Student Abstracts

CATEGORIES ACCEPTED:

Basic Research
Clinical Research
Clinical Vignette
Quality Improvement/Patient Safety
High Value Cost-Conscious Care
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 23:27:

Medical Student Abstract 1

Category Submitting for: Clinical Vignette

Abstract Title A Case of Fatal Leukostasis in a Patient with Chronic Lymphocytic Leukemia

Abstract Text
Introduction: Leukostasis is a relatively uncommon condition characterized by extremely high white blood cell count and diminished tissue perfusion that can be seen in the setting of hematologic malignancies. Prompt diagnosis and treatment is critical to avoid significant morbidity, causing rapid clinical deterioration leading to death.

Case Description: A 64-year-old male with past medical history of Chronic Lymphocytic Leukemia (CLL) and Chronic Kidney Disease Stage 4 presents to the emergency department with left lower extremity superficial thrombophlebitis and was admitted when further workup revealed acute kidney injury (creatinine 6.2) and hyperleukocytosis (WBC 520,000). Of note, he had a supratherapeutic INR of 5.2 on warfarin. Initially, he reported mild headaches and dizziness, and denied other neurologic or infectious symptoms. Bone marrow biopsy from earlier in the year showed 90% hypercellularity. One week before admission, he started acalabrutinib for CLL management. Hematology/Oncology consult advised conservative management, as transient worsening hyperleukocytosis and headache are common side effects of acalabrutinib. Upon presentation, patient had no signs of active bleeding, therefore anticoagulation was held, but not reversed. Over the next two days of treatment, the patient received aggressive fluid resuscitation and three transfusions of packed red blood cells to raise his Hgb from 6.6 to 7.5 g/dL. His labs showed WBC 335,000; creatinine 4.4; INR 3.7; and resolving acute kidney injury. His headache remained refractory to treatment with acetaminophen, tramadol, and hydromorphone. The patient attributed the headache to nicotine withdrawal and agreed to trying a nicotine patch and gum. In this time, he also developed orthopnea and worsening oxygen requirement that warranted transfer to the ICU and placement on high flow oxygen. Chest x-ray demonstrated signs of volume overload, and subsequent echocardiogram showed severe concentric left ventricular hypertrophy. In the ICU, the patient rapidly developed confusion,

Continued on next page-
increased head pain of 10/10 intensity, and new complaints of sinus pain. Minutes after these complaints were addressed by the medical team, the patient became unarousable and stroke protocol was initiated. The patient was diagnosed with a cerebellar subarachnoid hemorrhage with mass effect. Labs showed WBC 406,000; Hgb 7.5; INR 3.0; creatinine 3.8. Later that day, the patient was extubated and provided comfort measures in the presence of his family.

Discussion: This case illustrates the potential for severe respiratory and/or neurological sequelae that can occur with leukostasis, and the need for prompt recognition and treatment. While leukostasis is more commonly seen as a complication of acute leukemias, a high index of suspicion should be given to any patient with extremely high WBC count and rapid clinical deterioration. The diagnosis can often be made empirically with a WBC over 100x10^9/L in the presence of respiratory or neurologic symptoms. Prompt treatment requires cytoreduction with a chemotherapeutic agent or leukapheresis.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 23:03:

Medical Student Abstract 2

**Category Submitting for:** Clinical Vignette

**Abstract Title** Abstract Submission Delayed Growth Cryptococcal Peritonitis

**Abstract Text**
Cryptococcus neoformans is an encapsulated yeast that commonly causes infection in immunocompromised patients. Infection is typically acquired through inhalation of spores in the environment, which then reach the alveoli. Normally, the immune system mounts a response to control the infection, but in the immunocompromised, patients can develop and isolated pneumonia, cryptococcal meningoencephalitis, or brain abscess, most commonly occurring in patients with HIV. While rare, immunocompetent individuals with history of liver damage due to cirrhosis, hepatitis, or hepatocellular carcinoma can develop cryptococcal peritonitis.

A 61-year-old male with past medical history significant for multifocal hepatocellular carcinoma, chronic untreated hepatitis C, and alcoholic cirrhosis presented to his oncologist for follow up of Drug-eluting bead trans-arterial chemoembolization (DEB-TACE) and recent paracentesis. His CMP suggested marked AKI, hyperkalemia, and hyponatremia. Upon these findings, he was admitted to our hospital for treatment. IV fluids were administered, and hyponatremia and AKI improved. During admission, concerns for infection were raised, and sepsis protocol was initiated. Blood cultures were drawn. On hospital day two, another paracentesis removed 3.4 L of fluid. During his stay creatinine levels continued to improve and blood cultures remained negative after two days. Decision was made to discharge home, as the patient felt like he was back to baseline.

Two days after discharge, blood cultures became positive for Cryptococcus neoformans. The patient was called and instructed to return to the hospital for treatment. The infectious disease team consult started the patient on amphotericin B and flucocysteine. He had continued abdominal distension and received another paracentesis removing 5L of fluid. Over the course of hospital stay the patient had multiple episodes of hypotension resistant to interventions and developed a low-grade fever and abdominal pain. He was transferred to the ICU and vancomycin, zosyn, and levophed were added to his treatment regimen. Octreotide was added later as abdominal pain continued. Next, palliative and GI were consulted for possibility of liver transplant and goals of care. Due to a MELD score of 30, active fungemia, and lack of insurance, he was not a transplant candidate. Patient status continued to worsen, and he passed away the next morning.

This case demonstrates the difficulty in management of the rare case of cryptococcemia in a non-HIV positive patient. Due to the slow-growing nature of Cryptococcus neoformans in culture and lack of symptoms exhibited, proper care of the patient was not easy to establish. Furthermore, despite treatment starting within 24 hours of blood cultures becoming positive, the patient passed away within a week of definitive diagnosis. Early sampling of blood cultures could aid in earlier detection and treatment of cryptococcal peritonitis, but must be balanced against extended hospital stay in patients without identified infection.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 22:43:

Medical Student Abstract 3

**Category Submitting for:** Clinical Vignette

**Abstract Title** A Case of Recurrent Hypertensive Emergency with Flash Pulmonary Edema

**Abstract Text**

Case Description:
A 71-year-old male presents to the emergency department with complaints of shortness of breath. Past medical history is significant for hemorrhagic CVA, mitral valve regurgitation, hypertension, hyperlipidemia, hypothyroidism, and atrial fibrillation. Medications include apixaban, atorvastatin, furosemide, levothyroxine, losartan, and metoprolol. He quit smoking 30 years ago and drinks socially. The patient presented to the emergency department three times in the past two weeks for shortness of breath and hypertensive emergency leading to flash pulmonary edema. Each presentation has required admission to the intensive care unit for intubation or non-invasive positive pressure ventilation. Each admission, he has responded briskly to diuresis and blood pressure was stabilized on his home dose antihypertensive medications. Patient denies any recent palpitations, nausea, headache, sweating, or changes in weight.

Patient's vital signs are: temperature 98.4°F, heart rate 109, blood pressure 132/82, respiratory rate 30, and PO2 98% on 6 liters of oxygen. On physical exam, diffuse crackles are present throughout chest. Cardiovascular exam reveals a tachycardic, irregular rhythm consistent with atrial fibrillation. There are no rubs, gallops or murmurs. No JVD on exam. Abdomen is mildly distended, but non-tender to palpation. Bilateral lower extremities have 2+ pitting edema to mid shin.

Patient's electrolytes are notable for hypokalemia of 3.3, bicarbonate 30, BUN 20, Cr 1.2. His CBC is unremarkable. Chest X-ray reveals pulmonary edema, and CTA with and without contrast ruled out pulmonary emboli. Troponins were negative and Pro-BNP was elevated at 1600 pg/mL. Both echocardiogram and ultrasound of kidneys are non-revealing. Renin,

Continued on next page-
aldosterone, plasma and urine metanephrines are obtained to evaluate for hyperaldosteronism and pheochromocytoma. Urine and plasma results are both significantly elevated with urine total metanephrines of 1398 mcg/24 hours and urine normetanephrines of 1183 mcg/24 hours. Patient’s recurrent flash pulmonary edema with hypertension is attributed to pheochromocytoma and alpha blockade with doxazosin is initiated. Imaging is planned to identify the pheochromocytoma followed by resection.

Discussion:
Pheochromocytoma’s classic triad consists of episodic headaches, sweating, and tachycardia. Often presentations drastically vary but sweating and headache are commonly present. In this case, a patient with pre-established beta-blockade for atrial fibrillation presents in a short span with recurrent episodes of flash pulmonary edema and hypertensive emergency as his symptoms. This case illustrates an abnormally presenting patient with pheochromocytoma due to new onset of symptoms along with existing beta blockade. Management of this patient included removal of beta-blockade while waiting for metanephrine results, diuresis for edema, and establishment of alpha blockade with confirmation of diagnosis via metanephrine studies.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 22:05:

Medical Student Abstract 4

**Category Submitting for:** Clinical Vignette

**Abstract Title** Are Pet Birds a Risky Move? An Unusual Case of Refractory Dyspnea.

**Abstract Text**
A 51-year-old woman presented to her doctor after experiencing worsening shortness of breath for three months. She used an at-home pulse oximeter and noticed her saturation levels decreased into the 80s with exertion. Suspecting a cardiac etiology based on her symptoms, her doctor ordered a cardiac stress test and a transthoracic echocardiogram which were normal. She was diagnosed with adult-onset asthma and underwent pulmonary function tests that showed a normal flow-volume loop, reductions in FEV1 and FVC, and a normal FEV1/FVC ratio. Since these findings were inconsistent with asthma, her doctor scheduled a pulmonology consult. Before her upcoming visit, her dyspnea worsened, her oxygen saturation decreased to the 60s, and she was prompted to go to the emergency room. On admission, she presented with a dry cough, intermittent pleuritic chest pain, and clear lungs to auscultation. CT scan revealed bilateral ground-glass opacities with areas of lucency and tree-in-lung nodules. She had a negative respiratory pathogen panel and was found negative for COVID-19 by PCR twice. Bronchoalveolar lavage showed signs of diffuse lung disease but an otherwise normal airway. Sputum cultures from the lavage tested negative for acid-fast bacilli, legionella, aspergillus, CMV, EBV, HSV, and HHV6. Cytology examination of the sputum was unremarkable, and the lymphocytic count was within normal limits. Histoplasma antigen returned negative. Additional history revealed the patient had kept three cockatiels at her home for the last five years. Given her exposure history, the results of her pulmonary function tests, and CT scan in the context of an otherwise negative workup, the patient was diagnosed with hypersensitivity pneumonitis. The patient was discharged on home-oxygen therapy with detailed instructions on renovating her home to avoid any further antigen exposure. A one-week follow-up with her pulmonologist showed improvement in her clinical course, with her oxygen saturations in the upper 90s. She declined steroid treatment at this time. An extended hypersensitivity panel eventually returned positive for antibodies reactive against bird serum.

This case illustrates the importance of gathering a thorough social history when considering the causes of dyspnea. It also offers an opportunity to review the epidemiology, pathophysiology, and treatment of hypersensitivity pneumonitis.

Dyspnea is a frequent outpatient complaint encountered by the internist, associated with several common diseases. In this case, dyspnea was a sign of an underlying rare pulmonary disease. Diagnosing this patient involved careful consideration of environmental exposures and a process of elimination. Although hypersensitivity pneumonitis caused by other birds has been described, there are few reports specifically regarding the cockatiel. Moreover, hypersensitivity pneumonitis is an immunologically mediated lung disease with an extremely varied presentation. Thus, this case offers a valuable perspective on a relatively rare, easily overlooked cause of dyspnea.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 21:35:

Medical Student Abstract 5

**Category Submitting for:** Clinical Vignette

**Abstract Title** Paroxysmal Nocturnal Hemoglobinuria Treatment in Patients with Concomitant Mycoplasma Pneumoniae Infection

**Abstract Text**
Paroxysmal nocturnal hemoglobinuria (PNH) is a rare acquired hemolytic anemia that makes erythrocytes susceptible to destruction by the complement system through loss of protective anchors CD55, CD59. Patients typically present pallor, fatigue, jaundice, dark urine, abdominal symptoms, and coombs-negative hemolytic anemia. Ideal treatment involves allogenic bone marrow transplant, but it is often difficult to find a match. In lieu of transplant, suppression of the immune system via induction of neutropenic state and inactivation of complement system can prevent further complications of the disease.

A 25-year old female presented to the emergency department with 3 to 4 day history of dyspnea, dizziness, easy bruising, 101.8F fever, and a hemoglobin of 2.9. Past medical history was significant for pancytopenia, positive ANA antibodies, positive direct IgM platelet antibody, low haptoglobin, and flow cytometry positive for PNH at 3.3%, and recent sick contact with son and niece both recently having illness. Further testing showed neutropenia and thrombocytopenia. Pancytopenia was of unknown origin at this time, believed to be autoimmune process. Bone marrow biopsy at time of admission demonstrates hypocellular appearance. Previous biopsy 3 months earlier demonstrated normocellular bone marrow. Given appearance at time PNH was believed to be the cause. Treatment was problematic though, because during workup CXR revealed pattern suspicious of mycoplasma pneumoniae.

No human data existed on appropriate treatment of PNH in patients with mycoplasma pneumoniae, but an old paper demonstrated a murine model where T-cell depleted mice with acute mycoplasma pneumoniae demonstrated less inflammatory symptoms in lungs and less severe pneumoniae presentation when treated with anti-thymocyte globulin (ATG) therapy, however, the mice also showed increased risk of systemic spread of the infection. Decision was made to treat infection before depletion of T-cells for PNH in this patient. After 5

Continued on next page-
days of antibiotic therapy, ATG, cyclosporin, and prednisone were given as bridging therapy prior to eculizumab. Patient was neutropenic 4 days later and absolute neutrophil count was 500. At this time Doxycycline therapy was changed to Levaquin and Bactrim for Pneumocystis pneumonia (PCP) prophylaxis. 2 weeks of prednisone 1mg/kg were given with a rapid taper and goal to stop by 30 days. Prednisone did not end up being finished until two months after initial neutropenic state was achieved. Patient was successfully treated are alive and well 1 year after PNH episode.

Treatment is important as the disease process has a high mortality rate with median survival of 10 years. These treatments can be risky in cases of concomitant infections. In this patient, treatment of PNH needed to be balanced against risks of progression of a mycoplasma pneumonia. In addition no protocol for treatment of such instances in humans has been previously recorded. Acute PNH and systemic mycoplasma pneumoniae are both life-threatening conditions. Proper sequencing of treatment was important for best possible outcome for patient in this rare circumstance.
Medical Student Abstract 6

Category Submitting for: Clinical Vignette

Abstract Title  Cancel the Olympics Because This Balancing Act Is More Than Enough

Abstract Text
LEARNING OBJECTIVES

1. Recognize the effect of emotional distress on a patient’s clinical status and disease progression.
2. Evaluate alternative options for reducing health risks while respecting patients’ emotional and social needs.

CLINICAL SCENARIO

A 73-year-old woman was admitted to the hospital for obstructive jaundice during the COVID-19 pandemic and was subsequently diagnosed with metastatic pancreatic cancer. The hospital did not allow visitors during the pandemic, but most lead nurses made exceptions for one family member to visit for two hours a day under extreme circumstances, such as an acute worsening in the patient’s clinical status. The patient’s family frequently visited her until they lost visitation privileges for several reasons, one being that the family posed a health risk to other patients on the floor, many of whom were immunocompromised transplant patients.

After her family could no longer visit in person, the patient’s clinical status worsened. The patient expressed that she felt lonely and was distressed that she could not be with family while coping with her diagnosis. Her mood drastically worsened over the following days, as did her mental status and laboratory results. Family members worried about the patient’s emotional status and expressed concern that she would die alone.

The primary team unsuccessfully attempted to horizontally transfer the patient to a floor with less vulnerable patients so her family could visit again. Meanwhile, the patient’s disease was rapidly progressing. The family faced the decision of either allowing the patient to continue suffering alone while pursuing life-prolonging treatment or transitioning to hospice so they could spend time together. The family chose to transition the patient to hospice and she transferred to a hospital closer to her hometown.

Continued on next page-
DISCUSSION

The COVID-19 pandemic has uncovered and created a multitude of ethical issues in medicine. There is no clear answer to how physicians should balance patient safety while respecting patients' emotional experiences. This case highlights the interplay between emotional and physical health, particularly for acutely ill and hospitalized patients. Research shows a relationship between physical and emotional health, and this case demonstrated the weight of the physical-emotional connection as the patient's health declined faster when her isolation and despair increased. To combat this, physicians must strive to keep emotionally vulnerable patients connected with their loved ones. One way this issue can be managed is through creative problem-solving and bureaucratic flexibility. In the scenario presented, the primary team attempted unsuccessfully to horizontally transfer the patient to a floor with less vulnerable patients to allow her family to visit again. Increased structural flexibility during the pandemic may have made this transfer possible and would have enabled the patient's family to safely visit her without creating a significant health risk to other patients.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 21:12:

Medical Student Abstract 7

Category Submitting for: Clinical Vignette

Abstract Title “Factors” to consider with emergent treatment of acquired Von Willebrand Syndrome

Abstract Text
“Factors” to consider with emergent treatment of acquired Von Willebrand Syndrome
John Gossen Medical Student, Vikas Kapoor MD, Dr. Bruce Houghton MD, Department of Internal Medicine, Creighton University School of Medicine, Omaha, NE.

Introduction:
Acquired Von Willebrand Syndrome (aVWS) is an uncommon anticoagulation disorder due to multifactorial destruction of von Willebrand factor (VWF) associated with myeloproliferative diseases. Despite its infrequent appearance, aVWS presents several interesting therapeutic considerations, particularly in settings where significant hemorrhage is anticipated.

Case Description:
A 65-year-old male presented to the Emergency Department with acute onset of severe abdominal pain, shortness of breath, diaphoresis, and nausea that was unrelieved by rest. Patient stated the pain started immediately after he heard a “popping sound” while lifting a small load onto a piece of farming equipment.

Past medical history included 15+ years of polycythemia vera complicated by aVWS, massive splenomegaly, and splenic artery aneurysm. Physical exam was remarkable for a distended abdomen, and massive spleen, palpable over 2 inches below the umbilicus. Additionally, the patient had diffuse pallor and several areas of ecchymosis on both extremities. A computed tomography scan of the abdomen/pelvis showed a 4.8 cm splenic artery aneurysm, with signs of hemoperitoneum suggesting acute aneurysm rupture, supported by acute fall in hemoglobin from 8.0 gm/dl to 7.2 gm/dl over three hours.

Continued on next page-
Prior to the patient being taken for emergent splenic artery coiling, and splenectomy, VWF-concentrate therapy was initiated. One hour following surgery, the patient faced several complications including fever, leukocytosis, post-op ileus, and acute kidney injury. Additionally, 2 days post-op the patient developed acute respiratory failure, with bilateral lung infiltrates on chest Xray requiring hi-flow oxygen supplementation.

It was noted the patient became febrile immediately after initial dosing of VWF- concentrate, and acute respiratory failure occurred 5 hours after a subsequent dose of VWF- concentrate, raising concerns for possible transfusion-related acute lung injury (TRALI). The VWF- concentrate therapy was withheld, and within 24 hours the patient’s fever resolved, with resolution of acute respiratory failure in a week.

Discussion:
TRALI is a rare, potentially fatal complication of blood product transfusion. TRALI most frequently occurs when soluble factors in donor serum activate recipient neutrophils resulting in fever, and acute respiratory failure within 0-6 hours of allogenic plasma product transfusion. VWF- concentrate contains factor VIII, derived from human plasma which precipitated TRALI in our patient. Despite the rarity of aVWS, providers must be aware of the correlation of TRALI and acute respiratory failure in patients getting VWF- concentrate for early diagnosis and management of this life-threatening complication.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 18:58:

Medical Student Abstract 8

**Category Submitting for:** Clinical Vignette

**Abstract Title** Diagnosis of Liver Cirrhosis with Elastography

**Abstract Text**

Introduction: Liver cirrhosis affects over 4.5 million people in the U.S. The diagnosis of cirrhosis initially involves observing clinical features of jaundice, ascites, and splenomegaly. These findings are combined with elevated liver function tests and abnormal ultrasound results to make the diagnosis. Our patient presented with elevated ammonia levels and metabolic encephalopathy but normal findings on ultrasound. This case emphasizes the use of elastography to follow-up on patients with inconsistent ultrasound findings but high clinical suspicion.

Case: A 63-year-old woman with a past medical history of hypertension, hyperlipidemia, diabetes mellitus, and Class I obesity presents to the ED with altered mental status. She is hospitalized with metabolic encephalopathy secondary to an elevated ammonia (122) levels. Physical exam was positive for edema but negative for jaundice, abdominal distention, and skin findings. EEG show diffuse background slowing with triphasic waves. Liver function tests (LFTs) were elevated (AST 82) during this hospitalization; however, the patient has had mildly elevated LFTs for past eight years (AST range of 38-82). The patient was discharged home on lactulose and followed-up with a gastroenterologist. An ultrasound was performed, which showed normal liver size and echogenicity. Given the high ammonia level, follow-up imaging using vibration-controlled transient elastography (VCTE) was performed showing stage 4 fibrosis with a median Liver Stiffness Score of 41.1 kPa.

Discussion: The gold standard for diagnosing cirrhosis is made with liver biopsy. However, most diagnoses are made using a combination of history, laboratory values, and imaging. Ultrasound, while an extremely useful, is also user dependent. Therefore, a negative ultrasound with high

Continued on next page-
clinical suspicion should be followed up with additional imaging or procedures. Elastography represents an option that is less invasive and with less complications than liver biopsy. VCTE uses ultrasound-guided pressure waves that move throughout the liver tissue at a measured speed. In fibroed livers, the increased density allows the waves to propagate at faster speeds. Liver Stiffness Scores are used to describe the degree of fibrosis that the liver has undergone. In our patient, the liver stiffness score of 41.1 kPa represents stage 4 fibrosis. Another advantage of VCTE is the ability to measure the amount of hepatic steatosis that has occurred, a score labelled as the controlled attenuation parameter (CAP).

Conclusion: In patients with negative findings on ultrasound but high clinical suspicion for cirrhosis, follow-up should be pursued using VCTE. This non-invasive procedure has less operator variability and an opportunity to assess liver fibrosis and steatosis. Early recognition of cirrhosis is important for patient management and can help prevent the dreaded complications of decompensated cirrhosis.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 17:03:

Medical Student Abstract 9

Category Submitting for: Clinical Vignette

Abstract Title A Case of Syndrome of Inappropriate Antidiuretic Hormone with COVID-19 Infection

Abstract Text
Introduction: Physicians and researchers are still trying to characterize the variable clinical presentations of COVID-19 disease. We know COVID-19 disease presents typically with dry cough, fatigue, fever, shortness of breath, and characteristic diffuse peripheral opacities on chest radiograph. We present an atypical case of a COVID-19 positive patient with hyponatremia and increased urine osmolality, consistent with syndrome of inappropriate antidiuretic hormone (SIADH).

Case: A 59 year-old male presented with new onset fatigue, severe arm and leg tremors, myalgias, and tachypnea with 92% oxygen saturation. He had a history of restless leg syndrome and transsphenoidal resection of a pituitary macroadenoma in 2008 but has had limited follow up since that time. He was afebrile, and denied chest pain, shortness of breath, headache, or cough. Chest x-ray was unremarkable. His labs were significant for hyponatremia of 124 mEq/L, serum osmolarity of 271 mOsm/kg, and urine osmolarity of 987 mOsm/kg, consistent with SIADH. His COVID-19 screening test was positive. He was given a bolus of normal saline followed by maintenance fluids. After being switched to D5W, he demonstrated increased lethargy with a decreased sodium of 116 mEq/L. He was subsequently transferred to the ICU and was treated with 3% hypertonic saline and furosemide to correct the hyponatremia with eventual improvement in electrolyte and mental status. He currently remains on approximately 30 mL/hr hypertonic saline with close monitoring. Sodium levels are being assessed every 2 hours, and he continues to show signs of clinical improvement.

Discussion: Dry cough, fatigue, fever, and shortness of breath with diffuse opacities on chest x-ray are the most common presentations of COVID-19 infection. Other less common presenting symptoms include diarrhea/abdominal pain, coagulopathy, and multisystem inflammatory syndrome in the pediatric population. Only a few case reports have reported SIADH with COVID-19. Other respiratory pathogens that cause community-acquired pneumonia have been known to present with SIADH. The patient’s history of resection of a pituitary microadenoma is a known risk factor of SIADH. However, given that the patient has remained asymptomatic until now, we suspect that his concurrent COVID infection triggered an acute onset of SIADH.

Conclusion: COVID-19 has numerous atypical presentations that physicians are still attempting to characterize. Providers should be suspicious for SIADH in COVID-19 patients presenting with altered mental status, malaise, and/or hyponatremia. We recommend serial electrolyte panels and frequent assessments of mental status in patients with severe coronavirus infection presenting in this manner.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 23:48:

Medical Student Abstract 10

**Category Submitting for:** Quality Improvement

**Abstract Title** Creating an Online Platform for Medical Students to Discover Research Projects

**Abstract Text**

Medical students often have difficulty finding research opportunities. Physician researchers frequently have research projects that could utilize their assistance. For students to join a project, it typically requires initiative on their part and time to develop a working relationship with faculty. Students may seek the guidance of overloaded Clerkship Directors, or sign up for one of a few spots on a vague project revealed through an interest group email. There is a need for a better system.

We developed an online platform to allow medical students to view all the active research projects in the Department of OBGYN and sign up for one that interests them. There are three parts: a form for faculty researchers, a spreadsheet database, and a web app.

The form is a single-page that asks for basic information about a research project such as: title, description, faculty name, contact email, number of medical students wanted, and a few more questions. We intentionally designed it to be brief and require only two minutes to complete in order to encourage busy faculty members to participate.

The spreadsheet database is private and contains a list of every research project submitted, along with programmed formulas to keep track of how many students have signed up for a given project. This data is then sent to the web app, which is the only part seen by students, in an easy-to-read format.

The web app displays data from the spreadsheet database to create the list of projects. Each project has a number associated with it that allows students to claim a spot on the project team. This claiming function is made possible by a sidebar next to the list of projects. A student simply

Continued on next page-
enters their name, email, and desired project number to claim a spot. This claim is sent to the spreadsheet where it is checked against the number of available spots. If no spots are available, the project will appear faded within the list. If a spot is available, a popup appears with the chosen project title and contact email address of the faculty member. The responsibility is placed on the student to send an email to this address within 24 hours to introduce themselves and get things started.

Based on initial surveys completed by 31 attending physicians, there is strong interest in this solution. 61.3% expressed dissatisfaction of current research efforts, and 61% expressed strong disagreement when asked if they knew how to involve students in research. 80.6% of respondents expressed strong interest in utilizing a central research platform. The next step is to seek funding to further develop this project for all departments within the School of Medicine.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 15:45:

Medical Student Abstract 11

Category Submitting for: Clinical Vignette

Abstract Title Cecal Volvulus During Bowel Preparation with Low Volume Oral Sulfate Solution

Abstract Text
Introduction: Colonoscopy is the gold standard procedure for routine screening for colorectal carcinoma. Prior to the procedure, oral bowel preparations are required to adequately cleanse the bowel. While the preparations are considered safe, rare complications do occur. Here we present a case of cecal volvulus that occurred during bowel preparation.

Case: A 59-year-old female with no pertinent medical history was scheduled for a routine screening colonoscopy and began a bowel preparation with low-volume oral sulfate solution (OSS) (Suprep) with split-dose instructions. Immediately following ingestion of the first dose, she developed severe abdominal cramping, nausea, and vomiting and was directed to the Emergency Department. Computerized Tomography of the abdomen showed twisting of the mesentery around her cecum consistent with cecal volvulus; comparison film from 6 years prior demonstrated a redundant colon. She underwent emergent laparotomy and cecal volvulus was confirmed. Right hemicolectomy with anastomosis was performed and she recovered without complication. Surgical pathology of the resection specimen showed early ischemic changes without any additional abnormality.

Discussion: The association of low-volume prep with volvulus has not been reported previously. Our patient had a risk factor for volvulus with her redundant colon but developed the volvulus during bowel preparation with the OSS. Her presentation, therefore, is most consistent with a low-volume prep induced volvulus and continued surveillance for other cases is highly recommended. Although nausea and vomiting are common adverse effects during bowel preparation, it is of utmost importance that clinicians recognize signs of a more serious complication.

Conclusion: While low-volume bowel preparations are well-tolerated, common side effects include nausea, vomiting, and dehydration. However, it is important for rare complications to be considered especially in patients with certain risk factors. Volvulus should be considered in a patient presenting with abdominal pain after taking low-volume bowel preparations.
A new abstract was submitted for the Nebraska Chapter on Thursday, September 17, 2020 - 18:04:

Medical Student Abstract 12

**Category Submitting for:** Clinical Vignette

**Abstract Title** Diabetes and Dialysis: A Case Report of Severe Iatrogenic Hypoglycemia

**Abstract Text**

**Introduction:**
In most diabetic patients, tight glycemic control is recommended however, tight control can result in higher morbidity and mortality in patients with ESRD. Severe hypoglycemia can cause a number of adverse effects, including altered mental status, lethargy, coma, increased risk of stroke and death. Due to these serious adverse effects, patients with diabetes and ESRD should be made aware of hypoglycemia warning signs.

**Case presentation:**
A 75-year-old male with a history of ESRD status (post-renal transplant in 2014), hypertension, CAD, type II diabetes mellitus with diabetic neuropathy and paroxysmal atrial fibrillation presented initially for evaluation of volume overload. Over the previous 4 months, his renal transplant team had been concerned about decreasing renal function and increased signs of renal graft failure and requested he be admitted to begin hemodialysis. In addition to being volume overloaded, he as on metabolic acidosis with hyperkalemia. When asked about his current medications, he said he was taking them all as directed. After evaluation, the decision was made to hold his antihypertensives and short-acting insulin. We reduced his long acting insulin to 40% of his usual dose. The patient started hemodialysis on the day of admission. On the next morning, the patient was found to be unresponsive to sternal rub and a rapid response was called. His blood sugar was found to be 26 mg/dL and the required D50% for glucose resuscitation. Upon assessment of the patient’s medical history and medications, the patient revealed he hadn’t been taking his insulin for the past three days due to hypoglycemia. There was a prescribing error with the medicine team not clarifying the correct insulin dosing with the patient. Additionally, during the pharmacy reconciliation, the medication was listed in

Continued on next page-
Discussion:
ESRD drastically affects the management of diabetes through a number of different mechanisms - improved insulin sensitivity, decreased insulin clearance, and diminished gluconeogenesis in both the kidney and the liver. All of these factors put patients at risk for hypoglycemic episodes, if their insulin isn’t adjusted properly. It is recommended that insulin be reduced by at least 25% the day after dialysis to avoid hypoglycemia, given that patients are at the highest risk for asymptomatic hypoglycemia within 24 hours after dialysis.
This case exemplifies the complexity of glycemic control in new dialysis patients. After decreasing the patient’s long acting insulin by 40%, he still developed symptomatic hypoglycemia.
Given these findings, in a patient with new onset ESRD, it is crucial to adjust a patient’s insulin dose (and other concomitant diabetes medications) in order to avoid episodes of severe hypoglycemia and prevent further complications.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 14:43:

Medical Student Abstract 13

**Category Submitting for:** Clinical Vignette

**Abstract Title** Streptococcus mitis/Streptococcus oralis presenting as mediastinal mass

**Abstract Text**

Introduction: The differential diagnosis for a mediastinal mass encompasses many conditions such as neoplastic, thyroid, lymph nodes, etc. This case presents an unusual presentation of a mediastinal mass due to infection with Streptococcus mitis/oralis.

Case: A 32 year-old male with a past medical history of H. pylori gastritis presented to the emergency department with 6 months of intermittent abdominal and chest pain, night sweats, odynophagia, and 22-lb weight loss. The chest pain was described as substernal, sharp, and non-radiating. About 1 year prior to presentation he was treated for H. pylori gastritis with a 14-day course of triple therapy. During admission, labs were significant for an elevated WBC of 17.2, Hemoglobin of 14.2, negative tests for H. pylori and HIV, as well as negative repeat blood cultures. Of note, a CT scan of the chest showed a subcarinal mediastinal mass. A right-sided VATS procedure with biopsy was performed that showed extensive necrotic debris, scant inflammatory cells, and a few groups of gram-positive cocci. Tissue from the mass was cultured and was positive for Streptococcus mitis/oralis and negative for fungal and AFP stains. The patient then completed a 6-week course of ceftriaxone and metronida zole and was told to return for repeat imaging to assess the mass. At his follow-up appointment, the mass was unchanged on imaging, so amoxicillin-clavulanate was added to his antibiotic regimen. At his next follow-up appointment, he was asymptomatic, so further imaging was deferred until a later date.

Discussion: The case illustrates an uncommon etiology for a mediastinal mass. Through literature search, we were unable to find another case of a mediastinal mass due to Streptococcus mitis/oralis infection. These bacteria belong to the Viridans group Streptococci and are generally benign bacteria that colonize the oral mucosa, gastrointestinal tract, and genitourinary tract. Viridans group Streptococci are generally of low pathogenic potential in immunocompetent adults but can cause issues such as endocarditis, intra-abdominal infection, and shock.

**Conclusion**

When dealing with a mediastinal mass, a biopsy can be very helpful in determine etiology as well as guiding antibiotic therapy in case of infection. Another interesting aspect of this case surrounds the actual etiology that led to this infection. We have theorized that the EGD he underwent during work-up for H. pylori led to a micro-perforation in his esophagus. This micro-perforation allowed Streptococcus mitis/oralis to seed the mediastinum and form a mass.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 14:23:

Medical Student Abstract 14

**Category Submitting for:** Clinical Vignette

**Abstract Title** A Case of Pharyngeal Cervical Brachial Guillain Barre Syndrome complicated by acute hypoxic respiratory failure

**Abstract Text**

Introduction

Guillain–Barre syndrome (GBS) is the most common cause of acute flaccid paralysis worldwide both in the adult and pediatric population. GBS has many variants including the pharyngeal cervical brachial (PCB) variant which is defined by rapidly progressive oropharyngeal and cervicobrachial weakness associated with areflexia in the upper limbs. Here we present a case of serology confirmed PCB variant GBS complicated by acute hypoxic respiratory failure.

Case Presentation

39-year-old female with a history of pseudotumor cerebri, epilepsy, hypertension and hypothyroidism, presented to the emergency department with a week long history of slurred speech, dysphagia, right sided weakness and numbness in both her arm and leg. She denied any recent illness, fevers, chills or sick contacts. In the ED, the patient had a seizure which was aborted with Keppra and Ativan. Upon admission to the hospital patient was hypertensive with other vitals stable. Physical exam was notable for hypernasality, left sided facial asymmetry slurred speech, absent gag reflex, palatal paralysis and weakness with right sided shoulder shrug. Initial labs in the ED were unremarkable. Imaging in the ED including CT of her head did not reveal any acute bleeding, and subsequent MRI did not reveal any ischemic changes. CSF studies revealed no abnormalities in cell count, glucose level or protein level. The patient was admitted to the hospital for further work up by neurology which included myasthenia gravis testing and Guillain Barré serology. One day into her hospital admission she developed acute hypoxic respiratory failure due to her palatal paralysis and inability to clear secretions which

Continued on next page-
resulted in pulseless electrical activity requiring CPR and intubation. The patient achieved return of spontaneous circulation (ROSC) after one round of CPR. Given the rapid deterioration in her respiratory status coupled with her new onset focal neurologic deficits with CVA ruled out, the patient was started on plasmapheresis for presumed pharyngeal-cervical-brachial variant Guillain Barre syndrome. After five days of treatment the patient's respiratory status improved and she was subsequently extubated. Myasthenia Gravis testing came back negative. Guillain Barre serology returned positive for GD1a, GD1b, and GQ1b antibodies confirming the diagnosis of PBS variant GBS. Her neurologic status stabilized and the patient was discharged.

Discussion

The PCB variant of GBS can present a diagnostic challenge particularly in the acute phase. Differential diagnosis includes brainstem stroke, myasthenia gravis, and botulism. This case illustrates the very rapid progression of respiratory failure in patients with PCB variant Guillain-Barre syndrome and the importance of early treatment with plasmapheresis.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 13:52:

Medical Student Abstract 15

Category Submitting for: Clinical Vignette

Abstract Title Sepsis and Cirrhosis: An Interesting Etiology of Bacteremia

Abstract Text
Patient Presentation:
Mrs. LB is a 67-year-old female who presented to the outpatient clinic complaining of a 1-week history of intermittent fevers, chills, and severe fatigue. Patient has a history of decompensated cirrhosis secondary to non-alcoholic steatohepatitis complicated by GI bleed requiring repeat esophageal banding, and pancytopenia who is currently listed for liver transplant. Review of systems were negative for URI/COVID symptoms, peritonitis, UTI, pneumonia, cellulitis or recent dental procedures. Her exam was notable for mild jaundice, no abdominal distention, pain, or peripheral swelling. It was noted that the patient had recently undergone EGD with esophageal banding two weeks prior to her initial presentation. She was admitted to the local hospital for further workup and treatment after her blood cultures turned positive for Streptococcus salivarius vestibularis. Evaluation with TTE and TEE was negative for infective endocarditis, and no obvious sources were found. She was started on IV Ceftriaxone and her blood cultures eventually cleared. Infectious disease experts concluded her source of bacteremia was likely induced from the endoscopy and banding procedure.

Learning Objectives:

• Discuss the risk of infection associated with GI procedures, and the role of antibiotic prophylaxis.
• Investigate the incidence and etiology of S.salivarius infections

Discussion:
There are clear guidelines and mortality benefits of antibiotic prophylaxis for patients with cirrhosis that have acute suspected variceal bleeding, however there is no clear indication for doing so in routine prophylactic procedures such as esophageal banding. The current standard

Continued on next page-
of care for active GI bleed includes empiric third generation cephalosporin, prior to undergoing endoscopy as the risk of bacteremia secondary to gut translocation into nearby vasculature is reported to be as high as 15 percent. Routine upper endoscopy, colonoscopy, and flexible sigmoidoscopy are all low-risk procedures, and are unusual causes of bacteremia, thus current guidelines do not routinely recommend antibiotic prophylaxis. However, comorbid conditions like cirrhosis, as in the case of Mrs. LB, may increase the need for prophylaxis due to increased risk of translocation. Physicians should take into consideration the risks of infection when having risk benefit conversations with patients.

Bacteremia is a leading cause of hospitalization across the United States, resulting in significant morbidity and mortality. S.salivarius is a gram-positive member of the viridians group streptococci. It is found within the oral flora and has been gaining recognition recently as a helpful probiotic. The incidence of S.salivarius bacteremia is rare, with the majority of cases being in immunocompromised patients. There has been an increasing number of case reports describing S.salivarius as a cause of meningitis. The reported resistance to antibiotics is minimal, with preferred treatment being a third-generation cephalosporin. Physicians should consider S.salivarius as a cause of infection in patients who have recently had disruptions within their oral flora.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 10:00:

Medical Student Abstract 16

**Category Submitting for:** Clinical Vignette

**Abstract Title** An Illustration of Increased Morbidity Due to Lemmel Syndrome

**Abstract Text**

**Introduction**

Small bowel diverticula (SBD) are relatively common but most often asymptomatic. Of those that do cause symptoms, one of the more unusual presentations is that of Lemmel syndrome. While Lemmel syndrome is a rare cause of obstructive jaundice, the following case is a prime example of increased morbidity due to a delayed diagnosis.

**Case**

A 66-year-old female presented to the emergency department (ED) with a 5 day history of nausea and non-bilious, non-bloody emesis associated with right upper quadrant (RUQ) and epigastric pain. The pain was sometimes worsened with food and was always relieved by emesis. Physical exam was significant for RUQ abdominal tenderness. Lab work up was significant for mildly elevated AST and ALT at 188 and 231, respectively, along with elevated alkaline phosphatase at 424 and elevated bilirubin at 1.7, consistent with a cholestatic pattern of injury. Abdominal ultrasound showed dilated common bile duct (CBD), gallbladder sludge, and mild gallbladder wall thickening, possibly consistent with chronic cholecystitis. HIDA scan was ordered and found decreased gallbladder filling. MRCP found no evidence of gallbladder stones or biliary strictures. ERCP with sphincterotomy and balloon sweep was performed. A periampullary diverticulum was visualized and was found to be compressing the distal common bile duct. Balloon sweep yielded only a small amount of sludge. Patient was discharged and referred to surgery for elective cholecystectomy. Patient presented at ED approximately one hour post-ERCP with nausea, vomiting, and worsening abdominal pain. Lab findings showed increasing hyperbilirubinemia and leukocytosis. She was admitted for suspected post-operative obstruction. Repeat ERCP showed purulent

Continued on next page-
drainage from the CBD, consistent with cholangitis. Two stents were placed in the biliary tree, although again external compression from the duodenal diverticulum obscured the view. She was given intravenous antibiotics for cholangitis and a percutaneous cholecystostomy tube was placed for drainage. Open cholecystectomy was performed before her discharge from the hospital. Her stay was further complicated by post-ERCP pancreatitis and vancomycin-resistant Enterococci infection.

Discussion
Lemmel syndrome is defined as obstructive jaundice caused by external compression of the biliary tree by a duodenal periampullary diverticulum. While Lemmel syndrome is rare, it should be suspected in patients who have obstructive jaundice and either visualized duodenal diverticula or unclear etiology of obstructive jaundice. Recognition of this condition is important as failure to do so can result in several complications and delay in the treatment. Treatment can be conservative in asymptomatic patients while symptomatic patients can be treated endoscopically and in some cases surgical resection of the diverticulum is needed.
A new abstract was submitted for the Nebraska Chapter on Thursday, September 17, 2020 - 22:39:

**Medical Student Abstract 17**

**Category Submitting for:** Clinical Vignette

**Abstract Title** Antibiotics: the Good, the Bad, the DILI

**Abstract Text**
A 47 year-old Thai man with past medical history significant for Chronic Hepatitis B liver cirrhosis and beta-thalassemia minor, presented after being told his skin was an abnormal color. He described symptoms of abdominal tightness and shortness of breath after eating for one month prior to presentation. He described no other symptoms of pain. These symptoms started after doubling previously prescribed cephalexin from once to twice a day, because of an episode of spontaneous bacterial peritonitis. He had prominent yellowing of his skin and eyes; his liver and spleen were enlarged; his abdomen was mildly distended without pain. Breath sounds over the right lung base were decreased.

Preliminary lab work revealed an INR of 2.5, AST of 108 IU/L, ALT of 80 IU/L, and total bilirubin of 51.3 mg/dL with conjugated bilirubin of 28.2 mg/dL. Further workup revealed decreased haptoglobin, decreased fibrinogen, elevated d-dimer, elevated LDH, and a platelet level of 20,000. No organisms grew on blood cultures, and direct antiglobulin testing was negative. Abdominal CT showed prominent hepatosplenomegaly without signs of hepatocellular carcinoma and a right pleural effusion.

Review of pharmaceutical records revealed a filled prescription for trimethoprim-sulfamethoxazole shortly before symptom onset. The patient was diagnosed with drug-induced liver injury and received a liver transplant two days later. During the operation the surgical team discovered that the enlarged liver tore a hole through the diaphragm, leading to his pleural effusions and required surgical repair.

Drug Induced Liver Injury (DILI) is a common cause of acute liver injury encountered by the general internist and rarely can progress to fulminant liver failure. Most cases of DILI are caused

Continued on next page-
by idiosyncratic reactions to antibiotics, anticonvulsants, psychotropic drugs, and herbal supplements. Both antibiotics prescribed to our patient, cephalexin, and Bactrim, have been reported to cause DILI, with Bactrim implicated more often. DILI occurs from hepatocellular injury, commonly monitored by AST and ALT. However, with chronic liver disease, elevated LFTs at baseline may mask the injury. Additionally, damaged hepatocytes may no longer release ALT or AST leading to low levels even though extreme injury occurred, as in this case. Monitoring bilirubin and INR is recommended in patients with suspected DILI and chronic liver disease, with early cessation of the suspected culprit drug.

Common antibiotics can have severe unintended consequences, even for indicated uses. Limiting unnecessary antibiotic exposure can protect patients, but is complicated when patients have guideline-directed reasons to receive antibiotics. DILI is a known, but rare complication and leads to death or requires transplant in about 10% of cases. Typically, patients recover by discontinuing the offending medication and providing supportive therapy. Our patient likely required urgent transplant because of existing hepatocyte injury from chronic hepatitis at baseline.
A new abstract was submitted for the Nebraska Chapter on Thursday, September 17, 2020 - 21:52:

Medical Student Abstract 18

**Category Submitting for:** Clinical Vignette

**Abstract Title** An Atypical Presentation of Anti-Synthetase Syndrome: Interstitial Lung Disease without Muscle, Joint, or Skin Involvement

**Abstract Text**
Introduction: Anti-synthetase syndrome (AS) presents with a rare constellation of symptoms and clinical findings that includes a triad of myositis, polyarthritis, and interstitial lung disease (ILD). Additionally, Raynaud’s phenomenon, thickening of the skin of the hands (“mechanic’s hands”), and a rash are other frequently associated symptoms. Diagnosis of AS is largely clinical and often made via a multidisciplinary approach. This wide variation of symptoms makes sharing the different presentations of the disease with other clinicians crucial to an accurate and timely diagnosis.

Case Presentation: We present the case of a patient who is a 67-year-old Caucasian female with a medical history of heart failure with preserved ejection fraction, hiatal hernia, esophageal dysmotility and anxiety. She presented with a chief complaint of esophageal pain, chronic cough and increasing shortness of breath. She was admitted for a suspected aspiration pneumonia secondary to esophageal dysmotility and started on empiric antibiotic therapy. She had a rapidly progressing respiratory condition and lacked any clinical evidence of the most common signs of AS including muscle, joint, hand or skin involvement. When her condition deteriorated despite appropriate antibiotic therapy, she underwent rheumatologic testing and the presence of anti-Jo-1 antibodies and antinuclear antibodies (ANA) were found. In addition, the patient underwent a muscle biopsy that came back positive for inflammation consistent with myositis, despite her lack of myopathy. She was diagnosed with AS and ultimately started on immunosuppressive therapy which improved her respiratory status to the point where she could be discharged to an acute care facility.

Continued on next page-
Discussion: AS is characterized by the presence of antibodies directed against an aminoacyl transfer RNA synthetase, the most common of which is anti-Jo-1. According to diagnostic criteria, patients must have the presence of an antibody in addition to two major criteria or one major and two minor criteria. The major criteria are ILD and dermatomyositis or polymyositis. The minor criteria are arthritis, mechanic’s hands, and Raynaud’s. Our patient appeared to have just one of the major criteria, ILD, in addition to the presence of ANA and anti-Jo-1. If following the diagnostic criteria, we theoretically should have been able to rule out AS as a diagnosis. The unique presentation we are sharing today could play an important role in educating other providers caring for patients with an acute respiratory illness to consider ILD and AS, even when there is only one major criterion that appears to be met. It is our goal this example will educate providers to keep a high clinical suspicion for this disease, as well as a low threshold to test for the presence of antibodies. Education on the more unique presentations of Anti-Synthetase Syndrome when muscle, joint, and skin involvement is clinically absent could be of great benefit to patients presenting with antibiotic resistant respiratory disease, even if the rest of their history does not suggest a rheumatologic etiology.
Medical Student Abstract 19

Category Submitting for: Clinical Vignette

Abstract Title Atypical Diagnosis of GBS/CIDP

Abstract Text
Introduction: Guillain-Barre syndrome (GBS) and chronic inflammatory demyelinating polyneuropathy (CIDP) are rare immune mediated polyneuropathies with incidences of 1-2 cases/100,000 and 1.6 cases/100,000 respectively. The most common form of GBS peaks within 4 weeks. If the neuropathy progresses or relapses for more than 8 weeks, the disease is considered CIDP. This case presents a patient with either GBS or CIDP who was initially difficult to diagnose.

Case: A 48-year-old Spanish speaking male with no significant past medical history presented with progressively worsening lower extremity weakness over the previous 2wks, which was worse on the left side and severely limited his mobility. He also reported paresthesias below his neck. The patient reported no history of recent diarrheal illness or other infection. The physical exam was noted to be inconsistent, but in general the patient was unable to resist gravity with hip flexion, knee extension, and ankle dorsiflexion. Neurology determined he had full achievable power in his muscles but was having trouble activating them. Deep tendon reflexes were absent in the bilateral lower extremities, but sensation was intact. MRIs of the spinal cord and brain showed no evidence of cord compression or central demyelinating syndrome. A lumbar puncture was unremarkable with no albuminocytologic dissociation. At this point the patient was assumed to have a functional neurological disorder in combination with a longstanding peripheral neuropathy such as CMT.

After 2wks of admission and no improvement, the patient began complaining of worsening upper extremity weakness. An EMG was arranged, which demonstrated acute mixed axonal and demyelinating polyradiculoneuropathy. The patient was then treated with 2g/kg IVIG divided over a 5 day course for probable GBS or acute onset CIDP. The patient was given instructions

Continued on next page-
to return for IVIG 1g/kg every 3 weeks as an outpatient.

Discussion: Patients with GBS can have an accelerated recovery when receiving either IVIG or plasmapheresis within 4wks of onset, therefore early diagnosis is helpful. Necessary requirements for diagnosis of GBS are progressive weakness of the legs (and arms) and hypo-/areflexia in weak limbs (CIDP requires all limbs for 8wks.). GBS is often associated with an antecedent event, such as infection, but this finding is only present in 70% of GBS cases and 30% of CIDP cases. Greater than 75% of GBS patients can present with albuminocytologic dissociation on lumbar puncture (80% in CIDP), but absence of this finding does not exclude GBS or CIDP. Therefore, EMG is also recommended for diagnosis in suspected cases of GBS or CIDP.

Conclusion: GBS and CIDP should be considered in all patients presenting with progressive weakness of extremities and diffuse hyporeflexia even in the absence of an identifiable trigger or abnormal spinal tap. An EMG can be useful in diagnosis.
A new abstract was submitted for the Nebraska Chapter on Thursday, September 17, 2020 - 21:16:

Medical Student Abstract 20

Category Submitting for: Clinical Vignette

Abstract Title Double Trouble with Trimethoprim-Sulfamethoxazole

Abstract Text
Introduction: Drug-induced immune thrombocytopenia purpura (ITP) and aseptic meningitis are rare and potentially life-threatening side effects of Trimethoprim-Sulfamethoxazole (TMP-SMX) use. This case demonstrates a unique occurrence of both of these rare adverse effects and highlights the importance of a medication reconciliation.

Case Description: A 27-year-old man presented to the emergency department with 3 days of headache, neck stiffness, night sweats, fever, and rash. He had a temperature of 39.2° and a petechial rash on the upper chest, extremities, conjunctiva, and oral mucosa. Meningitis was suspected and a lumbar puncture (LP) was planned. However, CBC revealed an isolated thrombocytopenia with a platelet count of 0. LP was canceled and blood cultures were drawn. He was admitted to intensive care and started on empiric treatment for meningitis with vancomycin, ceftriaxone, and dexamethasone. CT of the head and MRI of the thoracic/lumbar spine showed no abnormalities. Investigation of isolated thrombocytopenia included an LDH of 199 (98-192), haptoglobin 189 (36-215), fibrinogen 206 (160-450), and a peripheral smear without schistocytes. Autoimmune disease evaluation with ANA was negative. Infectious workup was also negative including tick-borne disease, babesia, West Nile, HIV, herpes viruses, and hepatitis viruses. Ten days prior to admission, the patient was prescribed a 2-week course of TMP-SMX for a suspected urinary tract infection. TMP-SMX was discontinued and the patient began treatment for immune thrombocytopenia purpura (ITP) and aseptic meningitis secondary to TMP-SMX. He received 1 unit of platelets, 2 doses of IVIG, and initiated on prednisone 70 mg daily for 2 weeks. Meningitis symptoms improved, fevers resolved, and platelet count slowly improved to 73 at discharge (4 days after presentation). Repeat platelet count at outpatient follow-up 9 days later was 367.

Discussion: While severe adverse reactions are relatively rare with commonly prescribed

Continued on next page-
medications, this case highlights that the general internist must include adverse reactions on the differential and that a thorough medication reconciliation may lead to a diagnosis. TMP-SMX is a frequently used antibiotic that is useful in a variety of infections. The most common adverse effects are mild gastrointestinal (3%-8%) and dermatologic (3%-4%) reactions. However, there are well documented associations between TMP-SMX and both ITP and aseptic meningitis. Systematic reviews found that TMP-SMX is the third most reported cause of drug-induced ITP and the most reported antibiotic cause of aseptic meningitis. This case is unique in that the patient appears to have had presented with both a drug-induced ITP and suspected aseptic meningitis, two rare, but serious complications of TMP-SMX. For the general internist, this case emphasizes the importance of maintaining a broad differential, which should include drug-induced adverse effects. Early identification and withdrawal of the offending agent can lead to a rapid recovery.
A new abstract was submitted for the Nebraska Chapter on Friday, September 18, 2020 - 16:34:

Medical Student Abstract 21

**Category Submitting for:** Clinical Vignette

**Abstract Title** Leptomeningeal Metastases Presentation and Workup

**Abstract Text**

Tumor involvement in the arachnoid and pia mater is known as leptomeningeal metastases and is most commonly a complication of advanced staged underlying cancer. While an uncommon diagnosis in patient with metastatic cancer, approximately 5%, it is most commonly seen in relation to primary brain tumors and solid tumors such as breast, lung, and melanoma. A 64-year-old man presented to the ED due to 2 weeks of increasing dizziness, back pain, and lower extremity weakness that culminated in a fall and being unable to get back up. He underwent a stroke protocol workup which was negative. He reported no bowel or bladder incontinence. A physical exam was unremarkable except for bilateral lower extremity weakness when lifting his legs against gravity and band like pain over the lumbar region of his back. All other lab values at this time were within normal limits. An MRI of the lumbar spine showed diffuse enhancement along the distal conus and cauda equina with areas of nodular and thick enhancement. These findings were concerning for metastatic leptomeningeal carcinomatosis (leptomeningeal metastases). Neurosurgery and hematology/oncology were consulted and a CT scan of the chest, abdomen, and pelvis was performed, but a definitive primary source was not found. At this point, the patient was discharged from the hospital and scheduled for an outpatient lumbar puncture, CT/Myelogram, and MRI of the head, cervical, and thoracic spine. The MRI of the brain did not demonstrate any acute findings, but the MRI of the cervical and thoracic spine showed a posterior extramedullary soft tissue mass at T10-11 causing spinal cord compression as well as other focal areas of dural nodular thickening/enhancement throughout the thoracic spine concerning for leptomeningeal metastatic disease. The CT scan of the lumbar spine also revealed innumerable small nodules along the cauda equina and conus medullaris, the largest of which measuring 3 mm in diameter. Analysis of the lumbar puncture showed a glucose of 42, RBC count of 878, nucleated cell count of 14 with 74% lymphocytes, and a protein of 514. The sample was also sent out for cytology and flow cytometry work up. Based on the imaging and lab findings the patient was diagnosed with leptomeningeal metastases and re-admitted to the hospital. He was started on dexamethasone and neurosurgery and hematology/oncology were consulted for further workup and management.

This case illustrates the possible presenting symptoms of the rare disease leptomeningeal metastases. Although this disease is typically a late stage finding of metastatic cancer, the neurological symptoms associated with it may be the first sign of an underlying malignancy.
A new abstract was submitted for the Nebraska Chapter on Thursday, September 17, 2020 - 16:12:

Medical Student Abstract 22

**Category Submitting for:** Clinical Vignette

**Abstract Title** Simmering Myasthenia Gravis Provoked by UTI

**Abstract Text**

Myasthenia Gravis is an uncommon disorder whose detection can go unnoticed when its symptoms are provoked and confounded by an acute etiology. Patient is a 75 y.o. female who was admitted for dysarthria. She had a past medical history of diabetes type II, hypertension, hyperlipidemia, and recent hip replacement 6 weeks prior. For 3 days she had difficulty swallowing and in the last 3 hours she experienced slurred speech and shortness of breath with concerns for possible CVA. Tele-neurology was consulted. CT of the head, CTA of the head and neck showed no acute abnormalities. The patient met SIRS criteria with tachycardia and tachypnea, chest x-ray was non-significant, blood cultures were drawn, and UA had a positive leukocyte esterase and >300 bacteria. Patient was started on antibiotics and admitted to the ICU.

MRI was not completed due to patient's inability to swallow while lying supine; however, diffusion scan did not show any acute abnormality. Blood cultures grew E-coli. On exam neurology elicited that the patient's symptoms get worse after more than two sentences, fatigue, and towards the end of the day. Patient was also noted to have bilateral ptosis that improved with the ice packing test. Bilateral facial muscles, jaw closing, and proximal muscles were all weak. Reflexes and sensation were normal throughout. Patient was diagnosed with acute myasthenic crisis in the setting of E-coli UTI and bacteremia. Chest x-ray was negative for a thymoma and Myasthenia Gravis panel is still pending. Patient was started on a 5-day course of IVIG with improvement of symptoms. Pyridostigmine and a short course of steroids were planned for after the resolution of weakness.

This case illustrates value of a comprehensive history and physical, as well as resisting the temptation towards premature closure bias. This patient likely had simmering Myasthenia Gravis for a long period of time that resulted in an acute crisis due to her UTI and bacteremia. Stroke was the most obvious etiology for her acute onset dysarthria, but a careful history and thorough neurological exam identified key characteristics of Myasthenia Gravis. In addition, it is important to keep in mind that patients can have a chronic subacute disease that is exacerbated and confounded by an acute etiology. Differentiation of symptoms, a broad differential, and willingness to reevaluate the patient case regularly will aid in proper identification and management.
A new abstract was submitted for the Nebraska Chapter on Thursday, September 17, 2020 - 13:48:

Medical Student Abstract 23

**Category Submitting for:** Clinical Vignette

**Abstract Title** Spontaneous PVT: Deep in the Wells of the Differential

**Abstract Text**
Pulmonary vein thrombosis is rarely clinically detected and is uncommon and under diagnosed condition with potentially life-threatening complications. The infrequency with which it is encountered makes it a diagnostic challenge. It has been previously described more commonly in association with malignancy or secondary to lung surgeries, however, an idiopathic presentation is exceedingly rare.

A previously healthy 61-year-old male was brought to the emergency department for severe unilateral pleuritic chest pain. The pain was sharp in nature, worse with any kind of movement, and improved with leaning forward. He was awoken with the pain, became dyspneic, and was finding it difficult to catch his breath. He had no previous history of similar symptoms. In addition, he had no recent history of strenuous activity, extensive travel, surgeries, hormone use, or tobacco use. Wells score at admission was 1.5 points placing him in the low risk category for a pulmonary embolism. Work up in the emergency department including EKG, chest x-ray, and D-dimer test, did not reveal any apparent etiology. A CT angiogram of his heart showed an incidental thrombosis of the left inferior pulmonary vein with small left pleural effusion. He was started on a continuous heparin infusion; however, it was unclear if the pulmonary vein thrombosis was the cause of his extensive pain due it’s relative small size. His pain began to worsen over the course of the next two days of his hospitalization - he was taking shallow breaths despite frequent Hydromorphone administration. An extensive work up for possible coagulation disorders was completed including but not limited to: prothrombin gene mutation, lupus anticoagulant, prostate specific antigen (PSA), carcinoembryonic antigen (CEA). None of these investigations provided an answer to the etiology. Additional history revealed that he had been diagnosed with ulcerative colitis in early adulthood, however, it was in remission and he was not currently being treated for it. His most recent colonoscopy showed no evidence of malignancy. Eventually, over the course of five days, the patient’s pain improved, and repeat imaging showed resolution of the pleural effusion, and the decision was made to wean him from the Heparin and transition him to Apixaban for a three-month duration, with follow up for further evaluation.

This case demonstrates the potential for spontaneous idiopathic pulmonary vein thrombosis as a unique cause of pleuritic chest pain. Although there are no definitive guidelines on treatment of this condition, in our case we treated it similarly to an unprovoked pulmonary embolism. In addition, we recommend utilization of CT angiogram as the preferred method of diagnosis. Although rare, it is thought that PVTs are under diagnosed, and an important consideration when working through a differential diagnosis of pleuritic chest pain.
A new abstract was submitted for the Nebraska Chapter on Thursday, September 17, 2020 - 10:24:

Medical Student Abstract 24

Category Submitting for: Patient Safety

Abstract Title: Debriefing Medical Error – Balancing Root Cause Analysis with Empathetic Evaluation

Abstract Text
Medical errors (ME) occur frequently in modern medicine and represent a leading cause of patient deaths in the US. Guilt and shame are common emotions for healthcare professionals following ME and may negatively impact patients beyond the error itself by impacting the healthcare professionals' wellbeing. Studies have shown that effectively debriefing ME may help identify root causes for those errors and alleviate some of the adverse emotional effects on the healthcare professionals themselves.

This is a case of a physician-lead debriefing session following a ME. After the error was noticed, the attending physician conducted an informal debriefing during rounds. The team discussed the patient’s case, the error, and then each team member was given the opportunity to share how they felt about the situation if they desired.

To assess the impact of this debriefing on safely identifying root causes for ME and the emotional effects of ME, we administered an anonymous 11-question survey with 9 Likert-style questions and 2 free-response questions to the participants of this debriefing (n=6). We conducted a descriptive analysis on the Likert questions and a thematic analysis on the free-response questions.

Participants included four postgraduate medical trainees and 2 medical students. Of these, all participants either strongly agreed or agreed that the debriefing improved their awareness of ME itself, and the emotional effects of ME. All respondents strongly agreed that the attending physician taking responsibility for the error increased the openness of the debriefing. Two-thirds
of the trainees strongly agreed that the debriefing correctly identified the root cause of the error and improved their understanding of the emotional effects of ME. Additionally, 83% (5/6) strongly agreed that debriefings like this should occur routinely in medicine. Analysis of open questions revealed two themes: the benefit of normalizing discussions of ME, and common tendency of physicians to internalize ME to their own detriment.

This approach to ME debriefing served to contextualize the mistake, identify underlying causes to improve patient safety, and create an emotionally safe space for the team itself. Such debriefings have been associated with improvements in resident physicians’ ability to disclose errors across a range of specialties. Disclosing errors in an open and honest format facilitates learning opportunities to improve patient safety, with some researchers advocating for the creation of specialized healthcare curriculums for error disclosure. Research supports structured debriefings like the one described, which identify areas for quality improvement while simultaneously evaluating and supporting the emotional wellbeing of team members themselves.
A new abstract was submitted for the Nebraska Chapter on Wednesday, September 16, 2020 - 21:59:

Medical Student Abstract 25

**Category Submitting for:** Clinical Vignette

**Abstract Title** The Birds Who Sow the Seeds of History

**Abstract Text**

Introduction: Miliary pattern on chest imaging has a broad differential diagnosis, but is classically associated with tuberculosis. However, it is important to acquire a thorough history, including risk factors and exposures, and understand the geographical prevalence of infectious agents. These elements are critical for a proper diagnosis.

Case Description: A 35-year-old previously healthy male patient presented with a 4-day history of fevers/chills, chest pain, progressive dry cough, and dyspnea. He was hypoxic to 87% but improved with 2L of oxygen via nasal cannula. Initial laboratory workup revealed normal WBC count, troponin elevation, and negative HIV antibody. CT chest demonstrated innumerable miliary nodules throughout bilateral lung fields with mediastinal and hilar lymphadenopathy. Social history revealed the patient worked in the heating, ventilation, and air conditioning industry, and 5 days prior to admission, he used a blower in a dusty attic near a zoo without wearing a mask. He did not use tobacco or have a history of incarceration, homelessness, sick contacts, or recent travel. Upon admission, he was placed in isolation until tuberculosis PCR and AFB smears returned negative. While awaiting diagnostic studies, he developed rising liver enzymes with continued fevers and hypoaxia. Diagnostic studies demonstrated elevated urine and serum histoplasma antigen and elevated blastomycosis antigen. He was diagnosed with acute pulmonary histoplasmosis, and itraconazole was started. His liver chemistries continued to rise, concerning for disseminated histoplasmosis versus drug effect; so, he was switched to liposomal amphotericin B. Over the next two days, dyspnea, oxygen requirements, and liver chemistries improved. After four days of amphotericin therapy, he was transitioned back to itraconazole to complete a tentative 12-week course.

Continued on next page-
Discussion: The differential for miliary pattern on chest CT is broad and includes tuberculosis, histoplasmosis, blastomycosis, coccidiomycosis, cryptococcus, hypersensitivity pneumonitis, primary or metastatic malignancy, pneumoconiosis, and sarcoidosis. The obtained medical history revealed no risk factors for tuberculosis, but he did have a significant work-related exposure to potential aerosolized bird/bat droppings. Both histoplasmosis and blastomycosis antigen testing returned positive, which have significant cross-reactivity. This critical information and knowledge of the high regional prevalence of histoplasmosis compared to blastomycosis led to the diagnosis of histoplasmosis. His clinical course was concerning for disseminated disease, which is rare in immunocompetent individuals but can be fatal if there is a lack of timely and appropriate treatment. Thus, liposomal amphotericin B was promptly started to suppress his acute infection and avoid potential itraconazole hepatotoxicity. This case highlights the importance of obtaining a thorough history of exposures and risk factors and correlating it with regional disease incidence in order to accurately interpret diagnostic testing and imaging results.
A new abstract was submitted for the Nebraska Chapter on Wednesday, September 16, 2020 - 20:45:

Medical Student Abstract 26

**Category Submitting for:** Clinical Vignette

**Abstract Title** Evaluation, Diagnosis and Management of Lactobacillus bacteremia in the Relative Immunocompromised Patient

**Abstract Text**

A 73-year-old male patient presented the Emergency Department for generalized weakness, myalgias, and fever. Upon further questioning, patient had recent camping history with consumption of unfiltered water as well as night sweats, increased thirst, urinary frequency, and paresthesia in his upper extremities bilaterally. This patient's past medical history included T2DM, COPD, atrial fibrillation, coronary artery disease, hypertension, hyperlipidemia, and heart failure with preserved ejection fraction (HFpEF). He had also been diagnosed with polymyalgia rheumatica nine months earlier that was treated with daily prednisone therapy.

Throughout his hospital course, the patient experienced intermittent fevers that coincided with episodes of shortness of breath and worsening muscle weakness. He also noted worsening confusion and dizziness with fevers. The patient underwent a thorough work-up for cause of his fevers during his inpatient hospital stay that encompassed infectious, rheumatologic, and malignant etiologies. On hospital day 7, his blood cultures drawn 3 days prior returned 2 of 2 positive for gram positive rods. Subsequent identification revealed Lactobacillus species. Treatment with ampicillin-sulbactam improved the patient's fever and the patient returned to baseline functional status.

This case illustrates the importance of a thorough workup for ongoing fevers, particularly in immunocompromised hosts. This patient presented with fevers with an unknown source as well as uncontrolled type 2 diabetes mellitus and chronic corticosteroid use for polymyalgia rheumatica. Given his relative immunosuppression, infection seemed likely; however, initial work up for infection was negative. Diagnosis of Lactobacillus bacteremia required two separate sets

Continued on next page-
of blood cultures during the hospital course. Studies demonstrate that Lactobacillus bacteremia is more common in immunocompromised hosts or patients with underlying disease. This underscores the importance of multiple sets of blood cultures in patients with fever and immunocompromised states. The clinical course of Lactobacillus infection varies greatly among patients, and according to several studies, may be an indicator of poor clinical progress. Therefore, patients with lactobacillus bacteremia warrant close follow up and age-appropriate cancer screenings should be strongly recommended. Lactobacillus is an organism that should be thoroughly evaluated to initiate proper treatment. Due to its association with underlying comorbidities, Lactobacillus should be considered on the differential diagnosis for immunocompromised patients with fever of undetermined etiology.

Learning Points

1. Ongoing intermittent fevers require a robust differential diagnosis as well as diagnostic work-up.
2. Lactobacillus, though seemingly harmless, can cause significant infection, especially in immunocompromised hosts.
3. Lactobacillus is difficult to culture and may require repeat cultures for diagnosis. Consider repeat blood cultures for ongoing fevers without an identified source.
A new abstract was submitted for the Nebraska Chapter on Wednesday, September 16, 2020 - 17:54:

Medical Student Abstract 27

**Category Submitting for:** Clinical Vignette

**Abstract Title** Acute Hyponatremia Following Routine Cardiac Ablation

**Abstract Text**
A 62-year-old Caucasian male was admitted to the ICU after cardiac ablation for Atrial Fibrillation with recurrent rapid ventricular rate. Additional past medical history included prostate cancer, tobacco use, and peripheral artery disease status-post below-the-knee amputation. Ablation was successful and without complication. However, a rapid response was called a few hours following the procedure for unresponsiveness and right arm weakness. CT head and telemetry were benign. BMP and CBC were within normal limits, with an elevated troponin of 3.408. Symptoms improved and were attributed to a delayed effect of anesthesia.

Overnight and into the next day, the patient complained of 10/10 phantom limb pain, chest pain, and began having hourly bowel movements. He was febrile with a new oxygen requirement, and CXR revealed questionable infiltrate in the RLL. The patient was started on IV normal saline and empiric antibiotics for community acquired pneumonia. In the morning, there was no improvement in pain or stooling, a GI pathogen panel was obtained and unremarkable.

Forty-eight hours after ablation, upon review for transfer to the general medical floor, his morning BMP demonstrated a serum sodium (Na) level of 130, down from 138 the day prior. Repeat BMP confirmed Na 127. Urine studies were obtained, returning ketonuria, urine osmolality 591, and urine Na 196. The initial working diagnosis was post-operative SIADH. Due to refractory hypotension, midodrine was started, and then norepinephrine. Evaluation of TSH and cortisol revealed an abnormally low morning cortisol of 1.8 (4.5-22.7). A high dose ACTH stimulation test was preformed, and his cortisol increased to 109.7. This abnormally robust response was attributed to the sample being drawn at the same time as the administration of a stress dose of hydrocortisone. After a day of IV corticosteroids, the patient was more talkative.

Continued on next page-
with a decreasing number of bowel movements, and a Na of 139. Endocrinology recommended pituitary MRI, which was normal, and a repeat ACTH stim test as an outpatient. He was discharged on oral hydrocortisone with plans for taper. Additional work up of this patient’s adrenal insufficiency will occur at an Endocrinology follow-up.

Adrenal insufficiency (AI) presents with vague symptomatology, and the varied presentations of this disorder make it a diagnostic challenge. This patient’s presentation was atypical. This case also demonstrates the importance of considering the hypothalamic-pituitary-adrenal axis in the work up of euvolemic hyponatremia, and that AI should be on the differential for acute hyponatremia. The combination of refractory hypotension and gastrointestinal distress, though abdominal pain is more common, should lend itself to consideration of AI. It also serves as a reminder of the potential confounding variables in the evaluation of a hormone axis. Dexamethasone can be used as the rescue steroid in the setting of suspected AI.
A new abstract was submitted for the Nebraska Chapter on Wednesday, September 16, 2020 - 16:40:

Medical Student Abstract 28

Category Submitting for: Clinical Vignette

Abstract Title Postpartum Thyroid Abnormalities and Systemic Lupus Erythematosus: Is There a Link?

Abstract Text
Introduction:
Postpartum Thyroiditis (PPT) is an autoimmune disorder characterized by destruction of the thyroid gland within the first year after delivery. Systemic Lupus Erythematosus (SLE), another autoimmune disease, has been associated with a spectrum of thyroid disorders. While the prevalence of thyroid diseases in patients with SLE is increased, the association between SLE and PPT is not well known. The infrequency of encountering SLE and PPT makes abnormal thyroid tests in the postpartum period a diagnostic challenge.

Case Presentation:
A 27-year-old G1P1001 who was five months postpartum and not breast feeding was referred to Endocrinology clinic for evaluation of abnormal thyroid function tests. Past medical history is significant for SLE with renal and pericardial involvement. SLE was well controlled, treated with hydroxychloroquine. Family history was significant for hypothyroidism in her mother.

She was asymptomatic and appeared clinically euthyroid. Vitals were stable and physical exam was negative for goiter, nodule or orbitopathy. Lab results at two months postpartum showed elevated TSH of 3.87 UIU/ml (0.40-3.8 UIU/ml) and at four months postpartum TSH was low at 0.012 UIU/ml. Repeat labs at five months postpartum continued to show low TSH at 0.007 UIU/ml with mildly elevated Free T4 at 1.7 ng/dl (0.6-1.6 ng/dl) and elevated Free T3 of 6.0 pg/ml (2.1-3.8 pg/ml). Anti-thyroid peroxidase antibodies (TPO), thyroid stimulating antibodies (TSI) and TSH receptor antibody (TRAb) were negative. Thyroid Ultrasound with Doppler was

Continued on next page-
within normal limits. Radioactive Iodine Uptake and Scan, obtained at 6 months postpartum, showed high normal uptake (17% and 32% at 4 hours and 24 hours respectively), suggestive of recovery phase of PPT. Most recent TSH was elevated at 8.5 UIU/ml and Free T4 was low at 0.7 ng/dl. Disease course is consistent with PPT.

Discussion:
The Th1 (T-helper) lymphocyte immune predominance in autoimmune thyroid disease and SLE is the immune-pathogenetic base of the association between both diseases. Postpartum thyroiditis is a variant of chronic autoimmune thyroiditis. Serum anti-TPO antibodies vary during pregnancy and tend to increase early and may decline later. Immunologic tolerance increases during pregnancy, fades in the postpartum period and makes interpretation of thyroid function tests and disease process challenging.

Pregnant and postpartum patients who have SLE have increased prevalence of thyroid disease. Causes are multifactorial with a higher prevalence of hypothyroidism and thyroid autoantibodies. Hyperthyroidism is much less likely. One comparable study found 6 of 43 (14%) women with SLE developed PPT and only one of these patients had positive thyroid antibodies. These reports and our patient illustrate the variability of thyroid function tests in patients with SLE.
A new abstract was submitted for the Nebraska Chapter on Wednesday, September 16, 2020 - 09:35:

Medical Student Abstract 29

**Category Submitting for:** Clinical Vignette

**Abstract Title** Hypokalemic Periodic Paralysis in a 30-year old female presenting with lower extremity weakness

**Abstract Text**

**Introduction**

Hypokalemic Periodic Paralysis (PP) is rare condition with an incidence of 1/100,000. Periodic Paralyses are most commonly due to defects in muscle potassium, calcium, or sodium channels resulting in episodes of painless weakness most prominent in the proximal lower extremities. These channelopathies result in alteration of membrane excitability, causing paralysis. Multiple etiologies exist including hypokalemia and hyperkalemia. The most common acquired cause of PP is thyrotoxic. Inherited Periodic Paralyses are classified as autosomal dominant, with incomplete penetrance. PP can be associated with Andersen-Tawil Syndrome, which is additionally characterized by ventricular dysrhythmia and dysmorphic bodily features. Patients with Hypokalemic PP experience episodic attacks, variable in frequency and duration (minutes to days). Activities which elicit this response cause release of epinephrine and insulin, mediating intracellular potassium shifts. Here we present a case of 30-year old female with lower extremity weakness, diagnosed as Hypokalemic Periodic Paralysis.

**Case Presentation**

A 30-year old female at 28-weeks gestation with no significant past medical history was admitted for lower extremity weakness. She vacationed in Massachusetts three days prior, spending time on the beach and eating seafood. She denied hiking or experiencing symptoms of nausea, vomiting, diarrhea, or fever, and also denied any tick bites. Upon returning to Nebraska, she became unable to walk and noticed progression to her upper extremities. She denied headache, trauma, numbness, or other neurologic symptoms. On physical exam, her vitals were stable, with modest tachycardia (HR 98/minute). Weakness on presentation was 3/5

Continued on next page-
in the lower extremities and 4/5 in the upper extremities bilaterally with intact sensation and cranial nerves 2-12. Reflexes were 2+ symmetrically. Brain and pan-spine Magnetic Resonance Imaging were unremarkable. Electrocardiogram showed notable T wave inversions, probable U waves, and corrected QT interval (441ms). Laboratory evaluation was notable for hypokalemia (2.0 mmol/L), normal magnesium, and hypocalcemia (8.0mg/dL) with moderate leukocytosis (12.7/L), but no signs of infection. Thyroid Stimulating Hormone was normal. Infectious workup for COVID-19, Lyme Disease, Anaplasmosis, Babesiosis, Ehrlichiosis, and West Nile Virus were negative. The patient was started on intravenous half normal saline KCL at a rate of 50mL/hr, with improvement in her symptoms. She was discharged on oral KCL 40 mEq twice daily.

Discussion
Periodic Paralyses are rare, though hypokalemia is the most common cause. This condition is associated with episodic painless weakness, occurring most commonly in proximal lower extremities. This weakness can ascend, resembling conditions such as Guillain-Barré Syndrome (GBS); however, weakness due to Hypokalemic PP resolves rapidly after treatment, which is uncharacteristic of GBS. Treatment consists of aggressive potassium repletion, with subsequent improvement in symptoms. Hypokalemia Periodic Paralysis should be a consideration in patients with laboratory evidence of hypokalemia in the absence of clinical or historical findings responsible for the hypokalemia.
A new abstract was submitted for the Nebraska Chapter on Wednesday, September 16, 2020 - 15:22:

Medical Student Abstract 30

**Category Submitting for:** Clinical Vignette

**Abstract Title** Fever of Unknown Origin: An Unusual Presentation of Multiple Myeloma

**Abstract Text**
Fever of Unknown Origin: An Unusual Presentation of Multiple Myeloma
Emma Patello, Dr. Mohammed Qasswal, Dr. Abubaker Tauseef, Dr. Joseph Thrumala Reddy, Department of Medicine, Creighton University School of Medicine, Bergan Mercy Campus, Omaha, NE

The incidence of multiple myeloma in the US is 7 in 100,000. Most cases present with one or more of the classic multiple myeloma symptoms commonly named as CRAB symptoms including: Calcium elevation, Renal insufficiency, Anemia, and Bone disease. Some additional, although much rarer, primary presenting manifestations can include neuropathy, systemic signs, and infection. Here in we report on a unique case of multiple myeloma presenting as fever of unknown origin (FUO).

A 67-year-old Caucasian male was admitted for evaluation following 2 weeks of fever and fatigue. Thorough questioning of history did not elicit any clear origin. Notable laboratory data included normocytic anemia, elevated WBC (high of 23,600x10³ mm³), CRP (high of 371 mg/L), ferritin (high of 4,534 ng/mL), fibrinogen (>860 mg/dL), phosphorous (7.2 mg/dL), and corrected calcium (10.6 mg/dL). All blood cultures, infectious panels, urine cultures, and multiple rheumatologic markers were negative. No masses or suspicious lesions were found on CT or ultrasound imaging. On MRI spine, there were heterogenous changes in the lumbar spine and PET scan found diffusely abnormal hypermetabolic bone marrow. During the course of the hospital stay, the patient developed acute kidney injury, requiring dialysis. Peripheral blood smear was positive for rouleaux formation. Immunofixation revealed 2 populations of IgA monoclonal proteins. Bone marrow biopsy revealed plasmablastic myeloma, with neoplastic

Continued on next page-
plasma cells making up 90% of the hypercellular bone marrow.
Fever of unknown origin is commonly divided into 3 separate categories of possible causes: infectious, inflammatory, and malignancy. Primary workup includes a through history and physical, CBC, CMP, blood cultures, urinalysis, and imaging. If these fail to narrow down possible causes, further workup for malignancy and autoimmune conditions should be performed. In addition, less common infectious panels are warranted. In this case, preliminary bone marrow biopsy and immunofixation was imperative to establishing the diagnosis. Uncommon presenting manifestations of multiple myeloma may cloud the workup, but it is important to keep a broad differential during the investigation of fever of unknown origin. When appropriate, clinicians should include multiple myeloma in the differential diagnosis of FUO to reduce unnecessary testing, rapidly establish the diagnosis, and initiate effective treatments.
A new abstract was submitted for the Nebraska Chapter on Thursday, September 17, 2020 - 17:26:

Medical Student Abstract 31

Category Submitting for: Research

Abstract Title Lupus Nephritis Disparities Amongst Hospitalizations in the United States

Abstract Text
Introduction:
Black, Hispanic and Native American populations in the United States experience increased morbidity and mortality from systemic lupus erythematosus (SLE), with higher rates and worse outcomes for lupus nephritis (LN). Our study utilizes the Nationwide Inpatient Sample (NIS) to examine health disparities in SLE and LN by examining the socio-demographic indicators and health outcomes among US hospitalizations.

Methods:
We utilized the NIS database to identify inpatient hospitalizations between October 2015 and December 2017 with ICD-10 diagnoses of SLE, stratified by LN in patients aged 18 or older. We calculated the rate of LN during hospitalizations, organized by patient and facility demographics. The NIS categorizes race as White, Black, Hispanic or Other; income quartile by zip-code of the patient; and region as West, South, Northeast and Midwest. We also examined dialysis, death, and cost of care.

Results:
We identified 333,020 hospitalizations with a diagnosis of SLE and 8,575 (2.6%) of those carried a diagnosis of LN. LN affected younger individuals with a median age of 36.6 years compared to SLE without LN whose median age was 54.6. Hospitalizations with SLE were disproportionately higher in the Black cohort (28.1%) and relatively lower in the Hispanic cohort (11.6%) compared to the demographics of the general population (13% Black, 16% Hispanic). Hospitalizations with LN were predominantly seen in urban teaching hospitals. The rates of LN were higher for Black (4.6), Hispanic (4.0), and Other (3.7) when compared to White (1.1). The income quartile upon hospitalization showed varying rates of LN, with the lowest quartile comprising the highest rates of LN (3.0) and the upper quartile the lowest (2.1). Hospitalizations with SLE were greatest in

Continued on next page-
facilities in the South (44.7%), however rates of LN were not significantly different between regions. Discharge with dialysis-dependence occurred in 29% of hospitalizations with LN diagnoses. Cost of hospitalization was significantly higher for patients with LN and would be estimated at 17.5 million dollars greater than hospitalizations with SLE and no LN diagnosis.

Conclusion:
From the NIS hospitalizations, the presence of LN among hospitalizations with SLE is disproportionately associated with younger populations, Black and Hispanic populations and the lowest income quartile. These hospitalizations primarily occur at urban teaching hospitals. There was a significant increase in cost associated with these hospitalizations. The rate of LN and dialysis is particularly concerning given the younger age of these hospitalizations. Further investigation is essential for identifying the structural racism that leads to these disparities and informing equitable care for patients with SLE and LN.
A new abstract was submitted for the Nebraska Chapter on Saturday, August 15, 2020 - 11:32:

Medical Student Abstract 32

**Category Submitting for:** Research

**Abstract Title** Combating High Incidence of STIs of Incarcerated Individuals at the Douglas County Department of Corrections

**Abstract Text**

The incidence of sexually transmitted infections (STI) in incarcerated individuals is often much higher than that in the general population. Douglas County, in particular, has reported some of the highest gonorrhea and chlamydia rates in the nation for the last 25 years. Data collected in 2017 reveals gonorrhea rates at the Douglas County Department of Corrections (DCDC) to be 25 times the national average and chlamydia rates to be 15 times the national average. Furthermore, twice as many DCDC female inmates tested positive for STIs compared to male inmates. Many factors—social disruption, lack of access to healthcare resources, and high-risk sexual behaviors—contribute to this disparity. Do juST1ce is an organization of volunteer health professional students from Creighton University and the University of Nebraska Medical Center (UNMC), who are working to address the notoriously high incidence of STIs in Douglas County. Our efforts include educating inmates on STI transmission and prevention, testing and treating for gonorrhea and chlamydia, and distributing free condoms and testing information to inmates upon release. Following an evidence-based model, we utilize data collected from participant surveys as well as national STI data to update our methods. Accordingly, we have more than doubled the frequency of education and testing in female housing units to address the higher incidence in this population. Furthermore, we have revised our educational material to include LGBTQ sexual health topics to address nationally reported disparities affecting LGBTQ incarcerated individuals. Growing evidence-based programs like Do juST1ce show promise in confronting the high incidence of STIs in incarcerated populations.
A new abstract was submitted for the Nebraska Chapter on Thursday, August 27, 2020 - 10:43:

Medical Student Abstract 33

**Category Submitting for:** Clinical Vignette

**Abstract Title** Colestipol: A More Pleasant Alternative to Cholestyramine for Leflunomide Washout

**Abstract Text**

*Introduction:
Leflunomide is a common disease modifying anti-rheumatic drug (DMARD) for treatment of inflammatory arthritis. This is a category X drug per the FDA and once a patient decides to attempt conception, a washout of the drug must be completed. This washout process includes drawing two drug levels 14 days apart showing a drug level less than 0.02 mg/L. This clinical case demonstrates that colestipol is a more pleasant alternative that can accelerate the drug elimination of leflunomide while in the form of pills, rather than the standard use of cholestyramine, an unsavory liquid drink.*

*Clinical Case:
A 34-year-old G0P0 female presented to the rheumatology clinic for counseling prior to conception. The patient had a past medical history of seronegative inflammatory arthritis taking certolizumab pegol 200 mg every two weeks, leflunomide 20 mg daily, minocycline 100 mg daily, and prednisone 10 mg PRN. During the appointment, conception was discussed including the cessation of leflunomide and minocycline due to their adverse effects during pregnancy and the requirement of a washout of leflunomide prior to any attempt at conception. Cholestyramine was offered as an agent, but the patient preferred to use colestipol, another bile acid sequestrant, due to its route of delivery as a pill rather than the unsavory liquid drink of cholestyramine.*

The patient was advised to do the following: take colestipol 8 mg BID for 15 days, obtain a drug level test, complete another trial of the colestipol for 15 days, and then obtain another drug level test to ensure the elimination. The drug tests must be 14 days apart and report back a level less...
than 0.02 mg/L prior to conception. The patient’s first drug level was 0.043 mg/L after the first colestipol trial. She then completed another colestipol trial of 15 days followed by a second drug level test of less than 0.005 mg/L. Another repeat drug level test was obtained two weeks later which reported as less than 0.005 mg/L again, and thus she was cleared to attempt conception.

Conclusion:
Bile acid sequestrants such as cholestyramine and colestipol can be used as leflunomide elimination agents due to their mechanism of action of forming nonabsorbable complexes with bile acids as well as the active metabolites of leflunomide within the intestine. Many patients have reported that the powder of cholestyramine mixed with water in order to ingest the medication has an unsavory taste that is difficult to consume. By using colestipol instead, a patient would be ingesting pills while achieving the increased elimination of leflunomide.

There are currently no case reports of colestipol being used for leflunomide washout. This clinical case report shows that it can be effective for this use and may be a better tolerated alternative.
A new abstract was submitted for the Nebraska Chapter on Tuesday, September 15, 2020 - 12:39:

Medical Student Abstract 34

**Category Submitting for:** Clinical Vignette

**Abstract Title** Solitary Bone Plasmacytoma Presenting as Chronic Low Back Pain and Recurrent Falls

**Abstract Text**

**Introduction**
Solitary plasmacytoma (SP) is a rare malignant neoplasm that involves the proliferation of monoclonal plasma cells in a localized lesion. As SP commonly affects vertebrae, the most frequent presenting symptom is chronic lower back pain. Compared to multiple myeloma, a systemic monoclonal plasma cell neoplasia, SP accounts for less than 5% of all plasma cell disorders.

**Case Presentation**
The patient is a 66-year-old female who presented to the emergency department after a ground-level fall. She reported one year of low back pain and recurrent falls attributed to leg weakness. MRI of the lumbar spine demonstrated diffuse neoplastic infiltration of the marrow of L5 with pathologic fracture. The patient did not exhibit CRAB (hypercalcemia, renal dysfunction, anemia, bone lytic lesion) manifestations typical of multiple myeloma. Serum protein electrophoresis showed a faint monoclonal protein band, quantity estimated at 0.2 g/dL. Reflex immunofixation showed IgA kappa monoclonal protein. K:L free light chain ratio was elevated at 6.59. Bone marrow biopsy showed plasma cell neoplasm involving 17% of a mildly hypercellular (50% cellular) bone marrow. She was diagnosed with solitary bone plasmacytoma of the L5 vertebra and subsequently began dexamethasone and radiation treatment.

**Discussion**
Many studies categorize SP as either solitary bone plasmacytomas (SBP) or solitary extramedullary plasmacytomas (SEP) depending on its localization in either bone or soft tissue, respectively. SBP is the most common form with a predilection for the axial skeleton and

Continued on next page-
vertebrae. It has a poorer prognosis compared to SEP, with more than 75% of patients progressing to multiple myeloma within 4 years. The diagnostic criteria for SBP include: 1) a single localized lesion to a bone secondary to clonal plasma cells; 2) a histologically normal to low monoclonal protein in the bone marrow biopsy; 3) no signs of end-organ damage, which may include the CRAB manifestations; and 4) either an absent or low monoclonal immunoglobulin level in the serum or urine. Localized radiation therapy, given at a dose of 35 to 50 Gy over approximately four weeks, is the mainstay of treatment for SBP. Adjuvant chemotherapy is not generally recommended in the treatment of SP. However, it may be considered in patients who have a suboptimal response to radiation therapy, have recurrent or very large lesions, or have progressed to multiple myeloma.

Conclusion

SBP is the most common form of SP with a predilection for the axial skeleton and vertebrae and with a high rate of progression to multiple myeloma. SBP can be distinguished from SEP and multiple myeloma through imaging, hematologic workup, and bone marrow biopsy. Treatment generally consists of radiation therapy. Larger randomized studies are required to examine the benefits of adjuvant chemotherapy more fully.
A new abstract was submitted for the Nebraska Chapter on Monday, September 14, 2020 - 21:31:

Medical Student Abstract 35

**Category Submitting for:** Clinical Vignette

**Abstract Title** Hemodialysis-resistant Anasarca: unusual presentation of isolated ATTR cardiac amyloidosis

**Abstract Text**

Introduction: Cardiac amyloidosis is a rare disease seen primarily in Caucasian males with an annual incidence of 18-55 cases per 100,000 people per year. Amyloidosis is generally distinguished into two general classes: immunoglobulin light (AL) amyloidosis and transthyretin (ATTR) amyloidosis. Regardless of class, cardiac involvement is the most commonly involved organ with a characteristic infiltrative pattern. Here we present an unusual case of treatment resistant ATTR cardiac amyloidosis.

Case: A 49-year-old Caucasian male with past medical history of atrial fibrillation, hypertension, diabetes mellitus type II, chronic obstructive pulmonary disease (COPD), chronic alcohol and tobacco use presented to the ER with acute generalized swelling in his abdomen, scrotum, and lower limbs with accompanying low-grade fever and shortness of breath. Patient complained of 70 lbs weight gain in the last two months. During a similar previous hospital admission, patient became clinically stable after undergoing eight sessions of hemodialysis. Patient denied any history of renal failure, frothy urine, family history of protein losing nephropathy, chronic liver disease, or intravenous drug abuse. Vitals were remarkable for BP of 95/65mmHg with tachycardia of 115beats/min and irregular rhythm. On physical exam, patient had crackles in the bilateral lung bases, diminished heart sounds, massive abdominal distension, scrotal swelling, and severe bilateral pitting edema in his legs. Laboratory investigations showed Hgb 7.5 gm/dl, Hct 24.3%, WBC 9800 cells/mm3, creatinine 1.5 mg/dl, sodium 128 mmol/L, chloride 95 mmol/L, albumin 4.1 gm/dl, PT 12.5 seconds, and ProBNP 8,943 pg/ml. Urine analysis showed trace protein with no WBC casts or signs of infection, but elevated kappa/lambda protein levels with a normal ratio. SPEP and UPEP were within normal limits. EKG showed low voltages in all leads with atrial fibrillation. Echocardiogram showed EF of 65%. Abdominal US showed hepatic

Continued on next page-
steatosis while scrotal ultrasound showed massive edema. Patient was started on furosemide with piperacillin/tazobactam for possible cellulitis, without treatment response. Patient underwent 8-10 sessions of hemodialysis with minimal swelling reduction. Cardiology performed left and right heart catheterization with results significant for moderate-severe pulmonary hypertension and elevated left ventricular end diastolic pressure. SPECT scan showed transthyretin uptake, confirming ATTR cardiac amyloidosis. Patient was offered education about findings and enrollment in AG10 clinical trial, though the patient refused and left against medical advice.

Discussion: Cardiac amyloidosis classically presents with a low-voltage ECG and left ventricular wall thickening on echocardiogram. Cardiac Magnetic Resonance and nuclear imaging are sensitive and specific diagnostic tools for ATTR, though endomyocardial biopsy is the gold standard in diagnosis. Although to-date no definitive treatment is available, Tafamidis was recently FDA approved and shown promise in reducing 30-month mortality and hospitalizations. Conclusion: ATTR Cardiac amyloidosis is an uncommon diagnosis that should be considered in treatment-resistant dialysis patients with restrictive cardiac findings.
A new abstract was submitted for the Nebraska Chapter on Monday, September 14, 2020 - 09:48:

Medical Student Abstract 36

**Category Submitting for:** Clinical Vignette

**Abstract Title** Heart failure: A SHOCKingly perfect storm

**Abstract Text**
A 53 year-old man with a history of hypertension presented with one month of dyspnea. On exam, he was mildly agitated with edema of his left leg, an irregularly irregular and tachycardic pulse, no murmurs, clear lungs on auscultation, and a normal JVP. His labs showed a normal BMP and elevated transaminases, troponin, CHF peptide, and D-dimer. EKG revealed atrial fibrillation with RVR, and CT chest revealed multiple pulmonary emboli with right heart strain. He was started on diltiazem and heparin drips. The next morning he was in mild distress and nauseous. Labs revealed a significant lactic acidosis, hypoglycemia, worsening transaminases, and worsening AKI. An urgent TTE was done which revealed severe tricuspid regurgitation and an EF of 15%. Due to his poor condition, he was transferred to the ICU. He denied any recreational drug use, but his UDS was positive for amphetamines. He deteriorated into cardiogenic shock, and the etiology is likely multifactorial, with underlying acute on chronic methamphetamine induced cardiotoxicity, pulmonary emboli, and diltiazem contributing.

**Learning objectives:**

1. Identify the cardiac contraindications of non-dihydropyridine calcium channel blockers
2. Recognize the cardiovascular complications of methamphetamine use
3. Understand the pathophysiology of cardiogenic shock and its subsequent organ system involvement

Our patient's initial presentation seemed a standard case of pulmonary emboli leading to atrial fibrillation, a common scenario encountered by the internist. His decompensation, however, indicated the presence of complicating factors. He likely had underlying methamphetamine-induced cardiac disease leading to ventricular dilation and underlying tricuspid regurgitation exacerbated by pulmonary emboli leading to atrial fibrillation with RVR. The initiation of diltiazem

Continued on next page-
likely propelled the patient into biventricular heart failure and cardiogenic shock. Diltiazem is a non-dihydropyridine calcium channel blocker used as a rate control agent in atrial fibrillation with RVR. It is contraindicated, however, in patients with ventricular dysfunction due to its negative inotropic effects. Diltiazem is also contraindicated in patients with baseline conduction abnormalities, as blocking myocardial calcium channels further slows cardiac conduction. Methamphetamine use may cause such ventricular dysfunction and conduction abnormalities, exacerbating the negative effects of this medication. Chronic methamphetamine use can also cause cardiomyocyte disarray, fibrosis, and degeneration leading to dilated cardiomyopathy, hypertrophy, and/or severely depressed contractility, as well as predispose the heart to arrhythmias. Acute methamphetamine use can induce ischemia and infarction secondary to severe vasoconstriction and vasospasm of the coronary arteries. Methamphetamine use also induces pulmonary endothelial cell damage, leading to pulmonary hypertension and subsequent heart failure. Cardiogenic shock secondary to low-output heart failure manifests as end-organ hypoperfusion, lactic acidosis, AKI, shock liver, encephalopathy, and respiratory distress. Using diltiazem with underlying methamphetamine-induced cardiac disease and pulmonary emboli can create a perfect storm for biventricular heart failure and subsequent cardiogenic shock.
A new abstract was submitted for the Nebraska Chapter on Sunday, September 13, 2020 - 15:21:

Medical Student Abstract 37

Category Submitting for: Clinical Vignette

Abstract Title The White Matter Changes in CADASIL and Why it Matters

Abstract Text
CADASIL, cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy, is a rare hereditary small vessel disease of the brain characterized by white matter changes on MRI. It is the most common cause of inheritable stroke and can be confused for other pathologies that can cause white matter changes on MRI leading to a delay in diagnosis. We present a case of a patient with suspected toxic leukoencephalopathy secondary to chemotherapy resulting in a delayed diagnosis of unrecognized hereditary small vessel disease, CADASIL.

A 59 year old female with PMH significant for breast cancer treated with several rounds of chemotherapy initially presented 5 years post-chemotherapy with complaints of severe headaches, dizziness, and paresthesias. She was evaluated in the ED for suspected TIA with negative workup, and MRI at that time demonstrated patchy white matter T2 hyperintensities, with near confluent involvement of the white matter and external capsule. She presented a year later with a similar set of symptoms. MRI was completed again, this time revealing an unchanged appearance of increased T2 and FLAIR signal throughout the white matter, basal ganglia and pons. These changes were thought to be secondary to chemotherapy-induced leukoencephalopathy. She continued to present to the ED with the same episodes of dizziness, weakness, and right upper extremity numbness. Eventually, she was seen in the ED 5 years after symptom onset, and at this time, presented with a left-sided headache with associated dizziness and right upper extremity numbness. Physical exam was significant for right upper extremity paresthesias and bilateral decreased patellar reflexes. Initial lab workup was unremarkable, and Neurology was consulted. Repeat MRI revealed no evidence of acute ischemic stroke and no change in her white matter abnormalities. She underwent testing for CADASIL via Notch 3 mutation, which was positive, and a final diagnosis of CADASIL was confirmed.

Continued on next page-
This case illustrates the difficulty in differentiating diseases that cause white matter changes. In our situation, many of the clinical signs and symptoms between chemotherapy-induced leukoencephalopathy and CADASIL overlap, presenting a diagnostic challenge. However, keeping CADASIL in mind as part of the differential diagnosis is quite important, as the management of these two diseases differ. Although there is currently no recognized treatment of CADASIL, optimal control of vascular risk factors and providing appropriate genetic counseling are essential.
A new abstract was submitted for the Nebraska Chapter on Sunday, September 13, 2020 - 11:15:

Medical Student Abstract 38

Category Submitting for: Clinical Vignette

Abstract Title ANCA Associated Vasculitis Presenting as Acute Kidney Injury

Abstract Text
Introduction
Antineutrophil cytoplasmic antibody (ANCA) associated vasculitis (AAV) is a rare condition that has a worldwide annual incidence and prevalence of 1.2 to 2.0 cases per 100,000 and 4.6 to 18.4 cases per 100,000 individuals, respectively. This acute disease process involves granulomatous inflammation of small vessels throughout the body and a full rheumatological workup is needed to both correctly diagnose and optimize the individual’s treatment. Herein, we report a case of AAV in a 37-year old male who presented with an acute kidney injury and was confirmed to have AAV following a kidney biopsy.

Case Presentation
A 37-year old male with a past medical history significant for peptic ulcer disease status post antibiotic treatment, comes to the hospital with malodorous hematuria. He noted a two month history of migratory joint pain and bilateral conjunctival injection with painful extraocular movements. Furthermore, he reported intermittent fevers, chills, night sweats, and weight loss with poor appetite. Laboratory investigations showed anemia and thrombocytosis with an elevated creatinine at 1.6 mg/dL. Fractional excretion of sodium was 5.5% and his urinalysis was significant for hematuria with red blood cells, proteinuria, and ketonuria. A full rheumatological and immunological panel was ordered and was significant for an elevated Rheumatoid Factor at 19 IU/mL and ANCA titer of 1:320. Due to his declining kidney function, he received one plasmapheresis treatment and had a kidney biopsy done before starting 500mg intravenous methylprednisolone and prednisolone ophthalmic eye drops. The patient’s final kidney biopsy report revealed findings consistent with pauci-immune (ANCA-related) glomerulonephritis. He was continued on glucocorticoid treatment and started on 375mg/m2 Rituximab once per week for four weeks. On follow up, the patient’s MPO ANCA titers were

Continued on next page-
negative, but his serine PR-3 ANCA came back elevated at 50.9 IU/mL.

Discussion
Small vessel vasculitis can be categorized either by clinical syndrome, including granulomatosis with polyangiitis, microscopic polyangiitis, and eosinophilic granulomatosis with polyangiitis, or by target antigen of ANCA, either MPO or PR-3. Timely diagnosis and treatment is essential in preserving renal function in these patients; however, many patients report a delay in referral to a nephrologist or a delay in diagnosis of this disease. Treatment of AAV involves the use of multiple medications. Glucocorticoids and cyclophosphamide and/or rituximab are used in remission induction therapy. Plasmapheresis is an additional treatment in remission induction that is favorable in patients with severe renal dysfunction. Maintenance of remission is typically achieved with cyclophosphamide sparing agents such as rituximab and azathioprine.

Conclusion
ANCA vasculitis is a rare condition that may present with a variety of disease manifestations given its effect on small vessels throughout the body. Timely diagnosis and treatment is essential in preserving renal function in these patients.
A new abstract was submitted for the Nebraska Chapter on Friday, September 4, 2020 - 13:20:

Medical Student Abstract 39

Category Submitting for: Clinical Vignette

Abstract Title Salicylate Poisoning Recognition in a Patient with Altered Mental Status and Normal Anion Gap

Abstract Text
Acute salicylate toxicity from aspirin leads to serious complications such as cardiopulmonary arrest, pulmonary edema, and mixed high anion gap metabolic acidosis and respiratory alkalosis. Early signs and symptoms need to be recognized for prompt treatment. A 63-year-old female was brought to the ED by her family because she was confused, had visual hallucinations, and unsteady gait. On admission, she was not oriented to place or time. She had a hard time following commands or answering questions. She denied nausea, vomiting, tinnitus. She was a heavy drinker and she had been taking 3-10 adult aspirin per day for her hip pain the past 10 years. On physical exam, her vitals were stable. Apart from her mental status, it was noted that she had dilated pupils and a dry mucous membrane. A stroke workup was started and ruled out, and therefore, acute metabolic encephalopathy was suspected. Labs came back with hypokalemia (2.5), normal anion gap with pH = 7.50 (alkalosis), low arterial pCO2 (20), and low bicarb (15.4). Significantly elevated PT and INR even though she was not on a blood thinner. Her creatinine and BUN were within normal limit despite a GFR of 55. Drug and EtOH screen came back negative. UA, lactic acid and ammonia all came back normal. Despite the lack of normal signs and symptoms such as tinnitus, nausea, vomiting, and tachypnea, considering her long history of taking large doses of aspirin, salicylate level was ordered and came back elevated at 63.9. D5W with sodium bicarb was ordered and aggressive potassium replacement was started. Trialysis cath was placed. A couple hours later, the patient became hyperactive delirious with worsening visual hallucinations and aggression resulted in an emergency dialysis. Mental status, potassium, salicylate, PT and INR improved the next morning. CIWA protocol was initiated. The patient continued to get better with cares. This case illustrates the importance of a complete history even in patients with altered mental status. Health care providers should not rule out salicylate toxicity in differentials even in the absence of increased anion gap acidosis and early signs such as tinnitus, tachypnea, nausea, and vomiting. Early recognition ensures appropriate treatment and prevention of serious complications.
A new abstract was submitted for the Nebraska Chapter on Sunday, September 6, 2020 - 21:02:

Medical Student Abstract 40

**Category Submitting for:** Clinical Vignette

**Abstract Title** Acute Interstitial Pancreatitis with Normal Lipase Levels: A Case Report

**Abstract Text**

*Introduction:* Acute pancreatitis (AP) accounts for approximately 13-45 per 100,000 cases each year in the US. Amylase above 110 IU/L and lipase above 80 IU/L both are predictive of AP; in gallstone etiology, ALT or AST levels are typically 3x the upper limit of normal. Here we present an unusual case of AP with normal labs and presumed inflammatory bowel disease (IBD) etiology.

*Case:* A 44-year-old Caucasian man with ulcerative colitis (UC) complicated by small bowel obstruction, past surgical history of colectomy, presented to the ER with pain in the lower abdomen for the past 48 hours, and associated nausea and decreased appetite. Patient denies bowel movement in the last 24 hours. Patient denied pharmacological treatment of UC to date. Physical examination showed a constant, non-radiating, dull abdominal pain of 8/10 in intensity, responsive to morphine. Laboratory investigations showed WBC 16,800x10³ mm³, AST 14 U/l, ALT 19 U/l, alkaline phosphatase 81 U/l, amylase 19 U/l, lipase 25 U/l, and triglycerides 76 mg/dL. Abdominal U/S was unremarkable. CT imaging revealed acute interstitial pancreatitis. Patient was started on 250cc/hr Ringer's lactate, morphine for pain, and ondansetron for nausea; on day 4, patient was discharged home with follow up.

*Discussion:* AP remains a major cause of hospital admissions and mortalities. To improve outcomes, early fluid resuscitation is recommended. Based on 2006 ACG practice guidelines, diagnosis of AP requires 2/3 features: 1) abdominal pain characteristic of AP, 2) serum amylase and/or lipase ≥3 times the upper limit of normal, and 3) characteristic findings of acute pancreatitis on CT. Therefore, negative labs cannot exclude diagnosis. IBD represents an uncommon yet recognizable cause of AP in the literature. Even in the absence of DMAILs, patients with IBD have a higher incidence of AP. According to Lida et al., the overall incidence of AP is 4.3 times in Crohn Disease and 2.1 times in UC compared to the general population. IBD may result in AP due to an increased risk of extraintestinal complications. Early recognition of AP in IBD is critical.

*Conclusion:* Even in the absence of abnormal lab values or epigastric abdominal pain, AP imaging workup should be considered in IBD patients with unexplained abdominal pain. Early recognition and treatment of AP can reduce hospital complications and improve overall mortality.
A new abstract was submitted for the Nebraska Chapter on Sunday, September 6, 2020 - 18:58:

Medical Student Abstract 41

Category Submitting for: Research

Abstract Title: The importance of adjuvant treatment and primary anatomical site in head and neck basaloid squamous cell carcinoma survival: an analysis of the National Cancer Database

Abstract Text: The importance of adjuvant treatment and primary anatomical site in head and neck basaloid squamous cell carcinoma survival: an analysis of the National Cancer Database

Background: Basaloid squamous cell carcinoma (BSCC) of the head and neck is an aggressive and highly malignant variant of squamous cell carcinoma that account for 2% of head and neck cancers. Previous studies have not analyzed the significance of adjuvant chemoradiation and anatomical site within basaloid squamous cell carcinoma subtype and its impact on survival. Methods: A cohort of 1,999 patients with BSCC of the head and neck was formed from the National Cancer Database and analyzed with descriptive studies, median survival and 5- and 10-year survival. A multivariable Cox hazard regression was performed to determine the prognostic significance of anatomical site and adjuvant therapy. Results: In this cohort, 82% were male with a median age of 59 years. The most common primary anatomical site was the oropharynx (71.9%) followed by oral cavity (11.5%), larynx (10.1%), hypopharynx (3.5%), esophagus (1.9%), and nasopharynx (1.1%). The majority of the cohort had stage IV disease, while 3.9% had metastases. The presence of metastasis increased probability of mortality (HR=2.14; 95% CI: 1.40-3.26). Tumors localized to the oropharynx demonstrated better survival compared to all sites except nasopharynx, including the oral cavity (HR=2.45; 95% CI: 1.83-3.29), hypopharynx (HR=2.58; 95% CI: 1.64-4.05), and larynx (HR=2.89; 95% CI: 2.25-3.73). Adjuvant chemoradiation (HR=0.36; 95% CI: 0.23-0.58) and adjuvant radiation (HR=0.38; 95% CI: 0.23-0.64) had better survival outcomes compared to adjuvant chemotherapy alone. Patients with microscopic tumor margins had better survival outcomes when compared to no surgery (HR=0.38; 98% CI: 0.23-0.64) while there was no better survival outcomes of patients with macroscopic margins compared to no surgery. Conclusion: This study illustrated that tumors in the oropharynx, lower age, adjuvant chemoradiation and radiation, microscopic margins or residual tumor were associated with greater survival. This study demonstrates the importance of these factors as independent prognostic factors when considering survival of patients diagnosed with BSCC of the head and neck.
A new abstract was submitted for the Nebraska Chapter on Saturday, September 5, 2020 - 15:17:

Medical Student Abstract 42

Category Submitting for: Clinical Vignette

Abstract Title Type IV Renal Tubular Acidosis: A Clinical Confounder of Hyperkalemia

Abstract Text
Type IV Renal Tubular Acidosis (RTA) is the most common RTA but is often underdiagnosed due to varied clinical presentation and association with numerous pathologies and drugs. Our case demonstrates the difficulties in diagnosis and management of RTA in an adult patient in the setting of no available consensus treatment guidelines.

Patient is a 72 year old female with a history of CKD, recent DVT on warfarin, osteoporosis with pathologic femur fracture s/p intramedullary nailing, hypertension, and anemia who presented to the ED due to confusion. Just prior to presentation, patient had recently returned to home from a skilled nursing facility following admission at outside hospital for enterococcus UTI with associated metabolic acidosis for which she had been placed on sodium bicarbonate. On presentation, the patient demonstrated confabulation/palilalia and could not participate fully in the rest of the neurologic examination. No focal cranial nerve deficits were noted. She was found to be hyponatremic to 129, hyperkalemic to 7.1, with a non-anion gap metabolic acidosis (pH 7.14 on VBG with a bicarb of 15). She was admitted to the ICU and urine studies were obtained. These showed a positive urine anion gap (UAG) but were deemed non-diagnostic as the patient was not acidic at the time of urine collection. A CTH stim test was negative for adrenal insufficiency. With correction of her electrolyte derangements and acidosis, the patient's mental status improved to baseline for approximately one week while awaiting placement in a SNF. However, prior to discharge, repeat labs revealed recurrent acidosis and hyperkalemia. Urine studies obtained revealed a positive urine anion gap. Daily morning BMP revealed potassium of >6.0 for the next five days despite increasing bicarbonate dose, furosemide trial, and maximizing dose of a potassium binder. Medications associated with hyperkalemia were discontinued. Correction of her hyperkalemia with insulin was attempted, however she developed hypoglycemia with each insulin dose. Use of furosemide resulted in acute kidney injury. Subsequently, scheduled albuterol was used to improve and maintain her potassium

Continued on next page-
levels within a safe range. Ultimately, a renin activity assay and aldosterone assay revealed a normal ratio with low normal aldosterone. The patient was started on fludicortisone BID with eventual resolution of her hyperkalemia.

RTA is difficult to diagnose clinically though it is thought to be quite common. Confounding variables such as therapeutics, diet, underlying kidney disease, and varied pathophysiology create a pathway to diagnose that is ripe with pitfalls. The varied clinical picture of patients with type 4 RTA suggests that it should always be considered in the differential diagnosis of someone with persistent hyperkalemia. Diagnostic tools that are traditionally used such as the UAG and renin/aldosterone assay have nuances that must be considered in order to avoid delays in diagnosis.
A new abstract was submitted for the Nebraska Chapter on Tuesday, September 15, 2020 - 21:29:

Medical Student Abstract 43

Category Submitting for: Clinical Vignette

Abstract Title Medication Mayhem: A Skin-teresting Consult

Abstract Text

Introduction: Adverse reactions to medications often present with involvement of the integument. They are characterized by the rapid change of skin appearance (erythema and dryness) and associated symptoms (pruritus) culminating in a visible rash. The challenge for physicians is to determine the etiology of such rashes in order to effectively treat them. Often, cessation of the offending agent resolves the rash.

Case Description: A 77-year-old male with lymphedema and over 30 episodes of cellulitis started 250 mg penicillin VK BID for prophylaxis. Eleven days later, he developed a symmetric, erythematous, scaling rash on his buttocks and perineal region with associated pruritus and bleeding. He denied any fevers or chills. The patient tried multiple over the counter medications for the rash without relief. Further medical history included chronic kidney disease, heart failure, hypertension treated with amlodipine, and overall body xerosis.

Skin examination demonstrated diffuse lichenified plaques with marked fissures, scaling, and crusting on the buttocks. Dermatology was consulted, and the patient’s symptoms were attributed to symmetrical drug-related intertriginous and flexural exanthem (SDRIFE), a systemic drug-related contact dermatitis characterized by symmetric well-demarcated patches of erythema on the buttocks. This condition is also known as Baboon Syndrome due to its characteristic rash similar to the markings of a baboon. This can be caused by agents such as penicillin, hydroxyzine, and cashews, all of which the patient was exposed to. The Infectious Disease team recommended the discontinuation of Penicillin VK and hydroxyzine. The patient was switched to triamcinolone 0.1% ointment BID and clobetasol 0.05% ointment BID to the affected area with petrolatum for xerosis. A follow-up appointment with Dermatology demonstrated marked improvement.

Discussion: Erythema and pruritus following initiation of a new medication is often indicative of an adverse reaction. Rashes from penicillin and hydroxyzine in patients without a history of previous reactions are less common but must also be considered. In this case, correlation of the rash with the administration of penicillin and hydroxyzine, as well as the infrequent ingestion of cashews, prompted cessation of the offending agents. However, diagnosis was delayed until these physical signs became evident. Additionally, the paradoxical reaction of hydroxyzine is typically overlooked as a culprit for erythema and rash given its intended purpose of minimizing pruritus. This case underscores the value of a thorough history and physical in combination with a broad differential in the diagnosis of pruritic rash and highlights the value in understanding polypharmacy and medical reconciliation, rather than adding agents when symptoms continue to arise.