya Muneer MD
Educational Level: PGY-3
Institution Name: Trihealth Good Samaritan Hospital

Title: COVID-19 Infection Associated with Generalized Seizures

Case Presentation: A 31-year-old female with no prior history of seizures presents to the hospital with altered mental status. One week prior she had dry cough, shortness of breath, fever, and myalgia. During her ED stay, she was found to have three witnessed grand-mal seizures, which were treated with intravenous Keppra and Ativan. She was found to have hypoxia with saturation <90%, requiring 2 liters of oxygen and was electively intubated for airway protection. CT chest revealed right upper and middle lobe, as well as bilateral lower lobe pneumonia. She was tested for COVID and was positive. The patient was then transferred to Neuro ICU for further monitoring.

Upon admission, her renal function and CBC were within normal limits, with no evidence of lymphopenia. She underwent extensive workup, including CT angiogram of head and neck, CT venogram of the head, and MRI brain, which were all unremarkable. She was started on empiric antibiotic therapy with acyclovir, vancomycin, and Rocephin. An LP was obtained which revealed normal CSF protein, glucose, elevated RBC at 269 and normal WBC count. Gram stain and cultures were negative. Subsequent workup included a myriad of CSF tests, all of which were unremarkable. EEG did show moderate to severe generalized slowing, consistent with a process that has diffusely affected the cerebrum.

Her symptoms began to improve, and she was transferred out of the ICU. The likely cause of seizures was attributed to COVID-19 as all other etiologies were excluded. The patient was discharged home with no further complications of her illness, and no further seizures occurred during her stay.

Discussion: There has been an increasing number of cases shedding light on the neurological manifestations of COVID-19. While the exact mechanism of action is unknown, COVID-19 appears to cause viral encephalitis, infectious toxic encephalopathy, and cerebrovascular disease. There are theories that SARS-COV2 can cause a direct injury to the brain. One proposed mechanism is the passage of the virus via the olfactory nerve as it acts as a direct channel between the nasal epithelium and CNS. With increased permeability to the blood-brain barrier, it may also have easier penetration to the brain. The cause for our patient's generalized tonic-clonic seizures was attributed to COVID-19, as all other workup was inconclusive.

Conclusion: As the COVID-19 infection continues to be on an uprise, variations are expected. With more reported cases of neurological involvement, it is essential to keep COVID-19 on the list of differentials. Luckily, in the case of this patient, her symptoms improved, and she was discharged home safely. On a follow-up visit with her neurologist one month later, her symptoms were fully resolved, repeat chest-x-ray revealed complete resolution of pneumonia and she returned to work with no limitations.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 5: Poster 3

Name of Applicant: Joy I. Wang MD
Educational Level: PGY-3
Institution Name: Dayton VA Medical Center, Wright State University Boonshoft School of Medicine

Title: Out of sight, but not out of mind: Vigilant follow up after obstructive pneumonia reveals pulmonary Malignancy

Introduction: We present a case of left upper lobe obstructive pneumonia after food aspiration. Follow up imaging for pneumonia resolution revealed unexpected left upper lobe small cell carcinoma.

Case Presentation: 69-year-old male veteran and lifelong smoker presented to the emergency department with fevers and productive cough following vegetable aspiration. Pulmonary exam demonstrated left- sided rales and labs showed a leukocytosis of 20,000 cells/uL. CT chest revealed abrupt tapering of the left upper lobe bronchus, and consolidation with air bronchograms suspicious for post obstructive atelectasis of the left upper lobe. Bronchoscopy demonstrated complete endobronchial obstruction of left upper lobe due to foreign body. Post procedure, the left upper lobe bronchus was patent with no obstructing lesion, and chest imaging showed significantly improved aeration. The patient clinically improved and was discharged with antibiotics. Six weeks later, follow up CT chest demonstrated reaeration of the left upper lobe with a new suspicious left upper lobe mass. Ultimately, fine needle aspiration biopsy revealed small cell carcinoma.

Discussion: Obstructive pneumonia is a common presentation after foreign body aspiration, but there is limited data on the clinical utility of routine follow-up chest imaging for patients with pneumonia. The incidence of lung cancer after pneumonia is low, with reported rates ranging from 1 to 4%. However, a recent Veteran Affairs study found previously undiagnosed pulmonary malignancy in 9.2% of inpatients above 64 years of age after being treated for pneumonia.

Conclusion: This case emphasizes the need for close, vigilant follow up after post obstructive pneumonia to avoid overlooking pathology, especially in higher risk patients with smoking history. Further study may help clarify specific subgroups that would benefit from radiologic follow up after treatment for pneumonia.

Hospital Medicine Symposium Clinical Vignette Poster Competition Abstracts

Group 5: Poster 4

Name of Applicant: Hani Yousef DO
Educational Level: PGY-2
Institution Name: UH St. John Medical Center

Title: Spontaneous Iliopsoas muscle injury.

Introduction: Most iliopsoas muscle injuries are traumatic in nature and mainly affect athletes. Spontaneous iliopsoas muscle rupture is a rare cause of hip pain. It should be considered as a cause of acute hip pain in elderly patients with difficulty ambulating.

Case presentation: 82-year-old female presented with left groin pain that started 4 days ago, initially starting as a mild stabbing pain worsened by movement, which has increased in severity over the last 2 days. She describes a severe, sharp stabbing pain extending from her left buttock into her groin with radiation to her left leg above the knee. She denied recent traumas, falls, fluoroquinolone or steroid use.
Physical exam revealed elderly female in moderate distress. Her abdomen was soft. She had 5/5 strength with dorsiflexion and plantarflexion in the lower extremities bilaterally. Hip flexion was 2/5 in the left lower extremity and 5/5 in the right lower extremity. Sensation was intact bilaterally. Patient was unable to ambulate due to severe pain in the left proximal lower extremity. Basic labs, including CBC and BMP, were within normal limits. CT abdomen and pelvis with contrast was negative for acute inflammatory process. MRI lumbar spine and left hip revealed a small amount of fluid in the left hip joint with questionable phlegmonous changes involving the left iliacus and psoas musculature, concerning for infectious myositis/septic arthritis. Orthopedics consultation was requested. Contrasted MRI of the left hip was performed and demonstrated complete rupture of the left psoas tendon with multiple intramuscular hematomas. Patient received physical therapy with pain control and was discharged.

Discussion: The prevalence of iliopsoas tendon injury is 0.66%. Usually Iliopsoas injury is seen with athletic trauma. Spontaneous iliopsoas rupture is an extremely rare cause of hip pain seen mainly in the elderly. Additional risk factors include female sex, chronic steroid use, osteopenia, fluoroquinolone use, metastatic cancer, and chronic inflammatory diseases.
Iliopsoas tendon tears may be complete or incomplete. Complete tears tend to be more painful and present with greater disability.
The most sensitive imaging for diagnosis is MRI. Management is usually conservative, including physical therapy and pain control.

Conclusion: While life-threatening anemia from bleed can occur, the overall prognosis for spontaneous iliopsoas rupture is good.