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2022 Abstracts

**Edwin L. Overholt Resident &
Medical Student Vignettes**

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66th Annual Wisconsin Scientific Meeting

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HYPERCALCEMIA AS A MANIFESTATION OF PNEUMOCYSTIS PNEUMONIA IN A PATIENT WITH POST-TRANSPLANT LYMPHOPROLIFERATIVE DISORDER

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Introduction: *Pneumocystis jirovecii* pneumonia (PJP) is an opportunistic infection that occurs in immunocompromised patients. PJP remains a life-threatening infection especially in solid transplant recipients and usually occurs months after transplantation. Detection of *Pneumocystis jirovecii* in patients with respiratory symptoms (shortness of breath, cough) generally leads to diagnosis. The clinical expression of PJP is however variable and may be insidious, making the diagnosis difficult. We present a unique case of indolent PJP presenting with hypercalcemia as the only manifestation, years after kidney transplantation.

Case Presentation: 65-year-old male with ESRD secondary to IgA nephropathy s/p renal transplant x2 on immunosuppression with recent diagnosis of PTLN who presented to hematology clinic for scheduled chemotherapy. However, he was admitted to hospital after being found to have Ca of 13.7. Upon admission, patient was asymptomatic and his workup showed iCa of 7.11. Patient was initially treated with IV fluids, pamidronate, calcitonin, and IV Furosemide. Given initial concern for hypercalcemia secondary to progression of PTLN, CT Neck, Chest, and Abdomen/Pelvis were obtained. Imaging showed stable lymphadenopathy, decreasing the suspicion for disease progression. However, there were diffuse ground glass opacities suggestive of PJP. Further workup showed Vit D 1, 25: 181 1,3 beta glucan > 500. He subsequently underwent bronchoscopy with BAL which grew *Pneumocystis jirovecii*. Patient was started on renally-dosed therapeutic Bactrim course before transitioning to a prophylactic dose for three-six months while on chemotherapy.

Discussion: PJP remains a life-threatening infection with a mortality rate rising up to 30% in solid transplant recipients. Although PJP usually occurs few months after kidney transplant, it can still happen years later. While general guidelines propose only short-term prophylaxis with trimethoprim-sulfamethoxazole after kidney transplantation, it might be reasonable to consider lifelong vs longer prophylaxis in certain populations such as patients on chemotherapy.

A RARE TRANSFORMATION OF CHRONIC LYMPHOCYTIC LEUKEMIA (CLL) TO B-CELL PROLYMPHOCYTIC LEUKEMIA (B-PLL)

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B cell prolymphocytic leukemia (B-PLL) is a rare mature lymphoid disorder accounting for less than 2% of lymphoid leukemias and presenting as rapidly increasing leukocytosis, B-symptoms, lymphadenopathy and splenomegaly (1,2). The rare transformation of chronic lymphocytic leukemia (CLL) to B-PLL challenges the management of a B-PLL patient.

We present the case of a 71 year old male with history of small lymphocytic lymphoma/chronic lymphocytic leukemia. First diagnosed in 1998, he was treated with fludarabine, rituximab and cyclophosphamide until 2007 and remained asymptomatic for 11 years. In 2018, his laboratory work up showed disease progression and he achieved complete remission with 1 year treatment of Bruton's tyrosine kinase inhibitor (ibrutinib). After 3 years, his CLL reoccurred and he was treated with acalabrutinib due to ibrutinib intolerance. After a week, he developed B symptoms; laboratory work up showed leukocytosis of 111/103/uL with 84% lymphocytes; peripheral smear showed morphologically compatible with prolymphocytes. Flow cytometry showed about 90% of lymphocytes were B-cells with brighter CD20 comprising a clonal population with more light scatter indicating their enlargement. The patient received obinutuzumab and his white count dropped from 111 x 103/uL to 17.8 x 103/uL. He developed severe thrombocytopenia and hypersensitivity reactions during this treatment, for which we are treating him with transfusions and steroids, respectively. His PLL progressed rapidly with diffuse lymphadenopathy, especially head and neck/cervical lymphadenopathy, causing difficulty swallowing and breathing. He was started on radiation therapy for symptom control and has experienced resolution of his symptoms. Afterwards, he was started on combination chemotherapy with anti CD20 rituximab and Bendamustine and we avoided obinutuzumab as it caused profound pancytopenia.

This case demonstrates the importance of considering possible B-cell prolymphocytic leukemia transformation in patients with CLL and highlights the treatment challenges that may be encountered.

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A RARE CASE OF CALCITRIOL INDUCED HYPERCALCEMIA AND PNEUMONITIS WHILE ON NIVOLUMAB THERAPY FOR METASTATIC RENAL CELL CARCINOMA

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Immune checkpoint inhibitors (ICI) like programmed cell death protein (PD-1) inhibitors are hailed as a milestone in treating different types of cancer. However, they have been increasingly associated with immune-related adverse events (irAEs). Here, we report such a case of adverse events.

A 70-year-old male with Stage IV metastatic mixed clear cell and eosinophilic right renal cell carcinoma on nivolumab for 18 months presented with shortness of breath, fatigue, and confusion. Investigations revealed elevated ionized calcium, suppressed Parathyroid hormone (PTH), low PTH related peptide (PTHrP), high 1,25-dihydroxy vitamin D3(calcitriol), absence of leukocytosis, mildly elevated inflammatory markers. This did not indicate any hypercalcemia of malignancy or hyperparathyroidism but pointed towards calcitriol-induced hypercalcemia. CT chest showed diffuse ground-glass nodularity suspicious for an inflammatory or infectious process but did not reveal any new metastasis, worsening renal cell carcinoma, or sarcoidosis. Treatment with standard hypercalcemia therapy showed partial response. The patient's hypoxia was persistent despite adequate diuresis and empiric broad-spectrum antibiotics for probable infectious etiology. Upon steroids administration, his calcium levels normalized, and hypoxia started improving. He was continued on a tapering dose of steroids. At one month, follow-up imaging studies demonstrated resolving ground glass opacities without evidence of tumor progression.

PTHrP-related hypercalcemia has been associated with nivolumab therapy, but little is known about calcitriol-mediated hypercalcemia from nivolumab. Steroids play a central role in managing calcitriol-mediated hypercalcemia in the absence of granuloma and pneumonitis as irAEs. Management of ICI pneumonitis is also based on common terminology criteria for Adverse Events (CTCAEs) grade and additional immunosuppressive therapy if needed.

Clinicians should be aware of irAEs in patients on ICI as this will facilitate in timely initiation of appropriate management.

Keywords: Immune checkpoint inhibitor, pneumonitis, hypercalcemia, calcitriol, steroids.

COULD IT BE BOTULISM?

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Introduction: Botulism is a life-threatening toxidrome characterized by afebrile, symmetric descending paralysis. The most specific initial symptoms are visual disturbances, dysarthria, dysphagia and dry/sore mouth. Despite unique and recognizable clinical features of Botulism, it is often misdiagnosed. The most common misdiagnoses of Botulism are Myasthenia Gravis and Guillain-Barre Syndrome.

Case: A 55-year-old woman presented with acute-onset of blurry vision, headache and fatigable speech. Exam revealed blood pressure 195/110 mm Hg, mild unilateral ptosis, heavy but legible speech and dry mouth. Stroke was ruled out with CT-head and Fast-MRI, and she was managed for hypertensive emergency with neurologic manifestations. On day 2 of her hospital stay she developed dysphagia confirmed on bedside evaluation. On day 3 she developed worsening ptosis, obvious dysarthria and perceived upper extremity weakness, and issues with work of breathing. Bedside evaluation revealed reduced Negative Inspiratory Force. We performed an ice-pack test which was positive. Myasthenic Crisis was considered likely. She was transferred to the neurocritical ICU and intubated. She was administered an empirical 5 day course of IVIG and had no respond to IV pyridostigmine. She tested negative for ACHR antibodies. EMG testing was inconclusive. Upon questioning she mentioned old and expired food in her refrigerator. The department of health was contacted with concerned for a foodborne Botulism. Serum and stool samples for botulism were collected. On the 8th day from her initial presentation, botulinum antitoxin was administered. She has some improvement in extremity weakness and no worsening of her condition. Report for positive Botulinum toxin in stool arrived 4 weeks later.

Discussion: The botulinum antitoxin is the only specific treatment for Botulism. It should be administered ideally in the first 24 hours of symptom onset to avoid catastrophic sequelae. Treatment is based on clinical suspicion and waiting for laboratory confirmation is advised against.

SYPHILIS VS SJOGREN'S: THE GREAT MASQUERADER

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Introduction: Syphilis is known as “The Great Imitator”. There are many findings in this disease process that mimics numerous other autoimmune diseases such as sarcoidosis, Behcet’s Disease, and inflammatory bowel disease. We present an interesting case of secondary Syphilis mimicking Sjogren’s disease.

Case Presentation: A 32-year-old female, with a known history of Sjogren’s disease (SSA+ and SSB+) on hydroxychloroquine presented with a generalized rash and multiple oral ulcers. The rash was lacy and diffuse, covering her chest, abdomen, and arms. The patient admitted to recent cocaine use on initial presentation. A workup was ordered at that time to rule out possible ANCA-associated vasculitis in the setting of cocaine use. The results of ANCA titer, MPO and PR3 were negative. Due to the negative workup, the patient’s presentation was thought to be part of the underlying Sjogren’s disease and was trialed on prednisone in addition to hydroxychloroquine. On follow up, the patient’s rash and ulcers were noted to be worse and she was referred to dermatology. The dermatologist biopsied her rash which was inconclusive but negative for any cutaneous autoimmune involvement. The patient continued to have worsening of the rash, spreading to the palms and soles of her feet. A thorough history also revealed vaginal lesions and a recent yeast infection. Due to the rash’s distribution and the history, RPR was checked which resulted positive with a titer of 1:32. Treponemal testing confirmed the diagnosis. The patient’s rash improved with penicillin and autoimmune therapies were de-escalated.

Discussion: Sjogren’s disease is a multisystemic autoimmune disease with diverse manifestations. Patients frequently suffer from a variety of symptoms including dry eyes, dry mouth, fatigue, and joint pain. Many patients with Sjogren’s disease experience coexisting rheumatic diseases. However, with its broad symptom profile, it can occasionally mask other systemic illnesses such as secondary syphilis, complicating a patient’s presentation.

ES IT ITP? A CASE OF EVANS SYNDROME SECONDARY TO COVID-19

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Evans' syndrome (ES) is the condition of concomitant destruction of two cell lines due to the combination of warm auto-immune hemolytic anemia (AIHA) and immune thrombocytopenia (ITP). It is an exceedingly rare condition with an annual prevalence of 21.3 cases/million persons, representing only 0.3-7% of AIHA cases and 2-2.7% of ITP cases.

Here, we present a case of ES in a previously healthy 34-year-old Caucasian who presented with headache and was found to be severely anemic and thrombocytopenic. On admission, her hemoglobin was 3.7g/dL and 2000 platelets/uL. While she was not showing signs of bleeding or bruising, she was given a transfusion of platelets following IVIG and started on methylprednisolone therapy for presumed ITP. The cause of her anemia was determined to be due to warm agglutinin as she was Coombs positive with auto antibodies to IgG, C3b, and C3d. Of note, four years prior she did have an isolated episode of drug induced ITP which responded to corticosteroid therapy. However, she was not currently taking any medications and her infectious work-up was only positive for COVID-19.

COVID-19 and its variants have been commonly implicated in a variety of hematological disorders, but its association with ES has only been hypothesized in a handful of case reports. The true pathophysiology remains to be elucidated but the current model suggests molecular mimicry between the SARS-CoV-2 antigens with platelets and RBC exacerbated by the hyper-inflammatory state triggered by the virus.

IMMUNE-MEDIATED NECROTIZING MYOSITIS IN A PATIENT TAKING ATORVASTATIN

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Introduction: HMG-CoA reductase inhibitors, commonly called “statins”, are widely used in the treatment of hyperlipidemia and recommended for primary prevention of cardiovascular disease.¹ Over 28% Americans over 40 use a statin.² While generally well-tolerated, statins can cause adverse musculoskeletal effects from mild myalgia to necrotizing myositis. Immune-mediated necrotizing myositis (IMNM), defined as progressive proximal muscle weakness associated with 10-100x elevation in CK levels, EMG and muscle biopsy findings, and lack of improvement with statin discontinuation, is seen in fewer than 0.5% of patients exposed to statins.^{3,4}

Case Presentation: A 70-year-old woman with hyperlipidemia, hypertension, and GERD presented with 1 week of progressive proximal muscle weakness in all extremities. Physical exam demonstrated 4/5 strength with abduction of bilateral shoulders but 5/5 strength in all other tested muscle groups. Initial labs demonstrated an ESR of 35 and a CK of 16,158. Atorvastatin was discontinued and the patient was started on therapeutic high-dose methylprednisolone and IV fluids to prevent pigment nephropathy. EMG suggested a severe diffuse myopathic process. Biopsy of the vastus lateralis showed necrotizing myopathy with positive HMG-CoA Reductase Antibody, confirming IMNM with HMGCR antibodies. Despite steroids, methotrexate, and IVIG, her condition worsened. She demonstrated ongoing rhabdomyolysis and developed diaphragmatic weakness monitored by negative inspiratory force testing, urinary retention requiring catheterization, and dysphagia necessitating eventual gastrostomy placement. She ultimately received inpatient rehabilitation and has recovered sufficiently to resume a general diet and ambulate independently. She continues methotrexate and an extended steroid taper.

Discussion: Statins are widely used and generally well-tolerated. As statin use continues to rise, clinician awareness and early recognition of rare yet significant adverse effects are crucial for prompt and appropriate management. While statin withdrawal is effective for treating the majority of side effects, IMNM is likely to require additional immunosuppression and carries the potential for many life-threatening complications.

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A RARE CASE OF IGG4-RELATED LUNG DISEASE: A DIAGNOSTIC CHALLENGE

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Introduction: IgG4-related disease (IgG4-RD) is a rare, newly recognized entity that can present with fibroinflammatory lesions in almost any organ. Lung involvement is rare, and often mimics other commonly recognized lung pathology. The recently updated international classification criteria continues to include histopathological evidence for diagnosis, making the diagnosis of lung-related disease (IgG4-LRD) a potential challenge.

Case Presentation: The patient is a 74-year-old male who presented with multiple hospital admissions for dyspnea, unintentional weight loss, and cough. Initial chest x-ray showed vascular congestion with bilateral pleural effusions. Symptoms initially improved with IV diuresis despite no evidence of hypervolemia. On a subsequent admission for dyspnea, a CT chest was performed and showed diffuse spiculated nodularity most prominent in the lung bases, pleural-based mass-like consolidations, trace right pleural effusion, and adenopathy involving the lower paratracheal, carinal, and hilar regions. PET was performed with demonstration of significant FDG uptake in the nodular masses, as well as in the intrathoracic, supraclavicular, and abdominal nodal metastases. IR performed a CT-guided lung biopsy of the left lingular mass, and cytology was negative for malignant cells but suggested organizing pneumonia with fibrosis and prominent lymphoplasmacytic inflammation. EBUS was performed with bronchoalveolar lavage and lymph node biopsy, which was unremarkable except for a fungal hyphae fragment. Thoracic surgery proceeded with VATS. Pleural fluid was negative for organisms and malignancy, and right middle lobe pathology revealed dense pleuropulmonary plasmocytic infiltrate, associated organizing fibrosis and vasculopathy with significantly elevated IgG4 positive cells.

Discussion: Although the diagnosis may be a challenge in IgG4-LRD, it is crucial to be persistent in the workup due to its good response to high-dose steroids and the importance of ruling out malignancy. Furthermore, because IgG4-RD can affect multiple organs, a diagnosis will ensure proper attention to other sites of disease.

CARDIAC SARCOIDOSIS: AN ALTERNATE PRESENTSTION OF SYSTEMIC DISEASE

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Sarcoidosis is a well-studied multi-system immunological response to unidentified triggers associated with non-caseating granulomas identified on histology.¹ Worldwide Prevalence of Sarcoidosis is 4-64 per 100,000 people² with strong familial clustering. There are variable manifestations of the systemic disease classically affecting the lungs, lymph nodes and skin³. Cardiac Sarcoidosis (CS) can be an isolated finding & potentially life threatening.³

We describe the case of a 58-year-old male with a rather benign medical history of hypertension, hypercholesterolemia, and obesity. He presents to the Emergency department with a chief complaint of fatigue, diaphoresis and dyspnea with light strain. Initial vitals revealing bradycardia but otherwise unremarkable. Serologic work up ruled out secondary sources of bradycardia and revealed minor elevations in troponin and BNP. The 12-lead electrocardiogram showed a high-grade atrioventricular block, left anterior fascicular block and right bundle branch block. The transthoracic echocardiogram revealed regional wall motion abnormalities in a non-coronary distribution, an absence of basal septal thinning, and a left ventricular ejection fraction (LVEF) of 33.4%. The subsequent coronary angiogram was without obstructive lesions or vasospasm.

A high index of suspicion for CS required when investigating new heart failure and arrhythmias in patients younger than 60. After reasonably ruling out additional causes of presenting symptoms, cardiac magnetic resonance imaging (CMR) is the initial test of choice which allows increasing access to screening and diagnosis of CS. The Heart Rhythm Society has established consensus recommendations for CS¹: patients with known extracardiac sarcoidosis should be screened for palpitations, presyncope and syncope along with a 12-lead ECG. Furthermore, it is recommended to consider CS in high degree atrioventricular blocks and additional conduction deficits in patients younger than age sixty after excluding additional etiologies.

A MYSTERIOUS SOURCE OF MELENA

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Patients presenting with melena are often found to have an upper gastrointestinal source: melanic stool on exam has a likelihood ratio of 25 for upper gastrointestinal bleed (1). But what if repeated endoscopies are unimpressive?

Mr. S is a 75 year old male with a history of atrial fibrillation on apixaban for three years, NASH cirrhosis, chronic anemia (baseline hemoglobin 12 mg/dl) who presented with two weeks of melena and weakness. His admission Hgb was 5.5 mg/dL and the rectal exam confirmed melena. He underwent multiple endoscopies, colonoscopies, and a capsule study which did not identify a source. CT chest, abdomen, and pelvis showed no evidence of a hematoma and laboratory studies showed no coagulopathy. His melena and anemia persisted, receiving in total nine units of blood across multiple days. Throughout admission, he noted periodic episodes of mild, self-limiting epistaxis and slight morning hemoptysis with associated metallic “gurgling” sensation in his throat. Otolaryngology performed a bedside direct laryngoscopy which revealed a minimal varicosity of the right vallecule which was probed without incident.

Pulmonology performed a bronchoscopy to evaluate his hemoptysis, which was unremarkable, but the patient had an episode of brisk oral bleeding requiring intubation for airway protection. Repeat endoscopy after intubation showed fresh blood but no source. Otolaryngology subsequently visualized actively bleeding vallecular varices which were cauterized. He remained intubated overnight and was extubated without incident the following day. His hemoglobin remained stable and began recovering following cauterization.

Vallecular varices are exceedingly rare causes of bleeding and more often present with hematemesis than melena. In the three other case reports published on vallecular varices, patients presented with hemoptysis, not melena (2-4). This patient had an unusual presentation of a rare cause of bleeding that required considering sources above the gastrointestinal tract for a successful diagnosis.

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Research Oral Vignettes

PREDICTION AND STAGING OF HYPERTENSION USING NOVEL LEFT ATRIAL INDICES

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Introduction: Hypertension is a significant yet easily controllable cause of morbidity and mortality. Left atrial strain (LAS) is a novel, dimensionless echocardiographic parameter measured on speckle-tracking echocardiography (STE), which can be used to quantify morphological changes. Decreases in LAS have previously preceded structural changes in hypertension. Subsequently, a purpose of our study was to determine whether LAS could predict and correlate to varying stages of hypertension.

Methods: We performed a retrospective analysis of 187 patients at our medical center that underwent recent strain echocardiography. Patients with suboptimal imaging or for which LAS could not be calculated were excluded. Patients were divided into groups with and without hypertension. The hypertensive group was further separated into hypertensive stages and statistical analysis of these groups was performed.

Results: 128 (68.4%) of the patients had hypertension. These patients had significantly decreased LAS in both 4-Channel Median (18%, IQR 12-25% vs. 26%, IQR 14-31%; $p = 0.0028$) and 2-Channel Median (20%, IQR 12-28.5% vs. 28%, IQR 14-34%; $p = 0.0066$) calculation. LAS was not significantly different between different stages of hypertension in either 4-Channel Median (Elevated: 20%, IQR 11-28% vs. Stage I: 19%, IQR 12.5-25.7% vs. Stage II: 19%, IQR 14-28%; $p = 0.856$) or 2-Channel Median (Elevated: 22.5%, IQR 12-32% vs. Stage I: 23%, IQR 13-29% vs. Stage II: 19%, IQR 14-30%; $p = 0.948$).

Discussion: Previous studies have suggested that LAS is significantly decreased in those with hypertension [2]. Our study demonstrated something similar. However, while prior studies have demonstrated improvement in LAS with improved hypertension, no prior study has attempted to correlate LAS with the hypertensive stages. Our study demonstrates there is no significant difference between LAS between these stages. Thus, LAS can be used to determine the presence hypertension, it cannot tell us anything about its severity.

ADDRESSING COVID-19 VACCINE HESITANCY THROUGH PHYSICIAN DIRECTED “INFORMED COUNSELING”

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Vaccine Hesitancy is defined as delay in acceptance or refusal of vaccination despite availability of vaccination services. This concept is widely prevalent during the COVID-19 pandemic and impacts disease morbidity and mortality. Populations with low vaccination rates witnessed increased hospitalization rates, intensive care admissions and poor patient outcomes.

“Informed counseling” is a method created by our team that is based on a physician-patient interaction. It involved using open ended questions to find reasons for vaccine hesitancy, discuss risks, benefits and effectiveness of vaccine while providing well researched data available and allow patients to make final decisions. Our study aimed to evaluate the reasons for vaccine hesitancy. We also measured the behavioral changes that occurred following what our team named as “informed counseling” sessions with the patients. From 15th November, 2022 to 15th March 2022, resident physicians met with unvaccinated patients and conducted informed counselling sessions. The study had 152 participants. The major reasons for not getting vaccinated were: personal decision (27.6%), and worried about side-effects (21.1%). After informed counseling session, 21% of patients decided to get the vaccine and there was a 19% reduction in patients who pre-counseling determined that they ‘will never get the vaccine’.

In our study we found that “Informed counseling” is a powerful tool. We were able to achieve positive outcomes with 21% of participants agreeing to get the vaccine and 19% changing their minds from never to get vaccinated to considering getting the vaccine.

ASSESSING STRATEGIES TO DECREASE EMERGENCY ROOM BLOOD CULTURE CONTAMINATION RATES

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Background: Blood cultures are a first-line tool for identifying blood-stream infections in patients presenting with possible infection, often leading to reflex draws and overuse. The diagnostic value of blood cultures is affected when organisms of questionable clinical significance are isolated (frequently termed contaminants), resulting in unnecessary antibiotic exposure, cost, and hospitalizations. Contamination rates have been reported to occur in up to 40% of blood cultures. Diverting the first portion of blood drawn, then culturing the secondary aliquot has been shown to reduce contamination.

Methods: A quality assurance-based, retrospective chart review was performed from July 2020 to September 2021 in our emergency department after development of an order set (the pretest probability of bacteremia was based on presenting symptoms, vitals, and most likely diagnosis) and implementation of a new blood culture collection system (NBCCS). Positive blood cultures were analyzed to determine true infection versus contamination thru chart review and rates were determined prior to and post implementation of the NBCCS and order set in a step wise fashion.

Results: A total of 914 blood cultures were collected during the time of analysis. Pre-intervention implementation showed an average blood culture positivity rate of approximately 9.7% and contamination rate of 4.59%. Post-implementation of the NBCCS alone, the average blood culture positivity rate was 13.53% with a contamination rate of 3.01%. With the addition of the order set, the average positivity rate was 16.36% with a contamination rate of 3.76%. The number of patients with collected cultures fell from ~68 to ~53 per month.

Conclusion: Rollout of a robust electronic order set after provider education in conjunction with an NBCCS showed an overall decrease in the number of blood cultures drawn per month. The subsequent increase in positivity rate of blood cultures is suggestive of a higher diagnostic yield of “true” blood culture results.

ALGINATES PROTECT AGAINST PEPSIN-MEDIATED CYTOTOXICITY, E-CADHERIN CLEAVAGE AND MATRIX METALLOPROTEASE INDUCTION

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Background: Repeated exposure to refluxate leads to impaired esophageal epithelial barrier integrity and esophageal symptoms during GERD. Mechanisms that contribute to barrier disruption include cytotoxicity and cleavage of the adhesion junction protein e-cadherin via regulated intramembrane proteolysis (RIP). RIP produces E-cadherin fragments which promote b-catenin/Wnt signaling and upregulate matrix-degrading metalloproteinases (MMPs), potentially exacerbating barrier dysfunction. Topical alginates were recently shown to protect against pepsin-acid disruption of epithelial barrier function and adhesion. The aim of this study was to investigate the mechanisms by which pepsin disrupts esophageal barriers and by which alginates protect against this disruption.

Methods: Barrett's esophageal (BAR-T) cells were pretreated with Hank's buffered saline (HBSS), alginates (Gaviscon Advance or Gaviscon Double Action, Reckitt Benckiser) or viscosity-matched placebo before exposure to HBSS or HBSS pH4 ±1mg/ml pepsin for 10-60 minutes. Cell viability was measured by ATP assay. e-cadherin was examined by Western blot and immunofluorescence. MMP expression was examined via qPCR.

Results: Alginates (but not placebo) rescued pepsin-acid mediated loss of cell viability ($p<0.001$). Pepsin-acid (but not acid alone) resulted in e-cadherin fragments of 33 and 38kDa (cell lysate) and 80kDa (secreted) suggestive of RIP and increased *MMP1*, *MMP2* and *MMP9* 24hours post-exposure ($p<0.05$). Alginate treatment rescued both e-cadherin cleavage and MMP induction ($p<0.05$).

Conclusions: Initiation of e-cadherin RIP may represent a novel mechanism of pepsin-mediated esophageal injury during GERD. Alginates protect against pepsin-mediated esophageal cytotoxicity, e-cadherin cleavage and MMP dysregulation.

GOT VAXXED? VARIATION IN INTENTION AND UPTAKE OF COVID-19 VACCINES IN WISCONSIN

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Background: Despite evidence that COVID-19 vaccination protects from infection in real-world conditions, only 62.5% of eligible individuals are fully vaccinated against COVID-19 in Wisconsin. Exploring the relationship of intention to receive a COVID-19 vaccine and ultimate vaccination, especially when intention and behavior are discordant, could provide insight into extrinsic factors to receiving a vaccine that may disproportionately affect some groups.

Objective: To analyze intention of adults in Wisconsin to receive a COVID-19 vaccine, compare this to subsequent vaccine uptake, and to determine variation by race, ethnicity, and presence of comorbidities.

Methods: The Dynamics Testing and Registration Application (DTRA) provides online registration for individuals receiving a COVID-19 test in Wisconsin, including a question about intention to receive a COVID-19 vaccine. We gathered DTRA responses from community testing sites from February 7 to February 28, 2021 and linked these to COVID-19 vaccination records through July 4, 2021.

Results: Of the 14,539 surveys analyzed, 80.5% of people who expressed intention to be vaccinated against COVID-19 were vaccinated by July 4, 2021. 17.5% of individuals who said they did not intend to get a vaccine were vaccinated. Among those who expressed intention to be vaccinated: people of non-white race were significantly less likely ($p < 0.0001$) to be vaccinated than people of white race; Hispanic and Latino people were significantly less likely ($p < 0.0001$) to be vaccinated than Non-Hispanic or Latino people; and people with at least one co-morbidity were significantly more likely ($p < 0.0001$) to be vaccinated than people with no co-morbidities.

Conclusion: Intention to receive a COVID-19 vaccine usually, but not always, leads to uptake. These findings can be used to target vaccination campaigns towards groups that are less likely to receive a COVID-19 vaccine even when they expressed high intention, including non-White and Hispanic or Latino people.

REAL WORLD APPLICATION OF THROMBOPROPHYLAXIS IN PATIENTS WITH MALIGNANCY

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Patients with cancer are at an increased risk of Venous thromboembolism (VTE). Prophylactic anticoagulation (PPX) has been shown to reduce the rates of VTEs, however it has also shown to increase major bleeding rates. The Khorana Risk Score (KRS) is a validated scoring system that calculates a cancer patient's risk of VTE by accounting for multiple metrics. The goal of this project was to determine the rates of VTE and bleeding events in cancer patients starting chemotherapy at Gundersen Health System (GHS) and to compare VTE rates, bleeding rates, and Khorana risk scores from our real-world population to that of the AVERT clinical trial.

This was a retrospective review of patients with a new cancer diagnosis (excluding multiple myeloma) who initiated a new course of chemotherapy at GHS between January, 2016 and December, 2018 (n=969). VTE and bleeding events were recorded from start of chemotherapy through 180 days.

Our results showed our population was similar to that of the AVERT study control groups in most categories. We found 341 (35%) patients with a KRS of ≥ 2 , which would have made them eligible for PPX based on the AVERT study criteria. The odds of getting a VTE were 2.3 times higher in patients with KRS intermediate-high compared to those in the low risk group ($p < 0.01$). In patients with $KRS \geq 2$, the rate of VTE in our population was 11.1% and the rate of bleeding was 3.2% which were similar to the AVERT trial control arm of 10.2% and 1.8% respectively.

In conclusion, our population closely matched the placebo arm of the AVERT trial. Stratifying our patients by KRS found that patients in intermediate-high risk category were 2.3 times more likely to experience VTE. This suggests that our population would benefit from use of the Khorana score to select candidates for prophylactic anticoagulation.

Clinical Posters

1) PARANEOPLASTIC OPTIC NEURITIS: A RARE CASE WITH SMALL CELL LUNG CANCER

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Introduction: Small cell lung cancer is associated with autoimmune paraneoplastic features. We present an extremely rare case of optic neuritis with previously treated small cell lung cancer.

Case: 72-year-old woman with remote history of breast cancer, presented to the hospital with shortness of breath, chest pain, weight loss and dysphagia. CT scan of the chest revealed a mediastinal mass, abutting the esophagus and extending into the right lung measuring 3.9 x 8.1 x 4.5 cm. PET CT scan revealed uptake in the mediastinal mass, extending to the right lung with no distant uptake. Bronchoscopy was done with endobronchial biopsy revealing small cell lung cancer. She was diagnosed with limited stage small cell lung cancer and treated with concurrent chemoradiation. A screening MRI of the brain was negative for intracranial metastases. The patient also received prophylactic cranial irradiation. Subsequently, patient developed symptoms of peripheral neuropathy and motor weakness and was evaluated by neurology. Anti-Hu antibodies were detected and she was diagnosed with paraneoplastic peripheral neuropathy and was treated with monthly immunoglobulin infusions. She was started on a surveillance protocol with CT scans of the body and MRI of the brain every 3- 6 months. Nine months after cancer diagnosis, the patient developed acute bilateral vision loss. A repeat MRI of the brain did not reveal intracranial metastasis, however revealed bilateral optic neuritis. CSF analysis did not reveal malignant cells or infectious etiology and was diagnosed with paraneoplastic optic neuritis. She was started on plasmapheresis and IV cyclophosphamide. The patient continued IV cyclophosphamide every 6 months with monthly intravenous immunoglobulin infusions with minimal improvement in her visual symptoms.

Discussion: Paraneoplastic syndromes associated with small cell lung cancer include Lambert-Eaton myasthenia syndrome, cerebellar atrophy, autonomic neuropathy, limbic encephalitis, opsomyoclonus and peripheral neuropathy. Paraneoplastic optic neuritis in a previously treated limited small cell lung cancer is an extremely rare presentation and only few cases have been reported in literature.

2) TICK BORNE ILLNESS AND HEMOPHAGOCYTIC LYMPHANGIOHISTIOCYTOSIS (HLH): AN UNSUAL COEXISTENCE

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Introduction: Human granulocytic anaplasmosis (HGA) is a tick bone illness seen frequently in the United States, more common in the regions of Vermont, Maine, Rhode Island, Minnesota, and Wisconsin. The causative agent for human anaplasmosis is *Anaplasma phagocytophilum*. HGA has a wide spectrum of presentation from subclinical, self-limiting, subacute to prolonged. Here we present a case of hemophagocytic lymphangiohistiocytosis (HLH) associated with anaplasma infection.

Case: A 32-year-old man with developmental delay, history of seizures on valproic acid presented to the ER with a 5 day history of fever, diarrhea and altered mental state. Initial lab work-up revealed severe pancytopenia with an absolute neutrophil count of 800/ul, platelet count of 26,000/ul and transaminitis with AST level of 621 U/L and ALT of 136 U/L. His INR was elevated at 1.2, fibrinogen level was normal. Ferritin was elevated at 16500 ng/ml. Valproic acid level was subtherapeutic and a liver toxic profile was negative. Because of severely elevated ferritin and pancytopenia there was a suspicion of hemophagocytic lymphangiohistiocytosis. A bone marrow biopsy was performed which confirmed the presence of mild to moderate hemophagocytosis. There was no evidence of any malignancy on the bone marrow biopsy. Infectious disease was consulted and a tick borne panel was sent, which confirmed the presence of *Anaplasma phagocytophilum*. The patient was started on doxycycline and dexamethasone and there was an improvement in his clinical condition and pancytopenia. The patient was discharged home with an outpatient follow up in the hematology clinic.

Discussion: HLH is an aggressive and life threatening disorder of excessive immune activation. It is commonly seen in infants but can also be seen in adults. Infection is a common trigger for development of HLH. Delay in diagnosis is common due to variable clinical presentation, rarity of this syndrome and a complex diagnostic criterion.

3) AN UNLIKELY GUEST WITH AN OVERSTAYED WELCOME: CYCLOSPORA-INDUCED PI-IBS IN AN IMMUNOCOMPETENT HOST

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Introduction: In some patients, symptoms of irritable bowel syndrome (IBS) can arise following an exposure to acute gastroenteritis (GE) (1). This phenomenon, known as post-infectious IBS (PI-IBS), is the persistence of abdominal discomfort, bloating, and diarrhea that continue despite clearance of the inciting pathogen (1). Risk factors for development of PI-IBS can include severity of enteric infection, host immunity factors, and identity of the infectious pathogen. While bacterial pathogens are typically associated with the development of PI-IBS, viral and parasitic infections can also be considered as inciting pathogens (2,3).

Case Presentation: An immunocompetent, 65-year-old female presented with several weeks of watery diarrhea which prompted multiple trips to the emergency department and subsequent hospitalizations. Initial diagnostic imaging and laboratory workup was largely unremarkable, until PCR testing confirmed an infection of *Cyclospora*. Resolution of her diarrhea was achieved with antibiotic treatment, however, months later she presented to the gastroenterology service with persistence of loose stools and abdominal cramping consistent with a diagnosis of PI-IBS.

Discussion: Here we present a rare, and to our knowledge the first documented case of *Cyclospora*-induced PI-IBS. *Cyclospora* is usually associated with more severe infections in immunocompromised hosts, however the novelty of our case is further highlighted by the fact that our patient was otherwise immunocompetent (4,5). PI-IBS is a diagnosis of exclusion with a similar presentation to cases of sporadic IBS. The diagnosis can be aided by a clear onset of symptoms combined with positive identification of an infectious pathogen (1). While parasitic infections typically aren't implicated in cases of PI-IBS, this case highlights the value of considering PI-IBS as a cause of protracted diarrhea in patients previously diagnosed with *Cyclospora* (2,3).

4) LEMIERRE'S SYNDROME: A CASE REPORT AND REVIEW OF THE LITERATURE

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Introduction: Lemierre's syndrome is a severe condition characterized by bacteremia, thrombophlebitis of the internal jugular vein, and metastatic septic emboli following an acute pharyngeal infection.

Case: A 34-year-old male presented with a 5-day history of sore throat and fever with a 3-day history of diarrhea, epigastric abdominal pain, poor appetite, and vomiting. Computed Tomography was significant for right internal jugular vein thrombus with air focus, and the patient was diagnosed with Lemierre's syndrome. Blood cultures grew *Gemella morbillorum* and *Fusobacterium necrophorum*. The patient was managed with ceftriaxone and metronidazole.

Discussion: Most cases of Lemierre's syndrome are caused by *Fusobacterium* species, most commonly *Fusobacterium necrophorum*. The presence of thrombophlebitis in the internal jugular vein and the growth of characteristic anaerobic bacteria from blood culture suggests Lemierre's syndrome.

Conclusion: Lemierre's syndrome is an uncommon condition. A high index of suspicion, early diagnosis, and management of Lemierre's syndrome are essential for optimal care.

5) A SHOCKING CASE OF SHOCK LIVER

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Introduction: We report a rare case of elevated LFTs caused by ischemic hepatitis aka “shock liver” in the setting of HF_rEF and atrial fibrillation with rapid ventricular rate.

Case Presentation: A 77-year-old female with PMHx of HF_rEF with EF 35-40%, atrial fibrillation, and hypothyroidism who was admitted for shortness of breath and fatigue. She was diagnosed with an acute on chronic CHF exacerbation. Incidentally, she was found to have severely elevated LFTs as well as moderately elevated Alkaline Phosphate and Bilirubin. Cardiology and hepatology were consulted. After extensive workup for elevated LFTs, she was diagnosed with shock liver. The patient was initially treated with diuretics but they did not provide relief. Recommendations were given to administer amiodarone to treat A fib but this could not be done due to risk of severe lung injury given shock liver. Cardioversion corrected patient’s rate and rhythm and subsequent diuresis alleviated symptoms of fluid overload. Patient was discharged on day 6 in stable condition.

Discussion: The pathophysiology behind liver dysfunction in the setting of heart failure is predominantly r/t either passive congestion from increased filling pressures or low forward perfusion resulting from low cardiac output (CO). Cardiac ischemic hepatitis or “shock liver” presents as a significant elevation in liver enzymes, bilirubin and alkaline phosphatase following an episode of profound hypotension. (1) Conduction abnormalities such as atrial fibrillation with rapid ventricular response (RVR) are known to decrease CO and cause hypotension leading to elevated transaminases in this patient population. Modalities to reverse electrical abnormalities such as diuresis and cardioversion are known to reverse ischemic hepatitis as seen in this case.

Conclusion: Transaminases can be elevated for various reasons including acute viral infection, acute or chronic substance abuse or less commonly due to cardiac etiologies. Cardiac ischemic hepatitis should be considered in patients with HF_rEF in acute volume overload or who are profoundly hypotensive. Correction will likely reverse permanent damage if done in a timely manner.

6) AUTOIMMUNE HEMOLYTIC ANEMIA INDUCED BY COVID-19 INFECTION: AN UNUSUAL PRESENTATION

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Introduction: Autoimmune hemolytic anemia (AIHA) can either be primary (idiopathic) or secondary to infections, lymphoproliferative malignancies or other autoimmune conditions. AIHA induced by SARS-CoV-2 infection is uncommon and sometimes can be challenging to treat.

Case: 47-year-old COVID-19 unvaccinated male with unremarkable past medical history admitted with acute hemolytic anemia and COVID-19 pneumonia. He presented with 1-week history of low-grade fever, weakness and shortness of breath. Physical examination was remarkable for left axillary lymphadenopathy and splenomegaly. His oxygen saturations were 88 to 92% and required low flow nasal oxygen. Initial work-up revealed acute drop of hemoglobin to 5.6 with normal platelets and WBCs. Further anemia work-up revealed acute hemolytic pattern with elevated LDH at 629, reticulocyte count of 216, decreased haptoglobin level of 3, elevated indirect bilirubin. Direct antigen test showed 4+ reactivity for IgG, which confirmed warm autoantibody. Other common infections associated with warm AIHA were ruled out including HIV, HCV, HBV, HCV, influenza A and B, mycoplasma pneumonia, CMV. CT chest shows ground glass opacities and mild left axillary lymphadenopathy for which biopsy done that revealed proliferation of small lymphocytes and plasma cells without any evidence of malignancy. CT Abdomen revealed moderate splenomegaly and lymphadenopathy. Patient was treated with high-dose IV steroid, blood transfusions and IV immunoglobulins. He did not respond to steroids and IVIG and his hemoglobin remained at 5.9. Nephrology were consulted on day 9 of admission for plasmapheresis, and after 3 sessions, his hemoglobin improved to 13. He also received remdesivir for 5 days. Further follow-up showed improvement in symptoms and hemoglobin level.

Discussion: Few case reports have been reported with SARS-CoV-2 induced hemolytic anemia. Treatment for acquired AIHA in the setting of active COVID-19 infection is complex and special consideration is needed specially risks involved with immunosuppression related to COVID-19 infection as this case illustrates

7) A RARE CASE OF METRONIDAZOLE INDUCED HEPATOTOXICITY

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Introduction: In the USA, idiosyncratic drug induced liver injuries (DILI) are the second leading cause of acute liver failure after acetaminophen overdose. Various prescription, nonprescription, nutritional, and herbal supplements are responsible for DILI in the USA. Among prescription medications, antimicrobials are the leading cause (45%) of associated liver injuries.

Case: Here we present the case of a 74- year-old female with a past medical history of hypothyroidism, osteopenia, and recent persistent diarrhea related to giardia infection. She presented with complaints of right upper quadrant abdominal pain, nausea, vomiting, and jaundice for the past 3 days before admission. The patient was being treated with metronidazole 400 mg three times daily for the past 15 days as per infectious disease recommendation. On admission, her complete metabolic profile showed transaminitis with alanine transaminase 204, aspartate aminotransferase 326, gamma-glutamyl transferase 249 with alkaline phosphatase of 300, along with elevation in total bilirubin at 12 and international normalized ratio at 1.5. Extensive work-up, including autoimmune hepatitis panel, viral hepatitis panel, primary biliary cholangitis test, primary sclerosing cholangitis test, smooth muscle antibody, liver–kidney microsomal antibody, computed tomography abdomen/pelvis, and magnetic resonance cholangiopancreatography (MRCP) were unrevealing. A liver biopsy revealed hepatic cholecystitis and liver infiltrate with hepatic necrosis consistent with drug induce liver injury. Based on our literature search related to the case, we found metronidazole-induced hepatotoxicity could be a cause of transaminitis. Her liver function started to improve within 3 to 4 days after stopping metronidazole and starting 40 mg prednisone, and returned to baseline on outpatient follow-up.

Discussion: Antibiotic use in modern medicine has been responsible for starting potential life-threatening drug reactions. Although metronidazole-induced liver toxicity is extremely rare, it must still be considered as a cause of DILI after ruling out all other common etiologies.

8) PANCYTOPENIA AND PERICARDIAL EFFUSION IN THE SETTING OF SEVERE HYPOTHYROIDISM

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Introduction: Myxedema coma is an infrequently seen but serious complication of severe hypothyroidism.

Case: This was a 69-year-old male with a history significant for Graves' disease s/p radioiodine ablation and vascular dementia who presented to the ED following a fall at home and 2 weeks of generalized weakness and fatigue.

His exam was notable for a moderate goiter, profound periorbital edema, patchy hair loss, dry skin, large protruding tongue, a large gluteal hematoma, a firm, distended abdomen, and psychomotor slowing. Initial labs notable for normocytic anemia, thrombocytopenia, mild troponemia, TSH 42 μ IU, and undetectable T4. Imaging revealed a moderate pericardial effusion and large stool burden. The patient reported that he had not been taking any of his medications for 6-8 months.

Levothyroxine was administered in the ED, but hypothyroid symptoms progressed the next day. He became hypothermic to 33.8°C and pancytopenic. At nadir, he had a hemoglobin of 7.4, RBC 2.6, WBC 3.1, and platelets 54. Endocrinology was consulted to manage his levothyroxine dosing, and patient was passively rewarmed.

With continued levothyroxine treatment, he began to approach a euthyroid state. His cell lines began to increase, his body temperature normalized, and his pericardial effusion resolved.

Ultimately, our patient was discharged to a long-term care facility to help him better manage his medications.

Discussion: This case was an excellent example of the constellation of symptoms seen in severe hypothyroidism. Notably, the patient was pancytopenic, a rare finding amongst hypothyroidism. Thyroid gland function contributes to the appropriate functioning of many different organ systems. Because this patient had no remaining thyroid gland after ablation, his medication nonadherence led to a state of total hypothyroidism. If he had not fallen and been brought to the hospital, it is likely that he would have progressed to life-threatening myxedema coma.

9) A CHALLENGING CASE OF MULTISYSTEM INFLAMMATORY SYNDROME (MIS) FOLLOWING COVID-19 VACCINATION

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A 28 year old previously healthy female with past medical history of cholecystectomy, tubal ligation, and COVID-19 infection one month prior presented to the emergency department with acute right lower quadrant and epigastric pain. Of note, she received Johnson & Johnson vaccine against SARS-CoV-2 infection one day prior to positive PCR assay for COVID-19. Symptoms of fatigue preceded COVID infection by four days.

On admission she was febrile. Bowel sounds were present, and she was tender to palpation in the epigastric and periumbilical regions. Laboratory studies were remarkable for elevated ESR, CRP, d-dimer, BNP, mild leukocytosis, lymphopenia. CT concerning for sclerosing mesenteritis for which she was started on tamoxifen and prednisone. Upper endoscopy and colonoscopy was significant for viral inflammatory changes, helicobacter pylori gastritis, and cryptitis with reactive epithelial changes in the terminal ileum. Echocardiogram was notable for mild left ventricular systolic dysfunction, global hypokinesis, and LV ejection fraction of 41-45%. She clinically deteriorated, necessitating ICU transfer. She was empirically treated with broad spectrum antimicrobials, intravenous steroids, immunoglobulins, and aspirin for MIS with clinical improvement. Ultimately, her work up was unremarkable for infectious or autoimmune etiologies. Symptoms did not improve with antimicrobials. Hospital course complicated by oliguric acute tubular necrosis, coagulopathy, and steroid-induced diabetes mellitus. She was receiving solumedrol with adequate symptom control, but eloped and was not discharged with prescriptions.

Discussion: We present a perplexing case of MIS following COVID infection and within days of COVID-19 vaccination. It is important to suspect with or without history of recent COVID infection to mitigate morbidity and mortality. It is not known whether patients with MIS have an increased risk for an “MIS-like illness” after vaccination against COVID-19. In patients presenting with MIS, the utility of monoclonal antibodies and other antivirals remains unknown and requires further research to determine proper management.

10) A RARE CASE OF RETROPERITONEAL ABSCESS CAUSED BY PARVIMONAS MICRA

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Introduction: *Parvimonas micra* (*P. micra*) was formally known as *Peptostreptococcus micros* or *Micromonas micra*; is a gram-positive, anaerobic, and fastidious bacteria. *P. micra* causes polymicrobial infections, most common habitant in the oral cavity and gastrointestinal tract (1). Here, we represent a case of retroperitoneal abscess caused by *parvimonas micra* secondary to poor oral hygiene.

Case Description: 62 years old homeless man was presented with altered mental status. His oral examination showed poor oral hygiene with multiple loose and missing teeth. Initially, he was started on IV ceftriaxone empirically for sepsis. His blood culture grew *Parvimonas micra* after 2 days. Based on culture susceptibility his antibiotics were changed to IV ampicillin-sulbactam. To find out the source CT abdomen/pelvis was obtained, which showed 5X9X15 cm left retroperitoneal abscess invading in to the psoas and inferior left renal sinus along with inferior renal cortex. He was managed with 4 weeks of antibiotics and drainage of abscess. Repeat CT abdomen/pelvis showed resolution of his abscess.

Discussion: Being a part of polymicrobial infections, *P. micra* is rarely reported as a sole culprit of a bacteremia. A delayed diagnosis and inadequately treated retroperitoneal abscess can be a serious surgical condition, which can lead to prolonged morbidity and high mortality rate. Our patient's poor oral hygiene was thought to be the source for bacteremia and retroperitoneal abscess. Adequate antibiotic treatment and drainage of abscess was required management.

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11) DIABETES MELLITUS AS A POTENTIAL RISK FACTOR FOR PSEUDOMONAS STUTZERI PNEUMONIA AND SEPTICEMIA

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Introduction: *Pseudomonas stutzeri* represents nearly 1% of all *Pseudomonas* isolates from hospital. It is an aerobic, gram-negative environmental bacteria which rarely leads to serious community or nosocomial acquired infections in immunocompromised patients or patients with recent surgery (1, 2). We present a case of a community acquired *Pseudomonas stutzeri* pneumonia in a patient with no significant diagnosis of an immunocompromised condition, except for diabetes mellitus. This case illustrates diabetes mellitus as a potential and important risk factor for severe *pseudomonas stutzeri* pneumonia and septicemia.

Case Description: A 76-year-old male with a history of uncontrolled diabetes mellitus (HbA1c of 11.5) presented with altered mental status and respiratory distress. Patient was living alone and not compliant with medications. He did not have history of exposure to sick contacts recently or any recent surgery. Patient was progressively having labored breathing and was getting confused for the last 3 to 4 days. Initial evaluation in the ED showed elevated respiratory rate, leukocytosis, and elevated inflammatory markers, concerning for sepsis. CT chest showed large confluent opacities in the posterior right upper lobe, middle and lower lobes, consistent with pneumonia. Blood cultures were positive for *Pseudomonas stutzeri*. Patient was managed with CPAP therapy along with IV Cefepime. Patient showed slight improvement for a brief period. Unfortunately, his condition worsened, and patient was transitioned to complete comfort care.

Discussion: The majority of clinically significant *pseudomonas stutzeri* infection had underlying diseases, such as liver cirrhosis, COPD, malignancy, chronic kidney disease and HIV infection. This case emphasizes that although *Pseudomonas stutzeri* pneumonia and septicemia is a rare infection, uncontrolled diabetes mellitus has the potential to invite such deadly bacteremia. This case adds to the importance of having an optimal glucose control in diabetes patients.

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12) CASE REPORT: VOCAL CORD DYSFUNCTION AND ITS RELATIONSHIP TO GASTROESOPHAGEAL REFLUX DISEASE

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Introduction: In adults, dyspnea on exertion (DOE) has a broad differential typically involving cardiopulmonary diseases. Dyspnea workup is complicated by extensive medical history, multiple comorbidities, and advancing age. Although rare, presentations of episodic DOE and a medical history including gastroesophageal reflux disease (GERD) may point to a non-cardiopulmonary cause, such as vocal cord dysfunction (VCD) [1].

Case Presentation: Our patient was a 75-year-old male with a past medical history significant for interstitial lung disease (ILD), GERD and moderate pulmonary hypertension. He had an extensive history of SOB and DOE hospitalizations attributed to acute ILD exacerbations, although progression was never seen on imaging. He presented to the ED with 4 days of increased DOE, non-productive cough, fatigue, occasional episodes of nocturnal choking, as well as difficulty sleeping due to cough. He pointed to his larynx as the location of symptoms and mentioned his voice had recently become hoarse. After extensive workup ruling out pulmonary embolism, CHF exacerbation, pneumonia, and ILD progression, VCD secondary to GERD was considered. VCD was confirmed with an ENT consult and direct visualization. He was started on nasal saline, nasal fluticasone and an increased omeprazole dose leading to resolution of his acute symptoms. He was scheduled with ENT and speech therapy for outpatient follow-up.

Discussion: VCD is an episodic disorder causing restricted air movement during inspiration due to vocal cord adduction. These severe dyspnea attacks are unresponsive to bronchodilator therapy [2]. GERD can cause VCD due to laryngopharyngeal reflux, a chronic inflammation of the upper airway tissue reported in 32.8% of GERD patients [3]. Chronic irritation can evoke laryngeal reflexes, chronic cough and asthma-like symptoms [1]. Laryngoscope visualization of paradoxical motion is considered the gold standard for diagnosis and treatment includes speech therapy management to for special breathing techniques as well as medical management of the underlying cause [1].

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13) RELAPSING POLYCHONDritis AND INFLAMMATORY BOWEL DISEASE IN A PATIENT WITH AURICULAR CHONDritis

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Introduction: Relapsing Polychondritis (RP) is an autoimmune disease associated with immune-mediated destruction of cartilaginous structures. RP is rare with about 3.5 cases per million per year in the United States [1]. Only 1000 cases of RP have been published [2] with a growing subset involving inflammatory bowel disease (IBD).

Case Description: Our patient was a 35-year-old Caucasian male with a history of CD, PSC, cholangitis, and thrombophlebitis admitted for abdominal pain. He reported progressively worsening, cramp-like, post-prandial peri-umbilical, and bilateral lower abdominal pain for the last 7 days. The pain was worse with eating and activity and radiated to the lower back. CT A/P showed generalized mild inflammatory fat stranding and edema about the pancreatic parenchyma. Diagnosis based on imaging was acute interstitial pancreatitis, likely secondary to PSC. Family and social history were non-contributory. On physical exam, his ear appeared misshapen, and he reported occasional erythema, pain, and calor of the external ears since childhood with spontaneous resolution. These symptoms began prior to onset of IBD and were highly suggestive of auricular chondritis. Since initiating infliximab treatment for Crohn's disease, no auricular chondritis relapses had occurred.

Discussion: Auricular chondritis is the most common presentation of RP and leads to acute, erythematous, tender inflammation of the external ear while sparing the lobule. RP is associated with co-existing autoimmune disease in 30% of cases, however its relationship to IBD is not yet clear. Goals of treatment for both RP and IBD should include symptom resolution and long-term inhibition of immunity to prevent future recurrence. Treatment includes anti-TNF therapy (Infliximab) which has been shown to improve both RP and IBD symptoms [3,4] suggesting TNF-alpha may play a shared role in disease pathogenesis [5]. Further understanding of RP and its relationship to IBD is critical for early disease detection and subsequent treatment.

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14) SEIZURES AS A PRESENTING SYMPTOM OF CNS NOCARDIA

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Introduction: There are an estimated 500-1000 cases of Nocardia in the US annually. Globally, 14% of which are Nocardia farcinica [1,2]. One third of these cases involve the CNS which has a 20% mortality rate [3]. Prompt identification and treatment is essential.

Case Presentation: A 60y man presented after being found unconscious and shaking in a presumed seizure. PMH significant for autoimmune hepatitis, taking prednisone 30mg daily and azathioprine 50mg daily for past 3 months, and a melanoma removed in 2002.

Head CT showed an area with mass effect in R posterior temporal-occipital region. MRI confirmed 2 small-moderate peripherally enhancing lesions within R temporal and temporal-occipital region concerning for abscesses or amelanotic metastases. CT Chest showed 3 R lower lobe pleural nodules concerning for metastases. Biopsy and culture grew gram positive branching beaded rods. Nocardia farcinica was confirmed by MALDI-TOF. Treatment was started with IV TMP/SMX 5mg/kg q8h and linezolid 600mg PO BID. TMP/SMX was discontinued after 12 days for severe nausea and vomiting, hypoglycemia and increased creatine. Linezolid was discontinued after 19 days for thrombocytopenia. Treatment was bridged with imipenem/cilastatin 1000mg IV q8h until susceptibilities indicated moxifloxacin 400mg daily for 2 weeks and tedizolid 200mg PO daily for 1 week. Oral step down therapy over a year is being pursued. Prednisone was decreased from 30mg to 15mg. 3 months after initial encounter repeat CT showed resolution of swelling and abscess at the site of drainage.

Discussion: Rapid identification of Nocardia via gram stain and MALDI-TOF is essential for treatment as N. farcinica is often resistant to 3rd generation cephalosporins [4,5]. Dual treatment with TMP/SMX and linezolid is empiric for CNS cases. Tedizolid is better tolerated than linezolid, but lacks CNS penetration making progressive subclinical infection a risk [6]. Prompt, appropriate treatment for this uncommon infection is critical for patient survival.

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15) RESUSCITATIVE THORACOTOMY FOR CARDIAC TAMPONADE SECONDARY TO LEFT ATRIAL RUPTURE

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Introduction: The goal of Emergency Department Resuscitative Thoracotomy (EDRT) is to facilitate direct access to the heart to relieve cardiac tamponade, control intrathoracic hemorrhage, and reestablish blood flow to vital organs [1]. Despite its lifesaving potential, the use of EDRT in blunt trauma is debated due to low survival rate and poor neurologic outcomes.

Case Presentation: A 32-year-old female with no significant past medical history presented post motor vehicle collision with a dump truck at 50mph, unbelted. GCS was 14 on arrival but the patient quickly became more altered, seized and was unresponsive without pulses. CPR and massive transfusion protocol was started, and the patient was intubated. Cardiac FAST revealed a gray stripe consistent with hemoperitoneum, indicating use of resuscitative thoracotomy. EDRT was performed with evacuation of ~1L of clot and delivery of the heart revealed venous bleeding and the right atrial appendage was clamped. Aortic cross clamping was not performed due to tamponade being the cause of arrest. After return of pulses, the patient was taken emergently to the OR for exploratory thoracotomy with right atrial appendage repair, exploratory laparotomy with splenectomy, packing of grade IV liver laceration and closure. The patient was then admitted to the SICU for post-op recovery and management.

Discussion: The use of EDRT in blunt trauma is debated. As of 2015, the Eastern Association for the Surgery of Trauma recommends for EDRT with signs of life on presentation and against EDRT without signs of life on presentation [2]. Receiving thoracotomy within 15 minutes of cardiac arrest was also favorable to survival [1]. Nonetheless, EDRT carries a survival rate of only 1.6%, of which 15% suffer neurological impairment [3]. EDRT was selectively indicated in this case and was critical to the patients survival. Ultimately, EDRT is a powerful, last resort procedure that has a small, but present survival rate.

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16) A “WHOLE-HEARTED” THROMBUS EVENT

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This is the case of a 48-year-old male with medical history significant for an epidural abscess spanning L2-L5 levels requiring hemilaminectomy and evacuation. The patient was transferred to a rehabilitation facility to receive intravenous antibiotics after the spinal operation. Initially, he appeared to be recovering well, however suddenly developed hypotension and diarrhea requiring transfer to our facility for further management. He was admitted for undifferentiated shock and responded well to fluid resuscitation and pressors. A transthoracic echocardiogram was performed and revealed a thrombus extending from the inferior vena cava to the right atrium, through a PFO, and into the left atrium and left ventricle. The imaging also revealed evidence of right atrial dilation and right ventricle dysfunction due to the burden of the large thrombus. The patient was immediately taken to the operating room where the cardiothoracic surgery team was able to perform an emergent median sternotomy, thrombectomy, and closure of the PFO. Also, bilateral thrombi in the pulmonary arteries were visualized and subsequently removed.

What makes this case unique is not only that we were able to capture imaging of the clot as it was moving through the PFO, but also the sheer size burden of this thrombus which began in the right heart and extended into the left heart beyond the mitral valve. Due to the rare nature of the event described above (fewer than 100 cases documented in the literature), there are not standard of practice guidelines in place to guide providers in the management of these transient thrombi. Previous literature has suggested surgical intervention being the most effective in those patients without other co-morbidities, while anticoagulation appears to be a sufficient alternative in those who aren't appropriate surgical candidates. The few cases where thrombolysis was chosen as a management strategy, resulted in the highest mortality.

17) ACUTE RESPIRATORY DISTRESS SYNDROME AND TMP-SMX EXPOSURE IN A HEALTHY ADULT

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Rare pulmonary adverse drug events have been reported with trimethoprim-sulfamethoxazole (TMP-SMX) use. We report the case of an adult admitted for severe acute respiratory distress syndrome (ARDS) after brief exposure to TMP-SMX.

A 26-year-old female was prescribed TMP-SMX for a recurring vaginal mass. 5 days after initiation, she developed drug fever (full-body rash, fever, myalgia, nausea, and leukopenia). TMP-SMX was discontinued and replaced with levofloxacin, which resolved her vaginal symptoms. She presented 5 days later with progressive dyspnea, chest pain, diarrhea, fatigue, and a fever of 103. She was prescribed doxycycline and an inhaler for suspected pneumonia and discharged. Her dyspnea worsened and she returned to the ED 2 days later with hypoxia. CT scan showed diffuse ground-glass opacities in the lower lobes posteriorly and parenchymal interstitial emphysema. IV vancomycin and moxifloxacin were started and continued doxycycline for broad-spectrum antibiotic coverage. She continued to worsen and required intubation. Repeat CT showed diffuse ground-glass opacities, moderate right-sided pleural effusion, and segmental and subsegmental pulmonary embolisms. She was subsequently placed on venovenous ECMO. Extensive infectious and rheumatological disease workup over the course of admission was negative. No etiology for her respiratory failure could be identified and TMP-SMX triggered ARDS is suspected based on the timing of her exposure, clinical course, and lack of alternative explanation despite extensive evaluation. Due to her high ventilatory support requirement and hypoxia after decannulation, she received a bilateral lung transplant and remains admitted for further care.

There are no reports of severe ARDS following TMP-SMX exposure requiring ECMO support and bilateral lung transplantation in previously healthy adults. This report adds to the growing evidence of pulmonary toxicity related to TMP-SMX use and illustrates the importance of clinical awareness of rare adverse drug reactions as low prevalence of this case in literature may contribute to under-recognition.

18) HEMOPTYSIS FOLLOWING SUBCLAVIAN VEIN PUNCTURE FOR PACEMAKER IMPLANTATION

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Introduction: Subclavian vein access for pacemaker placement is a relatively safe and minimally invasive procedure for accessing the right heart. Complications rarely occur, but can include subcutaneous hematoma, pneumothorax, hemothorax, thoracic duct injury, brachial plexus injury, and hemoptysis. Here, we present a case of a 69-year-old female who developed coughing and hemoptysis after dual-chamber pacemaker placement.

Case Presentation: A 69-year-old female with a past medical history of severe aortic stenosis presented to the ED for dyspnea on exertion, chest pain, and palpitations. Patient underwent TAVR for severe aortic stenosis. Post-operatively, she developed recurrent episodes of complete heart block, causing symptomatic bradycardia. She then underwent dual-chamber pacemaker placement. There was difficulty accessing the left subclavian vein, with a micropuncture of the left subclavian artery noted prior to obtaining venous access. Just after placing the second pacemaker lead, the patient developed hemoptysis. CXR demonstrated a wedge-shaped opacity in the left upper lobe (LUL) raising concern for a pulmonary embolism infarct. CTA chest was negative for pulmonary embolism but did reveal patchy LUL consolidation with ground glass opacities. One hour after surgery, patient was back to her baseline and breathing comfortably on room air.

Discussion: The incidence of hemoptysis as a complication of subclavian puncture is rare (<0.1%). The clinical course is usually self-limited and benign but can be serious in critically ill patients. We review the available evidence of similar cases and propose several methods to prevent possible complications of subclavian access, including guidance with venogram or ultrasound, axillary venous access, and wire-guided puncture of brachial vein.

19) SECONDARY ANGIOSARCOMA: AN UNDERAPPRECIATED CONSEQUENCE OF RADIATION THERAPY FOR HODGKIN LYMPHOMA SURVIVORS

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Angiosarcoma is an underappreciated consequence of radiation therapy for prior Hodgkin lymphoma survivors. Prompt diagnosis is required given the aggressive nature of this malignancy with dismal overall survival rates of 6-16 months.

The patient is a 53-year-old male with a relevant history of childhood Hodgkin's lymphoma treated with chemotherapy, radiation, and splenectomy, esophageal strictures, aortic stenosis and left common carotid, internal carotid, subclavian, and vertebral artery occlusion. Prior to presentation, the patient had a complicated course with sore throat, dysphagia, and 30-pound weight loss. Initial workup included a chest x-ray that showed a lung nodule. A follow-up CT chest revealed multiple nodules and transesophageal echocardiogram revealed an aortic valve lesion. The patient underwent lung biopsy, which revealed coagulative necrosis. Given extensive lung involvement, he underwent a left partial thoracotomy.

The patient re-presented to an outside hospital one month later and was found to be severely anemic. The patient developed hemorrhagic shock from massive hemoptysis leading to transfer to our institution. An upper endoscopy was performed to evaluate for source of bleeding and pathology confirmed angiosarcoma. Chemotherapy was not offered given his critical illness and patient transitioned to comfort care.

Angiosarcoma is a rare vascular malignancy of subcutaneous tissue. It can either be primary or secondary to radiation, chronic infection, chronic lymphedema, chemical exposure, or trauma. The head, neck, and chest areas are most often affected. The diagnosis of angiosarcoma is complicated by the fact that the clinical presentation and diagnostic studies are often non-specific, which leads to delayed diagnosis. The diagnosis is dependent on pathology, which can further complicate the picture since poorly differentiated angiosarcoma often only reveals hemorrhage and necrosis. This patient had significant radiation exposure given his extensive vascular disease and esophageal stricture, which were all located in the distribution of his prior radiation.

20) L-TRANSPOSITION OF THE GREAT ARTERIES: TWO WRONGS MAKE A RIGHT

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Introduction: Levo-transposition of the great arteries (L-TGA) is a rare congenital heart disease resulting in atrial-ventricular discordance and ventricular-arterial discordance. In L-TGA, systemic venous return flows from the right atrium, through a mitral valve into a subpulmonic morphological left ventricle (LV), and is pumped through the lungs. Pulmonary venous return flows from the left atrium, through a tricuspid valve into a systemic morphologic right ventricle (RV), and is pumped to the body through the aorta. Although patients with L-TGA may be “congenitally corrected,” they have increased risk for cardiovascular morbidities, such as heart failure and arrhythmias.

Case: A 35-year-old woman with a history of L-TGA and dextrocardia with situs inversus totalis, Kartagener’s syndrome and bronchiectasis has had annual follow-ups at our adult congenital heart clinic for the past 9 years with echocardiograms and cardiac MRIs. Despite maintaining good exercise tolerance, her systemic RV has enlarged overtime with worsening tricuspid regurgitation (TR). Importantly, the RV has maintained normal systolic function. Other findings included a small restrictive perimembranous VSD with minimal systemic to subpulmonic ventricular shunting, a compressed subpulmonic LV with normal systolic function, and a dynamic subpulmonary LV outflow track obstruction. Routine surveillance testing included stress tests showing preserved exercise tolerance and Holter monitors recording no arrhythmias nor evidence of AV nodal disease. Prior to a pregnancy, she was risk-stratified, and then monitored closely during pregnancy. The pregnancy resulted in a healthy birth, but was complicated by maternal heart failure and pneumonia.

Discussion: Patients with L-TGA require annual follow-ups, with routine surveillance testing. Imaging to assess RV size/function and degree of TR, stress tests to assess functional capacity, and Holter monitors to assess for arrhythmias and AV conduction are recommended. L-TGA patients wishing to get pregnant should be risk-stratified, made aware of the cardiac morbidity risks, and monitored closely throughout pregnancy.

21) SOMATOSTATIN RECEPTOR NEGATIVE NEUROENDOCRINE TUMOR WITH UNIDENTIFIED PRIMARY LESION

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A 78-year-old male with a history of coronary artery disease and type two diabetes presented with unintentional weight loss and dysphagia. Initial computed tomography (CT) of his abdomen and pelvis revealed multiple hepatic ring-enhancing lesions, enlarged portocaval lymph nodes, and ascites concerning for metastatic disease. Imaging also displayed circumferential wall thickening from the anus to the anorectal junction. CT of his chest did not reveal any evidence of primary or metastatic cancer. Next, the patient underwent esophagogastroduodenoscopy (EGD) and flexible sigmoidoscopy. Sigmoidoscopy displayed rectal varices consistent with portal hypertension, but no luminal abnormalities which would explain his CT findings. EGD displayed grade II-III proximal esophageal varices and multiple nodular lesions in the duodenal bulb. Duodenal biopsies displayed mucosa with active inflammation suggestive of peptic injury. Diagnostic paracentesis demonstrated ascites secondary to portal hypertension, and cytology of the fluid displayed atypical cells of unknown significance. Serology revealed a positive CA19-9 and elevated Chromogranin A, while urine studies showed an elevated 24 hour 5-hydroxyindoleacetic acid (5-HIAA). A liver biopsy was performed, and pathology of the lesion showed a well-differentiated, WHO Grade I neuroendocrine tumor.

At this time, the patient was started on weekly lanreotide, a somatostatin analogue. Positron emission tomography (PET)/CT with gallium-68 dotatate radiotracer was performed and did not show any avidity in the liver or identify primary lesion. This raised concern for negative somatostatin receptor (SSTR) expression, a known poor prognostic indicator and a requirement for effective treatment of neuroendocrine tumors with somatostatin analogues or peptide receptor radionuclide therapy (PRRT). The patient's clinical course continued to deteriorate, and he was transitioned to comfort care before passing away. This case highlights the workup for neuroendocrine tumors and the prognostic importance of SSTR expression. It also underscores potential treatment options for patients with these malignancies.

22) SYMPTOMATIC HYPERCALCEMIA NEARLY A DECADE AFTER LUNG TRANSPLANT

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Introduction: Non-PTH mediated hypercalcemia is most commonly due to malignancy, although the differential includes granulomatous disease, endocrinopathies, and iatrogenic/medication-related etiologies. Post-transplant patients on immunosuppressive therapy are at increased risk for both malignancies and opportunistic infections associated with hypercalcemia, which can contribute to diagnostic uncertainty.

Case Presentation: A 66 year old male with history of bilateral lung transplant for COPD on chronic immunosuppressive therapy presented to the ED following weeks of constipation, bone pain, and recent slurred speech with lower extremity weakness. Calcium level was found to be elevated at 12.8 with low PTH, low PTHrP, and elevated 1,25-dihydroxyvitamin D. CTA of head/neck was negative for acute pathology, but CT abdomen/pelvis revealed moderate ascites, omental thickening, and small splenic infarcts. Paracentesis was completed with subsequent fluid studies yielding a positive AFB smear and elevated adenosine deaminase. Cytology revealed lymphocytosis with atypical cells. PCR testing for TB and MAC as well as repeat AFB sputum samples and QuantiFERON-TB Gold ultimately returned negative. Ultrasound-guided omental biopsy was completed, with final pathology showing Post-Transplant Lymphoproliferative Disease (PTLD), DLBCL type. The patient's hypercalcemia was initially temporized with fluid resuscitation, diuresis, IV bisphosphonates, and calcitonin. He ultimately received rituximab therapy for management of his PTLD, with hospital course additionally complicated by pneumonia and AKI requiring hemodialysis.

Discussion: PTLD is one of the most common forms of malignancy complicating solid organ transplant, with risk being highest in individuals with marked immunosuppression. It can induce a non-PTH mediated hypercalcemia, typically through increased production of 1,25-dihydroxyvitamin D. Clinical presentation may include non-specific constitutional symptoms. Given that various disseminated fungal and mycobacterial infections can present in a similar fashion, obtaining tissue pathology is crucial to confirm the diagnosis and guide therapy.

23) METHYL NALTREXONE FOR TREATMENT OF ACUTE COLONIC PSEUDO-OBSTRUCTION IN PATIENT NOT TAKING OPIOIDS

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Acute colonic pseudo-obstruction (ACPO), also known as Ogilvie syndrome, is characterized by colonic dilatation without mechanical or anatomic pathology. Colonic decompression or neostigmine is the preferred treatment though Food and Drug Administration has not yet approved the use of the later therapy. Here, we present a case of pseudo-obstruction managed by methyl naltrexone in a patient, not on any opioids therapy.

A 79-year-old man admitted for pneumonia developed diarrhea, bloating, and abdominal distention after two days of admission. Abdominal X-Ray showed generalized gaseous dilatation of large bowel up to 8.8 cm with abrupt caliber transition in the splenic flexure and air-fluid level within descending colon, which was suggestive of acute colonic pseudo-obstruction. After conservative management for 72hrs, CT abdomen/pelvis showed persistent dilatation without significant change from the prior study. Despite the placement of a colonic decompression tube, the patient's condition failed to improve. Therefore he was started on Methyl naltrexone subcutaneously. In his case, we avoided Neostigmine as he was on beta-blockers for atrial fibrillation. After two doses of methyl naltrexone, the abdominal x-ray showed resolution of gaseous distention of the colon. We started a clear liquid diet with restriction and slowly titrated to full liquid. After the 3rd dose of methyl naltrexone, we removed the decompression tube and started him on a soft diet.

Methyl naltrexone has been used anecdotally for ACPO since the pathophysiology of ACPO is similar to opioid-induced constipation. However, more studies should be conducted to evaluate the use of methyl naltrexone in ACPO patients with and without opioids. In the presence of contraindications to Neostigmine or failure to respond to Neostigmine and conservative management, we could potentially consider a trial of methyl naltrexone for ACPO.

Keywords: Pseudo-obstruction, Methyl Naltrexone, Neostigmine.

24) WHY SO BLUE? A CASE OF SEVERE METHEMOGLOBINEMIA AND CONCURRENT METHYLENE BLUE ALLERGY

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Introduction: Methemoglobinemia occurs when the ferrous (Fe^{2+}) iron of hemoglobin is oxidized to the ferric (Fe^{3+}) state limiting its ability to bind oxygen, resulting in hypoxia. Patients characteristically exhibit cyanosis and hypoxia on oximetry that fails to improve with supplemental oxygen. Moderately elevated methemoglobin levels can cause nonspecific symptoms, but severe elevations can cause arrhythmias, seizures, and death.

Case: A 28 year-old female with systemic lupus erythematosus, sickle cell trait, and methylene blue allergy presented to the ED with acute dyspnea and lightheadedness. She had a 9 month history of recurrent methemoglobinemia episodes, most recently with dapsone use. On admission, she was tachycardic, SpO_2 was 78%, with increased respiratory effort and cyanosis despite clear lungs. Labs revealed methemoglobin level >30 , Hgb 12.5, PLT 249, HCO_3 29, pCO_2 33, pO_2 28 (ABG). Previous outpatient work-up for hereditary hemolytic anemias was negative. She was started on high dose vitamin C and CPAP with subsequent improvement. During vitamin C therapy, her hemoglobin dropped to 6.1. Labs showed acute hemolysis and bite cells on smear, concerning for G6PD deficiency. Coombs test was negative. Hemolysis was attributed to oxidative stress from high-dose IV vitamin C, prompting discontinuation. Ultimately, dapsone level from admission returned positive despite her denial of use, and recurrent methemoglobinemia was attributed to factitious disorder from dapsone.

Discussion: Methemoglobinemia can be due to genetic causes, but is most commonly acquired following exposure to drugs or toxins. Dapsone is a common offender, accounting for 42% of cases in a retrospective series of 138 cases, with benzocaine and primaquine next, at 4% apiece. Treatment involves identification and withdrawal of the offending agent. In severe cases, methylene blue can be used. Alternative treatments include vitamin C and exchange transfusions. Methylene blue and vitamin C are contraindicated in G6PD deficiency as they can cause hemolysis.

25) A CASE OF COVID ASSOCIATED NEPHROPATHY (COVAN)

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Introduction: Collapsing glomerulopathy, a variant of focal segmental glomerulosclerosis (FSGS), is characterized by segmental and widespread collapse of glomerular capillaries marked by hypercellularity of podocytes causing rapid renal failure. (1) There has been an emergence of cases among African American patients with COVID-19, especially those with the apolipoprotein L1 (APOL1) allele. This new entity is termed COVAN and is becoming prevalent in areas where the APOL1 allele is endemic.

Case Presentation: A 52 y/o African American female with PMH of afib, hypertension, obesity who presented with cough, fever, fatigue, and SOB for one week. Patient was unvaccinated and COVID-19+. Upon admission, she did not require any oxygen, therefore was not started on COVID-19 specific treatment. She presented with Cr 2.25 and BUN 44, increased from baseline Cr 1.09. FeNa was <1%, UA showed significant proteinuria. She was started on IVF. Nephrology was consulted for concern for COVAN and the patient was found to be APOL1+. For worsening respiratory status, low dose dexamethasone was started. Renal function subsequently improved from peak Cr 4.3 to 2.26 on discharge.

Discussion: Here we present a case of a patient with renal injury in the setting of COVID pneumonia who was also found to be APOL1+. Approximately 14% of the African American population is homozygous for this allele, providing partial explanation for the increased burden of kidney failure. (1) Several other viruses have been associated with collapsed glomerulopathy-notably HIV, CMV, Parvovirus and EBV. (2) The pathology lies in the activation of interferon pathways.

Conclusion: As cases of COVID-19 persist, COVAN should be suspected as a differential diagnosis in patients with AKI. The relationship between COVID-19 and collapsing glomerulopathy in the setting of APOL1 gene carriers has important public health implications. Resources should be directed towards investigating the early use of anti-inflammatory agents in at-risk patients.

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26) A CASE OF SEVERE LUPUS PERNIO

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Cutaneous sarcoidosis (CS) occurs in up to one third of patients with multisystem disease, but the diagnosis may be missed due to wide-ranging morphologies, especially in patients without an existing diagnosis of systemic sarcoidosis. Lupus pernio (LP) is a rare subtype of CS, which manifests as smooth shiny nodules and plaques predominantly on the central face (nose, ears, lips, and cheeks)¹. Here, we have a 36-year-old male with no significant past medical history who presented to the Emergency Room for evaluation of facial swelling surrounding the left eye that started approximately a year prior. At the time, he was evaluated at an outside hospital and was told the swelling was from a blocked tear duct. He did not have further follow-up due to lack of health insurance. Subsequently, the swelling spread across his face and body over a course of four months. No associated pruritis or pain with the swelling, though did report left visual field obstruction due to the degree of pre-orbital swelling. Physical exam was notable for pink, well-demarcated plaques over the central face (left greater than right), scalp, left upper arm, bilateral flanks, bilateral lower extremities, as well as complete obstruction of the left and partial obstruction of the palpebral fissures. Biopsy of the right cheek demonstrated numerous non-necrotizing granulomas consistent with sarcoidosis. Broad work-up including CT angio head and neck, transthoracic echocardiogram, and cardiac MRI were consistent with pulmonary, cardiac sarcoidosis. Methotrexate and infliximab were considered, given extensive disease, but Prednisone 80mg daily was initiated for its cost-effectiveness. Though patient did not follow-up with Rheumatology or Dermatology due to financial concerns after discharge, he did establish with a primary care physician and noticed improvement in facial swelling and plaques. The rare cutaneous presentation and patient's uninsured status contributed to the delay in diagnosis in this case.

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27) "BE IT FAHRENHEIT OR CENTIGRADE:" A CASE OF CLOPIDOGREL-INDUCED DRUG FEVER

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Introduction: Drug fever is a diagnosis of exclusion in which fever coincides with drug administration and stops with drug cessation when no other cause for fever can be found. There are no controlled trials on drug fever; most information on prevalence is derived from case reports and varies by agent. Common examples include hypersensitivity reactions, malignant hyperthermia, serotonin syndrome, and neuroleptic malignant syndrome.

Case Presentation: We report a case of clopidogrel-induced drug fever in an 89-year-old female who presented with chest pain, nausea, weakness, and fever of 101.9 F. She had a history of severe mitral insufficiency and a TIA 3 weeks prior to admission, after which she started clopidogrel. Initial labs showed elevated liver enzymes in a cholestatic pattern and thrombocytopenia. The patient had no rashes, no mucosal involvement, and no lymphadenopathy on exam. EKG showed ST depression that resolved on serial assessment, troponins peaked at 2.87, and her chest pain resolved within 24 hours of admission, consistent with a Type II NSTEMI. Eosinophils were 670. However, her fever persisted despite empiric antibiotic therapy. Admission blood cultures were negative, stool infectious panel was negative, and no foci of infection was found despite extensive imaging including TTE, chest X-ray, CT PE, CT abdomen/pelvis, abdominal ultrasound, HIDA scan, MRCP, and bilateral lower extremity ultrasound. Her transaminitis persistent but down-trended over the admission.

Discussion: A diagnosis of drug fever can only be established after an extensive negative work-up and fevers stopping after drug cessation. Stopping the suspected drug serves as both treatment and diagnosis of drug fever. If suspected, suspected drugs should be stopped sequentially with monitoring for fever cessation within 72-96 hours of drug cessation. If diagnosis is uncertain, rechallenge of the suspected drug in a controlled environment is advised if the initial reaction was not severe.

28) RED, RED EVERYWHERE, INSIDE AND OUTSIDE: DRUG INDUCED HYPERSENSITIVITY SYNDROME WITH VANCOMYCIN

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Introduction: Drug-Induced Hypersensitivity Syndrome (DIHS) is a rare but life-threatening complication of vancomycin usage. Vancomycin is attributed to several different types of allergic reactions ranging from infusion reactions and anaphylaxis to hypersensitivity reactions. Because of this, DIHS is a formidable diagnostic challenge.

Case Description: 73-year-old male presented with a progressive red, itchy rash over his head, neck, trunk, and extremities. The patient had a recent transcatheter aortic valve replacement for aortic stenosis that was complicated by a pseudoaneurysm. The pseudoaneurysm was repaired, but a large abscess developed requiring debridement and a prolonged course of IV vancomycin. Three to four weeks into the course, the patient noticed itching under the armpits which progressed to a widespread rash. Despite switching antibiotic therapy, the rash persisted. Initial labs were significant for creatinine 2 mg/dL, glomerular filtration rate 33, and troponin 2.6 ng/mL. Eosinophils were elevated at 3000/uL. Concerns arose for DIHS with kidney and cardiac injury given the elevated creatinine and troponin. Per RegiSCAR criteria for the diagnosis of DIHS, the patient scored three. This correlated to “possible DIHS.” He was started on high dose IV steroids and gradually transitioned to oral prednisone. Eosinophils improved to zero. Creatinine and troponins normalized. He was discharged home on a long prednisone taper.

Discussion: Vancomycin is a rare drug to cause DIHS, but it is the most common antibiotic. This patient manifested with an AKI, elevated troponins, eosinophilia, and maculopapular rash. This case highlights the phenotype of vancomycin induced hypersensitivity syndrome as this has a high predilection for renal involvement. Prompt recognition of this syndrome is critical as it expedites proper treatment. High dose steroids with a slow taper and close monitoring of inflammatory markers (troponin and renal function in this case) are key. Unlike in anaphylaxis reactions, desensitization is not effective and may be dangerous.

29) ELEVATED BILE SALTS IN EARLY PREGNANCY

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Introduction:

Intrahepatic cholestasis of pregnancy (ICP) is the most common liver disease in pregnancy. ICP is characterized by new onset pruritis due to accumulated bile salts in the dermis and in over 80% of cases, presents in the third trimester. ICP is associated with increased risk of still birth. Here, we present a rare case of elevated bile salts presenting in the first trimester of pregnancy in a woman with prior liver disease.

Case: A 29 year old G1P0 with congenital subaortic stenosis with multiple valve repairs, on warfarin, and chronically elevated liver enzymes presents for worsening pruritis and elevated bile salts at 12 weeks gestation. The patient has had mild elevations in liver enzymes for over a decade. Extensive serologic and imaging investigation was unrevealing. Liver biopsy in one decade prior was negative. Repeat liver biopsy four years prior demonstrated significant ductopenia. She has remained stable on Ursodiol 300mg twice daily. Genetic testing was negative for Alagille Syndrome. She now complains of worsening pruritis in feet. Bile acids are 84. She is initiated on cholestyramine. Repeat Bile acids are 340. Ursodiol is increased to 600mg BID. Bile acids continue to remain >100umol/L despite medication management so plasma exchange is performed. 6 weeks post exchange, bile acids remain <100umol/L but elevated. Pruritis has improved. Patient remains at risk of still birth and timing of delivery is being coordinated by obstetrics colleagues.

Discussion: This case demonstrates risk mitigation in a woman with significantly elevated bile salts. Given her pre-existing liver disease and ductopenia, elevated bile salts in the first trimester likely do not represent ICP. However, with little data to support other diagnosis, management remained similar with bile salt reducing agents. Given the severity of elevation, plasma exchange benefitted this patient with gestation outcome unclear at the time of this writing.

30) NOT YOUR TYPICAL ABDOMINAL PAIN: RITUXIMAB INDUCED VASCULITIS FLARE

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Background: Mesenteric ischemia typically presents with diffuse abdominal pain. A CT without oral contrast often shows segmental wall thickening, intestinal pneumatosis, bowel dilation, or mesenteric stranding. Cryoglobulinemia refers to the presence of cryoglobulins, or Ig proteins in serum that can precipitate. Precipitation in small-medium sized vessels can cause end organ damage, known as cryoglobulinemia vasculitis. Here we present a case of mesenteric involvement of cryoglobulinemic vasculitis after rituximab infusion causing abdominal pain.

Case: A 59 year old male with history of cryoglobulinemia, cirrhosis, ESRD, on hemodialysis, HFrEF, diabetes, presented to the emergency department with one month of subacute abdominal pain and diarrhea which acutely worsened over several days. Four days prior to presentation, the patient was initiated on Rituximab IV for moderate-severe cryoglobulinemia causing ESRD. Physical exam noted jaundice, telangiectasias, dry mucous membranes, diffusely tender abdomen without rebound tenderness, ulcerations of shins and toes. Laboratory investigation significant for lipase >3000, Total bilirubin 5.1, Alk Phos 275, lactate 2.6. CT abdomen and pelvis showed circumferential thickening versus pseudo-thickening of the colon, without obstruction or pneumatosis. Lactate up-trended to 3.4. MRA of the abdomen to assess for vasculitis showed mostly patent, but atheromatous arteries, and an occluded inferior mesenteric artery. The patient was initiated on IV methylprednisolone and plasma exchange with rapid resolution of symptoms along with improvement in lactate and other lab values. General surgery was consulted but the patient avoided surgery after his ischemia quickly resolved.

Discussion: This case demonstrates organ involvement in cryoglobulinemia and a rare side effect of therapy. Organs involved often include skin (macules, pruritic papules, ulcers), arthralgias, nerves (neuropathy), and renal disease (glomerulonephritis). In less than 20% of cases the mesentery can be affected. Rituximab has been shown to increase remissions and reduce symptoms of cryoglobulinemic vasculitis. However, rarely, rituximab has also been associated with vasculitis flares.

31) RENAL CELL CARCINOMA: A TALE OF THE TONGUE

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Introduction: Renal Cell Carcinoma (RCC) accounts for 3-5% of all cancer diagnoses in adults, with over 50% of RCC cases diagnosed incidentally (1). Rarely, manifestations of RCC can occur as tongue metastases (2). Patients presenting with lesions of the tongue raise suspicion for primary or metastatic malignancy (3). This case highlights the necessity to investigate new onset tongue lesions for underlying malignancy.

Case Presentation: A 69-year-old male was admitted for diarrhea and syncope with anemia and a cervical spine fracture. During his hospitalization, the patient noted a “lump” on his superior left tongue that he had first noticed two months prior along with fatigue, appetite loss, tongue discomfort, and friability with oral intake. On physical exam, an 8 mm x 8 mm x 8 mm papule was noted on the tongue with central beefy red tissue and a circumscribed, light, fibrinous border which was non-tender and firm with no active bleeding or notable ulceration. The patient underwent a biopsy which showed tumor cells positive for PAX8 and CD10 and negative for p40, S100, p63, and RCC, consistent with metastatic RCC, favoring clear cell type. CT showed a multilobulated mass in the left kidney, pulmonary nodules concerning for metastasis, and adrenal gland mass lesions concerning for metastasis. MRI of the brain showed possible evidence of metastasis in clivus, C1, and C2 vertebral bodies. The tumor was staged at 4 with a goal of palliative care and a recommendation to begin chemotherapy.

Discussion: Although RCC is the third most common tumor to metastasize to the head and neck (4), we are aware of only 51 reported cases of tongue metastasis (3). Of those cases, only 7 include tongue metastasis as an initial presentation (3). To our knowledge, this case represents the 8th documented incidence of tongue metastasis as an initial RCC presentation.

32) WHEN THE CURE BECOMES THE CAUSE: 77-YEAR-OLD READMITTED FOR FEVER ON ANTIBIOTICS

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Introduction: Fever is a common chief complaint we encounter as inter-nists. We learn early in our training that the differential includes more than just infection. Even so, an extensive search for focal findings and broad-spectrum antibiotics are (rightly) our first steps when we encounter a sick and febrile patient. Most of the time, our efforts are rewarded with a quick clinical turn-around. However, sometimes the diagnosis is more elusive.

Case: A 77-year-old male with ESRD on peritoneal dialysis and hospitalization one month prior for great toe osteomyelitis c/b Strep bacteremia presented with fatigue, tachycardia, and fever of 101.8F. His toe did not appear infected on exam, however he had positive proximal bone cultures following amputation so there was concern for inadequate source control. Blood cultures were drawn, and cefepime was added to the Daptomycin he had still been taking as an outpatient. Despite this, he continued to have fevers for four days. During this time, extensive infectious workup was ongoing but remained negative. He became progressively more somnolent and had a new oxygen requirement, which was initially thought to be caused by hypervolemia. On hospital day five, CT abdomen/pelvis was obtained as his abdomen had not yet been imaged. There were ground glass opacities visualized at bilateral lung bases, which led the team to consider daptomycin-induced pneumonitis. Steroids were initiated, and he improved dramatically over the next 48 hours with no additional fevers.

Discussion: Daptomycin is known to cause myopathy, but it is also a common culprit of acute eosinophilic pneumonia. This poster aims to educate on the cause, presentation, and management of this little-known side effect.

33) A CASE OF TUBERCULOSIS MIMICKING PANCREATIC ADENOCARCINOMA IN AN IMMUNOCOMPETENT PATIENT

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Introduction: *Mycobacterium tuberculosis* is a “great mimicker” of medicine, and its fastidious nature adds an additional diagnostic challenge.

Case: A 76-year-old woman presented with weight loss, abdominal pain, fevers, and chills. Past medical history was significant for dilation of her biliary and pancreatic ducts 2 years prior, though endoscopic ultrasound at that time was negative for any masses. The patient immigrated to the U.S. from Nepal 6 years ago.

On exam, temperature was 39.4C and heart rate 143, with mild diffuse abdominal tenderness. Labs showed an elevated lipase and liver tests. CT imaging showed a pancreatic head mass with biliary and pancreatic duct dilation, retroperitoneal lymphadenopathy, a right middle lobe mass, pleural lesions, and right pleural effusion. CA19-9 was found to be >6680. A provisional diagnosis of sepsis from cholangitis and pancreatitis and suspected pancreatic adenocarcinoma was made. The patient was treated with fluids, antibiotics and ERCP with stent and improved. EUS-guided cytology showed atypical cells, but biopsy was negative for malignancy. An infra-mammary lymph node was biopsied showing necrotizing granuloma but no malignancy and negative AFB stain.

QuantiFERON-TB Gold was positive and HIV negative. Bronchoscopy with BAL and biopsy was performed and negative for AFB stain, culture and PCR, malignancy, or granulomas. A parietal pleura biopsy was performed, showing rare non-necrotizing granulomas. Blood, urine, and stool was sent for AFB culture. The patient was empirically started on RIPE therapy. Ultimately, only stool culture was positive for TB. With treatment she gained weight and normalized her CA19-9.

Discussion: *Mycobacterium tuberculosis* should be considered in the differential for patients with suspected malignancy and risk factors for TB. Only a few cases of TB mimicking pancreatic carcinoma have been described, most in the setting of HIV or other immunosuppression. The case reiterates the nonspecific nature of CA19-9 and the difficulty isolating TB.

34) COCAINE-INDUCED ACUTE ENCEPHALOPATHY IN PATIENT WITH ABSOLUTE CONTRAINDICATION TO BRAIN MRI

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Introduction: Brain damage induced by cocaine takes on many forms ranging from vessel effects including vasculitis and ischemic stroke to toxic effects such as encephalopathy. Two possible etiologies currently existing for cocaine-induced encephalopathy include *multifocal inflammatory leukoencephalopathy* associated with cocaine adulterant levamisole as well as *posterior reversible encephalopathy syndrome* secondary to cerebral blood flow dysregulation due to cocaine-induced vasospasms leading to vasogenic edema. We present a case of cocaine-induced encephalopathy complicated by absolute contraindications to brain MRI.

Case Presentation: A 50-year-old male with history of cocaine use and gunshot wound with bullet fragments in his shoulder presented to ED after being found down and was admitted with acute encephalopathy likely from polysubstance use versus seizure. UDS was positive for cocaine and marijuana. Patient has had past admissions for similar episodes of encephalopathy, which resolved with time and hydration. He was worked up for reversible causes of AMS. TSH, folate, B12, TEE and cEEG came back unremarkable. His thiamine levels remained pending throughout his stay. After four days of fluids without improvement, he was given treatment doses of thiamine, 500mg q8h. His mentation improved significantly the next day, and he was discharged home the following morning.

Discussion: One possible cause of cocaine-induced encephalopathy includes adulterant levamisole in cocaine that may result in multifocal inflammatory leukoencephalopathy. Due to the patient's bullet fragments, the inability to get brain MRI prevented further workup as CT findings are often benign. Additionally, prior literature has shown cocaine-induced posterior reversible encephalopathy syndrome resulting in altered mentation and neurologic deficits, but findings are unlikely to be seen on CT alone. Patient's improvement with thiamine may have been coincidental or could suggest Wernicke's encephalopathy. Ultimately, it is important to keep a broad differential in such cases where brain MRIs are unavailable to aid in final diagnosis and guide treatment.

35) REPEAT AORTIC VALVE REPLACEMENT IN A PATIENT WITH HIRSCHSPRUNG DISEASE AND BICUSPID AORTIC VALVE

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Introduction: Hirschsprung disease is a congenital disorder of aganglionosis of the enteric nervous system in the distal colon. Other commonly associated conditions range from genetic syndromes like Down syndrome to congenital deafness and congenital heart disease. This case outlines a patient with previously treated Hirschsprung disease presenting for repeat aortic valve replacement due to bicuspid aortic valve.

Case Presentation: A 53-year-old male with history of bicuspid aortic valve s/p bioprosthetic aortic valve replacement 13 years prior presented to cardiothoracic clinic for repeat aortic valve replacement. Other medical conditions included Hirschsprung disease s/p childhood surgical treatment, 30 pack-year smoking history, OSA, and hypertension. The patient was newly symptomatic with exertional dyspnea and fatigue, beginning two years prior. However, in recent months, he noted worsening of his symptoms. Notably, he was still able to complete activities of daily living without significant impairment. Ultimately, his valve was replaced, and he recovered in the ICU thereafter.

Discussion: Diagnosis of bicuspid aortic valve is made in 1–2% of the pediatric congenital heart disease population. Our patient was diagnosed with bicuspid aortic valve because of the need for surgical treatment of his Hirschsprung disease, though he did not develop symptoms until mid-adulthood. Although his Hirschsprung disease was successfully treated, concomitant congenital heart disease may pose additional risk for patients like him. For example, congenital heart disease may pose a surgical risk for children undergoing surgery of any type. Fortunately, no differences in long-term outcomes such as fecal incontinence were reported in post-operative Hirschsprung patients with versus without congenital heart disease. In conclusion, most patients with Hirschsprung disease have a relatively normal, symptom-free life following surgical treatment. Those with concomitant congenital heart anomalies may require additional surgeries to manage their cardiac disease, but typically are not at increased risk of malignancy compared to the general population.

36) LINGERING EFFECTS: HASHIMOTO'S ENCEPHALOPATHY

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Introduction: Hashimoto's Encephalopathy (HE) is a rare, poorly understood, immune-mediated disease characterized by neuropsychiatric symptoms, elevated anti-thyroid antibody titers, and rapid improvement following corticotherapy. We present a remitting course of HE, with numerous unresponsive episodes. Deficits two-years post-diagnosis are reported, contributing insight into lasting complications.

Case Presentation: A 49yo Caucasian male with ADHD and seasonal depression presented unresponsive. Family reported excessive sleep (20 hours/day) and viral pharyngitis prior to the episode. Workup was unremarkable, including imaging, labs, LP, and EEG. Antibiotics were initiated prior to LP. Patient showed spontaneous return of responsiveness, complicated by a psychotic episode with visual hallucinations. Patient discharged following improvement to baseline. Three days post-discharge, patient presented with recurrent gross non-responsiveness. Workup found elevated anti-TPO antibodies to 193 IU/ml (normal: <35 IU/ml) and transient 1Hz triphasic waves on continuous EEG, without evidence of PLEDs or electrographic seizures. Patient was diagnosed with HE and started on 3 days of 1g methylprednisolone, showing full resolution. Over the subsequent two weeks, the patient was readmitted for two additional unresponsive episodes, each with unremarkable workups, and a fifth admission for lethargy and weakness. Patient made steady improvements after the fifth admission. At 1-month post-discharge, patient resumed ADLs, but reported fatigue and emotionally labile episodes, including irritability and out of proportion emotional responses. At 6-months, patient reported forgetfulness and impaired concentration. At 1-year, patient returned to work at 25% capacity. At 2-years, patient reports rapid fatigue with activity, and impaired memory, focus, and processing speed.

Discussion: Between its rare nature, variable presentation, and lack of formal diagnostic criteria, HE is frequently missing from differentials, making it difficult to diagnose, if not mistaken for other diagnoses. Reports indicate lingering complications, though there is limited insight into true prevalence and presentation. We report cognitive deficits two-years post-diagnosis, contributing to the gap in literature.

37) CASE REPORT: FROM CONSTIPATION TO ACUTE KIDNEY INJURY

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Introduction: Enemas are commonly utilized interventions for individuals presenting to the emergency department (ED) with prolonged constipation. Rarely, enemas can cause serious- even life threatening- side effects¹. In this case, we discuss one such instance in which the use of a sodium phosphate enema (SPE) had disastrous consequences for the patient, inducing acute phosphate nephropathy (APhN) likely progressing to chronic kidney disease.

Case Presentation: An 87-year-old male with a history of GERD, BPH, colon polyps, constipation, and anemia arrived to the ED with constipation, lack of appetite, and slightly increased urinary frequency for 4 days. He was evaluated in the ED a week and a half prior for the same complaints at which time he was treated with a SPE and discharged home with laxatives.

Upon admission, lab workup showed he an acute kidney injury with creatinine (Cr) of 7.49 (baseline 1.2-1.4) and glomerular filtration rate (GFR) of 8.4 (baseline 57-59). His FeNA was 8.2% suggesting post-renal obstructive pathology. Urine anion gap was 11.6 suggesting renal tubular acidosis. Patient was diagnosed with APhN due to hyperphosphatemia and history of recent SPE. Labs were trended for several days and the patient was started on gentle hydration, kayexalate, and sevelamer. He was discharged with Cr of 5.61 and GFR 11.7 and scheduled for outpatient follow-up.

Discussion: It is well-established that oral sodium phosphate solutions (OSPs) and SPEs can lead to APhN¹⁻⁴. Although there are no specific treatments established for APhN, hemodialysis may be beneficial in treating the hyperphosphatemia if still present at the time of diagnosis. Complete recovery of the kidney is rare^{2,3}. This case corroborates current medical evidence and supports the assertion that, given the morbidity and mortality for patients at risk, the use of phosphate enemas should be highly discouraged in medical institutions across the USA.

38) HYPERGLYCEMIA INDUCED OSMOTIC DEMYELINATION SYNDROME IN A TYPE 2 DIABETIC WITH STABLE SERUM SODIUM

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Introduction: Osmotic demyelination syndrome (ODS) is well-known to occur in response to rapid correction of hyponatremia, typically in patients with initial serum sodium concentrations less than 120 mEq/L. In extremely rare scenarios, ODS may result from other serum osmolar abnormalities, in this case, chronic hyperglycemia.

Case Description: A 36 year old male with poorly controlled type 2 diabetes mellitus on metformin, insulin, and empagliflozin (A1c of 15.4%) presented to the emergency department with altered mental status. He reported nine days of unstable gait, dysarthric speech, anomia, confusion, and left lower extremity weakness. Vitals signs stable. Physical examination revealed left-sided weakness, slurred speech, and abnormal cerebellar testing. Head CT was negative for hemorrhagic stroke or other acute intracranial pathology. Lab workup demonstrated blood glucose (BG): 490, lactic acid: 3.7, bicarbonate: 24, and anion gap: 14. Serum sodium, corrected for BG: 141. Brain MRI showed an area of chronic left cerebellar ischemia, a new right cerebellar hemisphere area of ischemia, and hyperintensity on T2-weighted FLAIR images within the central pons suggestive of ODS. Throughout admission, blood glucose remained variable, but was responsive to increasing doses of basal and rapid-acting insulin, while serum sodium remained stable. Clinically, his mental status returned to baseline and his dysarthria and ataxia gradually and mildly improved over the course of his three-day admission, although he still could not walk independently at discharge and his speech remained slightly slurred.

Discussion: Only a handful of cases report ODS in patients with stable serum sodium and hyperglycemia; nearly all cases are associated with Hyperosmolar Hyperglycemic Syndrome or BG >600. The pathophysiologic mechanism is not clearly understood, but a possible explanation could be hypertonic insult to the pons resulting in astrocyte injury, disruption of the astrocyte-oligodendrocyte network, and cell death. This case illustrates that lower levels of hyperglycemia can rarely cause ODS.

39) WEIGHT-LOSS SUPPLEMENT INDUCED NSTEMI IN THE SETTING OF FRIEDREICH'S ATAXIA CARDIOMYOPATHY

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Introduction: Friedreich's ataxia (FA) is an autosomal recessive disease caused by a trinucleotide repeat in the FXN gene, which codes for the mitochondrial protein frataxin. This causes gene silencing and decreased production. Frataxin incorporates iron cofactors into iron sulfur clusters which are involved in electron transfer and mitochondrial ATP production, which decreases when frataxin levels are low. Cells with low frataxin develop oxidative damage to DNA in nerve cells, pancreatic beta cells, and cardiac myocytes leading to ataxia, diabetes mellitus, and cardiac complications including hypertrophic cardiomyopathy.

Case Description: 31-year-old female with FA and cardiomyopathy presented to the ED with palpitations, dyspnea, myalgias, diaphoresis, and anxiety after taking a Canadian weight-loss supplement for 7 days. She denied chest pain. Poison control determined the active ingredient to be 2,4-dinitrophenol. Vitals: BP 142/100, HR 120, temp 98.2F. Physical exam: tachycardia, skin erythema, and anxious mood. EKG: Sinus tachycardia and lateral lead T wave inversions. CT was negative for pulmonary embolus. Troponin: 2,369 (initial) -> 4,580 (peak). Negative toxicology. Normal lactic acid, CK, metabolic panel. Despite elevated troponin, Cardiology advised against typical NSTEMI treatment with IV heparin given low likelihood of plaque rupture induced ischemic event. The likely cause was demand ischemia, supported by lack of chest pain, mild troponin elevation, and echocardiogram without ischemic changes. She was given supportive care, cardiac monitoring, aspirin 324mg, metoprolol, and acetaminophen, and had relief of symptoms after a few days.

Discussion: Given that patients with FA can have an elevated baseline troponin and already have mitochondrial dysfunction given low frataxin levels, the 2,4-dinitrophenol would impact her fragile FA cardiomyocytes further as it uncouples mitochondrial phosphorylation leading to increased metabolic rate, cellular hyperthermia, and can precipitate cellular death. With this mechanism of action, it is not surprising she developed a type II NSTEMI with higher-than-expected troponin.

40) PYODERMA GANGRENOSUM FOLLOWING INTRAMEDULLARY NAILING OF A CLOSED TIBIA FRACTURE

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This case report describes the presentation, diagnosis, and treatment, of closed tibia and fibula fractures that resulted in an eventual lower extremity amputation due to complications caused by Pyoderma Gangrenosum. The patient was a 53-year-old female who sustained closed tibia and fibula fractures after a fall and underwent routine intramedullary nailing. Postoperatively, poor wound healing was observed, and the patient developed a fever, an elevated white blood cell count, and serosanguinous drainage from her incisions. She was brought back urgently for irrigation and debridement and was started on broad spectrum antibiotics for presumed infection. Cultures and infectious workup remained negative, and the patient deteriorated. The diagnosis of Pyoderma Gangrenosum was made following these negative results. Ultimately, the patient had sustained extensive soft tissue loss and later elected for lower extremity amputation. Pyoderma Gangrenosum is a rare diagnosis and can present after trauma and surgical procedures. In the post operative setting, it is extremely difficult to differentiate aggressive post-operative infections from Pyoderma Gangrenosum as well as other surgical complications. This case highlights the challenges making this diagnosis as well as the key features of treatment of this often devastating disease.

41) A CASE OF MIGRATORY POLYARTHRITIS

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Introduction: Staphylococcus aureus septic arthritis is a debilitating condition with high mortality, that requires prompt recognition and treatment. It may present as polyarticular joint disease, with features overlapping with several rheumatological conditions.

Case: A 64-year-old female with no significant past medical history presented to the ED with multiple joint pains, myalgia, and fatigue for two weeks. She had pain in her neck, both shoulders, coccyx, lower back, and right ankle. In addition, she had diffuse myalgia and subjective proximal muscle weakness, subjective chills, night sweats, dry mouth, anorexia, and dysphagia to solids. Her physical examination showed normal vital signs, diffuse excoriations of her face and bilateral upper extremities, and tenderness at multiple joints. Labs showed elevated white cell count 21.3, ESR 58, and CRP 25.1, and hypercalcemia, with normal SPEP, vitamin D, and parathyroid hormone levels. She tested negative for syphilis, HIV, borrelia, Hepatitis B, and C and had a normal creatinine kinase (CK). Blood cultures grew methicillin-sensitive staph aureus (MSSA) in 10hrs. Her imaging was notable for bilateral shoulder effusions, left SC joint inflammation, a rim-enhancing fluid collection of the L sternocleidomastoid muscle, bilateral sacroiliac joint arthritis, enhancement of the C3-C4 facet joints and L5-S1 1.4cm epidural abscess. A transesophageal echocardiogram (TEE) showed no valvular vegetations. She was treated with intravenous vancomycin, cefazolin, and oxacillin. She underwent washout and debridement of affected joints.

Discussion: This case illustrates an uncommon presentation of staphylococcus aureus septic arthritis, which presents as monoarticular arthritis in 80-90% of cases. For patients presenting with multiple joint pains, myalgia, fatigue, and elevated inflammatory markers, differential diagnoses include infectious arthritis, crystal arthritis as well as rheumatologic conditions. Patients may however not have obvious risk factors and classical presentation, associated with a septic joint as seen in this case.

42) CANDIDA ENDOPTHALMITIS IN A PATIENT RECEIVING HEMODIALYSIS

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Introduction: Endophthalmitis is a severe infection of the vitreous humor and is a medical emergency, often leading to permanent loss of vision.(1) Most often, it is the result of exogenous insults such as ocular surgery or penetrating trauma. Endogenous endophthalmitis, or the hematogenous seeding of the eye, is caused by *Candida Albicans* in the setting of fungemia.(2) Risk factors for its development include IV drug use, broad spectrum antibiotics, and central venous catheters.(3)(4)

Case: A 68 y/o male with a history of end-stage renal disease on hemodialysis and left enucleation was transferred to FMLH from an outside hospital where he presented for back pain, fevers, and weakness. Initial workup was significant for blood cultures and lumbar spinal biopsy positive for *C. Albicans*. He was started on Caspofungin with initial improvement of his symptoms. However, he developed rapid loss of vision in his right eye and was transferred to FMLH. On examination, his right eye was injected, visual acuity was 20/200, and dilated fundus exam was concerning for chorioretinal lesions and vitreal debris, consistent with *Candida* endophthalmitis. Infectious Disease was consulted and the patient was switched to Fluconazole and underwent intravitreal Voriconazole injections. Unfortunately, his vision loss continued to progress, and he underwent vitrectomy followed by intraocular injection of voriconazole, vancomycin, and ceftazidime. His exam subsequently returned to baseline, with resolution of his chorioretinal lesions and vitreal clouding.

Discussion: *Candida* Endophthalmitis is rare, only affecting 2.8% of patients with candidemia.(5) It can be diagnostically challenging, as initially endophthalmitis may be minimally symptomatic and not noticed until profound vision loss occurs.(5) Treatment should be with either Fluconazole or Voriconazole, as they reach high concentrations in the ocular compartment.(6) Caspofungin, while effective in treating candidemia, has a limited ability to penetrate the ocular space and its initial use in this case might have caused progression of our patient's ocular disease.(7)

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43) A CASE OF SEVERE SYMPTOMATIC ANEMIA

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Introduction: Anemia is common in adult females, with many causes. Diagnosis and management can be complex and challenging. Hemoglobin less than 3.0 is rarely seen in ambulatory patients, and the lowest value documented in a patient not receiving cardiac support or supplemental oxygen is 1.4 (2).

Case: This patient is a 44yo Female with no known PMHx who presented to the ED with SOB and leg swelling. Symptoms began gradually 12 weeks prior, when her boss told her she seemed “lazy” and was walking slower. She noticed fatigue and DOE thereafter. 5 weeks before admission, she saw her PCP for worsening SOB and was diagnosed with bronchitis and given albuterol. She was also given furosemide for leg swelling. Her symptoms worsened despite treatment. She had not menstruated for several months and was not sexually active. She denied hemoptysis, hematemesis, melena, rectal bleeding, and other bleeding. Her body weight was 272lbs, up from 243lbs at her office visit 5 weeks prior. In the ED, her Hg/Hematocrit was 1.9/8%, with MCV of 76. Iron was 13mcg/dL (nl 37-145), and reticulocytes 4.3%. She recalled being told she had anemia 30 years prior; however, no details were available. She did not see a doctor regularly and had no prior labs. TTE showed preserved EF and severe tricuspid regurgitation. She was given 5 units of pRBC’s and her H/H improved to 7.7/25% after 2 days. After aggressive diuresis for several days, her body weight decreased to 216lbs, and her fatigue and dyspnea improved. She was discharged in improved condition with planned heme, GI, and Gyn appointments, but was subsequently lost to follow-up.

Discussion: This case represented a remarkably low hemoglobin in a patient who arrived ambulatory to the ED. While the etiology is still unknown, it exemplifies the workup and treatment of severe, symptomatic anemia.

44) VITAMIN B12 DEFICIENCY AS UNEXPECTED CAUSE OF HEMOLYTIC ANEMIA AND ATYPICAL PRESENTATION OF HEPATOCELLULAR CARCINOMA

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Introduction: Hemolytic anemia is an often life-threatening condition of accelerated red blood cell turnover. Most hemolysis cases involve external triggers, autoimmunity, or intrinsic red blood cell defects but severe B12 deficiency can mimic acute hemolysis.

Case Presentation: A 53-year-old female presented to her primary care provider with 4 weeks of progressive exertional dyspnea, lower abdominal pain and intermittent lightheadedness. Clinic labs showed a hemoglobin of 5.7 g/dL and the patient was admitted to the hospital for further work up. The physical exam was notable for tachycardia, pallor, and lower abdominal tenderness without clinical signs of bleeding. Additional labs showed leukocytosis (11.2 K/ μ L), thrombocytopenia (94 K/ μ L), undetectable haptoglobin, and LDH 4,233 units/L, but normal bilirubin. MCV was 135, and reticulocyte count was 2.7% with a low reticulocyte index. Iron stores were adequate. Direct Coombs test was negative, but B12 returned at 84 pg/mL (211-911). Due to concerns for intraabdominal bleeding, an abdominal imaging was obtained which showed a 16 by 14 cm exophytic mass extending inferiorly off the left hepatic lobe. Parietal cell antibody was positive with a titer of 1:80. While AFP was negative, biopsy of the mass was positive for hepatocellular carcinoma. The patient was supplemented with B12 and her hemoglobin slowly recovered.

Discussion: B12 deficiency is a rare cause of hemolysis that should be included in a clinician's differential diagnosis as treatment is extremely effective and unique among causes of hemolytic anemia. In our patient's case, the elevation in MCV, clear hemolysis with reduced haptoglobin and high LDH but with lack of bilirubin elevation hinted toward bone marrow hypoproliferation of red blood cells and the ultimate diagnosis of pernicious anemia. Interestingly her anemia workup led to the diagnosis of hepatocellular carcinoma, one of the malignancies that are associated with individuals with pernicious anemia.

45) *GEMELLA MORBILLORUM* AS A CAUSE OF LUMBAR SPONDYLODISCITIS IN AN IMMUNOCOMPETENT PATIENT: CASE REPORT AND REVIEW OF THE LITERATURE

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Gemella morbillorum (formerly *Streptococcus morbillorum*) is a facultative anaerobic gram-positive coccus that is normally present in the oral cavity and gastrointestinal tract. Infection with *G. morbillorum* is rare, but case reports have been published implicating this organism most commonly as a causative agent of endocarditis, but cases of meningitis, osteomyelitis, septic arthritis, and liver abscess have been published. As an opportunistic organism, *G. morbillorum* typically causes pathology in patients with an immunocompromised state or other predisposing factors. Currently, only 4 known cases of *G. morbillorum* diskitis have been reported in the literature. We describe a case of *G. morbillorum* diskitis following odontologic procedure in an otherwise immunocompetent 87 year old patient. This article will provide recommendations for diagnosis and management with literature review for patients with *G. morbillorum* diskitis.

Take-home points:

Gemella morbillorum is a rare cause of diskitis following odontologic procedure in both immunocompromised and immunocompetent patients.

1. *Gemella morbillorum* may cause diskitis in an immunocompetent host which presents with fever, elevated inflammatory markers, and back pain. MRI is the best imaging modality suspected diskitis.
2. Infection with *Gemella morbillorum* warrants further workup including TEE, colonoscopy, and evaluation of dentition
3. *Gemella morbillorum* is typically sensitive to Beta-lactam antibiotics, but cephalosporins and carbapenems also cover cases of Beta-lactam resistance. Sensitivity testing should be pursued if *Gemella morbillorum* is suspected.

46) RECTAL SYPHILIS

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In the US, in 2018, primary and secondary syphilis cases were reported to be 10.8 cases per 100,000 people. Syphilis is commonly associated with risky sexual behaviors. Rectal syphilis is a rare manifestation of the disease which often gets confused with rectal cancer. Although it is rare, it can be common in certain high risk groups; such as, men who have sex with men. Here, we present a rare case of rectal syphilis in a patient with a prior history of sexually transmitted disease.

A 56-year-old man presented with a three-month history of diarrhea. Diarrhea was associated with pelvic fullness, difficulty urinating, rectal pain, tenesmus, night sweats, early satiety, 13lb weight loss, and streaks of blood in the stool. On physical examination, there was right upper quadrant tenderness. An enlarged prostate and multiple indurated areas were palpated on digital rectal exam. Laboratory findings showed c- reactive protein (CRP): 2.9. Otherwise, slight deviations in cell counts, liver function test and metabolic panel. Computed tomography (CT) of the abdomen and pelvis showed a mid-rectal circumferential lesion. Colonoscopy exhibited an ulcerated, non-obstructing distal rectal mass less than 10cm in length and involved about half of the luminal circumference. Biopsy of the rectal mass showed evidence of chronic inflammation, active granulation tissue, and numerous spirochete bacteria. Based on the patient's history, laboratory, colonoscopy, and pathologic findings, a diagnosis of rectal syphilis was made. On follow-up evaluation, patient's liver function improved, and Rapid plasma regain (RPR) titer of 1:512, negative six months ago.

Rectal syphilis requires a high level of clinical suspicion to diagnose as it is a rare disease. In the US, the USPSTF recommends routine screening of individuals at higher risk regardless of being asymptomatic. It is imperative to gather a thorough sexual history, diagnose and initiate prompt treatment to avoid dreadful outcomes.

47) AN UNUSUAL CASE OF ACUTE RENAL FAILURE

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Oxalate induced nephropathy is rarely encountered in a clinical setting, however, it remains an important diagnosis for patients presenting with acute renal failure. The unlikely presence of this form of kidney injury may leave physicians with more questions than answers when gathering important history and laboratory studies.

A 53-year-old woman presented with three weeks of increasing fatigue and easy bruising. She also noted abdominal discomfort and a “metallic taste” in her mouth. Physical exam was largely unremarkable. Initial laboratory work-up revealed acute renal failure with uremia to 145 and creatinine of 14. The urinalysis was largely unremarkable except for elevated urine protein/creatinine ratio and FeNa of 10%. Renal ultrasound revealed a severely atrophic right kidney and a severely echogenic left kidney. A native kidney biopsy was performed to elucidate the underlying etiology and inform further treatment. Biopsy revealed oxalate crystals consistent with oxalate induced nephropathy, the underlying etiology of this patient’s renal disease. Upon further questioning, the patient revealed she had been unknowingly eating several oxalate rich foods in an effort to maintain a healthy diet. The patient was treated with hemodialysis and had notable symptomatic improvement. The patient remained stable with improved laboratory findings from admission and was discharged from the hospital with a plan for continued dialysis and close outpatient monitoring.

This case illustrates a rare but significant cause of acute renal failure due to oxalate induced nephropathy. While this diagnosis may be uncommon in a patient presenting in acute renal failure, this case demonstrates the importance of thorough history taking, specifically including dietary and social habits, as well as the value of a thorough medical work-up to determine the etiology of insult. Recognition of this etiology of kidney disease is important when constructing a thoughtful and broad differential diagnosis.

48) FEMORAL HEAD OSTEOCHONDritis DISSECANS IN A CHILD

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This case report describes a 12-year-old boy with an osteochondritis dissecans (OCD) lesion of the left femoral head secondary to significant acetabular dysplasia and coxa valga of the proximal femur. The mechanism of injury likely resulted from continuous edge loading and shearing forces between the femoral head and acetabulum, due to his dysplasia and coxa valga. Addressing the initial subluxation with the varus osteotomy and internal fixation was necessary to allow the OCD defect to heal and help prevent premature onset of osteoarthritis. Three months post-operation the patient demonstrated a positive outcome with radiographic healing of his osteotomy and femoral head OCD lesion. To address the acetabular dysplasia and prevent recurrence of his OCD and early hip degeneration, a periacetabular osteotomy procedure following triradiate cartilage closure is planned. The aim of this case report is to support clinicians in the assessment and treatment of this rare condition.

49) THERE MUST BE SOMETHING IN THE WATER: A CASE OF LEGIONNAIRES' DISEASE

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Introduction: The incidence of Legionnaires' Disease in the United States has increased nine-fold since 2000. It is thought to be widely under-recognized and requires early recognition, as it can be fatal and treatment differs from standard community acquired pneumonia therapy.

Case Presentation: A 59-year-old male with hypertension, tobacco use disorder, and Type 1 Diabetes Mellitus presented after he was found confused and in respiratory distress on the floor of his hotel room. Initial history was limited by altered mentation, however later history revealed the patient was visiting from another state, living in an extended stay hotel, spent most of his time outdoors, and had recently cleaned his family's hot tub. Initial vitals showed temperature of 100.1°F, BP 195/100, HR 124, and SpO2 82% on room air. He was stabilized and brought to a local ED, where exam showed altered mentation, diaphoresis, and rhonchi in the left upper lobe. Labs demonstrated WBC of 12.9, creatinine kinase 4239, creatinine 1.0, sodium 124, and troponin 0.15. Imaging demonstrated left upper lobe consolidation. He developed progressive respiratory failure and was intubated. Due to rising troponin and EKG changes, he was transferred to our tertiary care center for percutaneous coronary intervention, after which he was transferred to the ICU. After further history was obtained, Legionella urine antigen and Legionella Pneumophila PCR were sent and both were positive. He was treated with IV levofloxacin in consultation with Infectious Disease. Unfortunately, he developed progressive septic shock, oliguric acute kidney injury requiring dialysis, a hemodynamically significant pericardial effusion and severe hypertriglyceridemia to 2,473 requiring emergent plasmapheresis, and ultimately passed from multiorgan failure.

Discussion: Legionella has a wide breadth of presentations and can rarely cause extra-pulmonary manifestations of disease. In severe cases, there is a 10-30% reported mortality risk and clinicians should be aware of its rising incidence.

50) CMV IN A PATIENT WITH PROGRESSIVE PNEUMONITIS: BYSTANDER OR CULPRIT?

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The diagnosis of cytomegalovirus (CMV) pneumonitis in transplant patients is clearly delineated, but in other immunosuppressed populations, the diagnostic value of pulmonary CMV is less clear. A 61-year-old female with a history of rheumatoid arthritis, dermatomyositis/polymyositis, Graves' disease, and diabetes mellitus presented to the emergency department with four months of progressive dyspnea and cough. She was not on any immunosuppressive treatment. CT lung imaging showed groundglass and airspace opacities in lower lungs with hilar lymphadenopathy. Workup for bacterial and fungal pneumonia was negative, and as the patient declined bronchoscopy, she was started on an empiric course of high-dose prednisone, which led to improvement. She was discharged home on supplemental oxygen. She returned one week later with worsening respiratory symptoms and hypoxia. Repeat CT imaging showed progression of alveolar and groundglass opacities to upper lobes. She had only mild neutrophil-predominant leukocytosis. Workup for vasculitides and viral pathogens was negative. Nine days later, she developed rapidly worsening respiratory distress requiring intubation, at which point she became febrile to 102.6 Fahrenheit and hypotensive requiring pressor support. She was started on broad-spectrum antibiotics. Bronchoscopy was performed and CMV NAAT from bronchoalveolar lavage (BAL) samples was positive. A quantitative plasma CMV showed 97,800 IU per mL, and she was started on intravenous ganciclovir. Weekly titers of plasma CMV DNA continued to decline with treatment until they were undetectable and a 2-week course of ganciclovir/valganciclovir was completed. She was successfully extubated and continued on a prolonged prednisone taper for interstitial fibrosing lung disease. Though CMV pneumonitis is less common in non-transplant populations, treating it may be critical to limit the damage of concomitant inflammatory processes. This patient unfortunately declined lung biopsy, which may have provided more definitive evidence. Failure to respond to initial therapy should increase suspicions that shed virus is more than an innocent bystander.

51) A CASE OF ADRENOCORTICAL CARCINOMA WITH HYPOKALEMIA

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Introduction: Adrenocortical carcinoma (ACC) is an ultra-rare disease characterized by malignant cells clustering on the outer layer of the adrenal glands. Symptoms range from feelings of abdominal fullness to muscle loss. Here we present the rare case of ACC with hypokalemia.

Case Presentation: A 44-year-old Hispanic female patient with a history of type 2 diabetes mellitus and pancreatic cancer presented with hypertension, weakness, and reduced visual acuity. CT scan illuminated a right adrenal neoplasm with invasion into the right hepatic lobe, enlarged neighboring lymph nodes and a retroperitoneal hematoma. The adrenocortical neoplasm displayed indolent growth over the previous 15 years. Lab values displayed elevated DHEA sulfate (561 µg/dL), undetectable ACTH, decreased potassium (3.2 mEq/L), and elevated glucose (337 mg/dL).

A periaortic lymph node biopsy stained positive for MART-1, inhibin, calretinin, and synaptophysin. Following biopsy, the patient felt nauseous, lightheaded, and indicated lower back pain. Decreased potassium (2 mEq/L) and blood pressure (100/59 mm Hg) prompted admission. Osilodrostat, Bactrim, and Spironolactone treatment was initiated. Throughout treatment, onset of a papular rash throughout the upper body and lower extremity edema was observed. The patient's malignancy necessitated usage of chemotherapy over surgery. Patient was transferred to the ICU to receive Doxorubicin/Etoposide/Cisplatin. As a result, Hemoglobin levels briefly decreased to 5.9g/dL leading to a full code resulting in blood transfusion. Neulasta was added soon after. Altered mental status and urinary tract infection were also noted. Patient was discharged 18 days following admission.

Discussion: Here is a case of ACC with hypokalemia that remained untouched for 15 years. Commonly arising sporadically, ACC is distinguished by their large size with irregular margins, aggressive invasiveness, and metastases to distant organs. Many patients present with symptoms of hormonal excess, and in this instance hypokalemia with hypotension, a rare combination, was noted. We hope to bring awareness to this rare presentation of ACC.

52) A CASE OF POLYMICROBIAL SEPTIC SHOCK ALONGSIDE A *KLEBSIELLA PNEUMONIAE* INFECTION WITH NEW DELHI METALLO BETA LACTAMASE NAAT

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Introduction: *Klebsiella pneumoniae*, as a nosocomial opportunistic pathogen, has recently developed a New Delhi Metallo Beta Lactamase (NDM-1) antibiotic resistant mutation. NDM-1 can hydrolyze all beta lactamase drugs except monobactams and easily transfer horizontally among bacterial pathogens. Here we present the case of septic shock with NDM-1 in an urban hospital center.

Case Presentation: A 41-year-old male with a history of quadriplegia, intravenous drug use, and chronic osteomyelitis presented with shortness of breath. Chest x-ray demonstrated bilateral interstitial opacities and severe mucus plugging associated with possible pneumonia was noted. Patient was put on a mechanical ventilator. Vital signs included decreased blood pressure (104/55 mm Hg) and elevated temperature (102.7 F). Blood cultures tested positive for *Staphylococcus Epidermidis* and Vancomycin Resistant *Enterococci* was discovered in both blood and urine cultures. Sputum culture was positive for multi-drug resistant *Pseudomonas*. Antibiotic therapy consisting of Linezolid, and Ceftolozane-Tazobactam was initiated. A bevy of opioids managed the pain stemming from the osteomyelitis. A week after admission, sodium levels plunged to 122 mEq/L due to adrenal insufficiency. Blood cultures taken two and a half weeks after admission revealed NDM-1 harboring *Klebsiella pneumoniae*. Patient noted reduced feelings of sensation below the nipple line. Aztreonam and Ceftazidime/Avibactam therapy were added. NDM-1 infection was suspected to originate from wound translocation. Patient supported prolonged treatment. Repeated episodes of fever, hyponatremia, and depressed hemoglobin levels below 8g/dL were noted. Patient was admitted for over two months.

Discussion:

NDM-1 producing *Enterobacteriaceae* is abundant in Southeast Asia but can now be found in many parts of the world due to international travel. The global spread of *Enterobacteriaceae* NDM-1 is alarming because of the antibiotic resistance mechanism of these bacteria. Currently there are few antibiotics being developed for Gram-negative bacteria. As this bacterium continues to spread, clinicians will require greater options to treat common infections.

53) BICYTOPENIA RESULTING FROM COVID-19 “PROPHYLAXIS”

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Introduction: The initial presentation of cytopenias can have a broad range of differentials, ranging from autoimmune causes, malignancies, infections and nutritional deficiencies. Herein, we present a case of a 47 year old female who presented with anemia and leukopenia. Diagnostic work-up with bone marrow biopsy revealed findings consistent with zinc toxicity, caused by high dose daily oral supplements which she took for a peculiar reason. Despite pathological findings of zinc toxicity, the patient had normal levels of serum zinc. We aim to explore the mechanism in which zinc toxicity can lead to cytopenias and the reasoning for this toxicity despite normal serum levels of zinc.

Case Description: The patient is a 47-year-old female who first presented with generalized weakness. She had a history of Roux en Y gastric bypass in 2012. CBC revealed new-onset anemia (Hgb-8.6 g/dl) and leukopenia (WBC- $1.1 \times 10^3/\mu\text{L}$). Diagnostic workup was negative for infectious, malignant and autoimmune causes. A bone marrow biopsy was consistent with copper deficiency. It was later revealed that the patient was taking daily zinc supplementations as a prophylactic over the counter measure for COVID-19. Thus zinc induced copper deficiency was diagnosed. Serum studies revealed significant copper deficiency but normal serum zinc levels. 6 weeks after copper supplementation, her cytopenias were fully resolved.

Discussion: Copper plays an important role in hematopoiesis, and its deficiency can result various cytopenias [1]. Zinc toxicity can result in copper deficiencies through metallothionein overexpression within gastrointestinal enterocytes. These metallothioneins cause sequestration of copper within enterocytes [2]. This results in limited copper absorption and deficiencies. In our patient, despite findings of zinc induced copper deficiency, we see that the serum zinc levels were in normal range. This could be explained by the short elimination half-life of zinc [3]. This can lead to correction of high serum zinc levels in a relatively short time frame.

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54) RECURRENT ISCHEMIC STROKE IN A MIDDLE-AGED MALE: RAISING CLINICAL SUSPICION FOR PRIMARY ANGITIS OF THE CENTRAL NERVOUS SYSTEM

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Primary angitis of the central nervous system (PACNS) is a rare disease that is often missed at initial presentation due to clinical mimicry of other disease processes and lack of high clinical suspicion. In order to correctly identify the diagnosis, it is important to recognize the epidemiology and early clinical signs of PACNS to prompt pursuit of the appropriate evaluation. MH is a 40-year-old male with a history of known prior CVA events and hypertension who initially presented with altered mentation and acute onset of worsened R sided weakness. Upon arrival, CT of the head without contrast was obtained and did not reveal any acute changes; further imaging was not pursued as the etiology of the initial presentation was thought to be infections versus seizure-related. MH had no improvement with anti-epileptic medications, and additional history revealed that R sided deficits were significantly changed from baseline and persistent slurred speech was a indeed a new symptom. He subsequently had immediate MRI imaging, which demonstrated new basal ganglia ischemic stroke, and follow up MRA revealed adjacent abnormal arterial vessel wall caliber. Thorough workup for systemic vasculitis disorders as well as primary central nervous system infections were obtained and negative, ultimately raising concern for PACNS. He was started on prolonged steroid course as well as cyclophosphamide infusions with improvement in his symptoms. In conclusion, recurrent focal neurological deficits in a young or middle-aged male without significant cardiovascular risk factors raises concern for PACNS and warrants consideration of additional rheumatologic and neurologic workup to prevent a delay in not only diagnosis but also appropriate therapeutic management.

55) AN UNUSUAL PRESENTATION OF DISSEMINATED NOCARDIA

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Introduction: *Nocardia* typically appears under microscope as a gram-positive filamentous branching rod that stains acid fast. [1] *Nocardia* species is commonly found in soil, decaying vegetable matter, or water-prevalent regions. [2] The manifestation of disease can vary from a simple cutaneous infection to disseminated pulmonary and/or central nervous system disease. Although *Nocardia* typically affects immunocompromised patients, it is important to consider *Nocardia* infection in immunocompetent patients as well.

Case: A 71-year-old male presented with several chronic conditions leaving him in an immunocompromised state. Patient was initially treated for skin scabbing and CT chest revealing a right middle lobe consolidation with Doxycycline. Several weeks later he was admitted to the ICU in septic shock with imaging revealing a 5cm left psoas abscess. After starting broad spectrum antibiotics, the culture returned positive for *Nocardia*. Antibiotics were escalated to Imipenem/Cilastin and Bactrim, as the patient became altered from dissemination to the brain. Due to the patient's significant deterioration, in addition to his comorbid conditions, the patient and his family elected to pursue comfort care.

Discussion: *Nocardia* is a rare disease that can cause localized or systemic infection. Microscopic identification via culture provides a definitive diagnosis of *Nocardia*; however, acid-fast stains and gram stains provide rapid diagnosis while waiting for conclusive results. [3] *Nocardia* exhibits variable antibiotic susceptibility; therefore, treatment outcomes are impacted by genus identification. [4] This is complete through molecular techniques, such as PCR. Trimethoprim-sulfamethoxazole (TMP-SMX) is the most commonly used agent in *Nocardia* treatment. Early detection and treatment of *Nocardia* can prevent morbidity and mortality.

56) CASE REPORT: PERICARDIAL WINDOW FOR THE ASSESSMENT OF EMERGENT PERICARDIAL EFFUSION IN A STAB WOUND TO THE CARDIAC BOX

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Introduction: Penetrating chest trauma is the cause of death in 25% of trauma cases, with cardiac tamponade posing a large concern [1]. If there is suspicion for hemopericardium, median sternotomy and thoracotomy can be utilized for diagnosis and treatment; however, these procedures are highly invasive. Thus, if patients are hemodynamically stable and active hemorrhage is not suspected, formation of a pericardial window can be a potentially useful therapeutic approach [4].

Case Presentation: 36-year-old male with no significant past medical history significant, presented to the trauma bay with a stab wound to the right cardiac box. The patient arrived with ABC's intact and GCS of 15. He received three units of packed RBCs due to hypotension, a right sided chest tube was placed in the ED with 750ml of sanguineous fluid initially evacuated. Patient was taken emergently to the OR for an exploratory left thoracotomy and ligation of right internal mammary artery. The sternum was retracted and xiphoid was excised as the pericardium was grasped. A small incision was made in the pericardium to form a subxiphoid pericardial window; however, the results were negative. The chest was irrigated, and the thoracotomy was closed. Post operatively, the patient was admitted to the SICU for monitoring.

Discussion: Pericardial window (PW) can be utilized for concern of active bleeding or blood clots in the pericardium. The procedure entails incision into the pericardial sac and is reported to yield 92% sensitivity and 96% specificity [2]. Positive PW is indicated by the presence of blood once the window is created. Outcomes are primarily positive, with a 2014 randomized control trial demonstrating no increase in mortality and a shorter ICU course post subxiphoid PW and drainage in stable patients with hemopericardium after penetrating chest trauma [3]. However, sternotomy and thoracotomy remain as primary intervention for active hemorrhage or hemodynamic instability.

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57) HSV-1 MENINGOENCEPHALITIS DISGUISED AS RHABDOMYOLYSIS

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Herpes Simplex Virus Type 1 (HSV-1) encephalitis is the most common cause of sporadic fatal encephalitis worldwide with most survivors having lasting deficits. Thus the early detection and treatment of HSV-1 encephalitis is of the utmost importance.

A 41 Y male presented with weakness, confusion, and fatigue. He was afebrile at 99.6 with normal vital signs. Physical exam was unremarkable. The patient was lethargic with word-finding difficulties. Lab abnormalities included creatinine of 1.48 (baseline ~1), WBC elevated to 14.5, CK of 59,542, and UA with blood but no RBCs. CT head, abdomen, pelvis, and RUQ US were all unremarkable. The patient was admitted for rhabdomyolysis with prominently aphasic altered mental status.

Overnight, the patient became febrile to 103.3, empiric antibiotics were initiated. A lumbar puncture was obtained and whilst awaiting results, IV acyclovir was started. Biofire returned positive for HSV-1.

It was hypothesized that an unwitnessed seizure had caused rhabdomyolysis and thus Neurology was consulted. MRI of the brain demonstrated FLAIR signal within the left temporal lobe. The patient was started on prophylactic Keppra. Continuous EEG demonstrated focal slowing in the left temporal region though no seizure activity.

Despite the IV acyclovir, the patient remained clinically stagnant. While rare, there have been cases of concurrent HSV and NMDA autoimmune encephalitis. CSF fluid was sent for autoimmune studies and empiric IVIG was initiated. The autoimmune panel resulted negative, suggesting the observed course was due to HSV encephalitis alone.

The patient exhibited gradual improvement and was discharged to a family home. The patient has since returned to work and performs all activities of daily living. He continues to have some difficulties with memory and word-finding.

This case demonstrates HSV meningoencephalitis presenting as rhabdomyolysis and altered mental status. With this, a success story of detection and treatment of a fatal and devastating disease.

58) SPONTANEOUS HEMATOMA WITH AN UNCLEAR ETIOLOGY

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Introduction: Hemophilia A is an X-linked recessive coagulation disorder that is characterized by a deficiency of functioning factor VIII. Here we present a patient with acquired hemophilia A with an unclear etiology.

Case Presentation: A 74-year-old male with a past medical history significant for hypertension, hyperlipidemia, atrial fibrillation, and coronary artery disease presented with acute blood loss due to a hematoma in the right piriformis and gluteus medius muscles. The patient initially experienced spontaneous, sudden-onset pain in his right lower extremity, accompanied by stiffness and a shooting sensation. Within a day of onset, patient experienced increasing severity of pain and was unable to ambulate. Upon evaluation, he was found to be severely anemic. An abdominal and pelvic CT scan revealed an intramuscular hematoma of the right gluteus medius and piriformis muscles, without concern for splenomegaly or occult malignancy. Patient had no other known autoimmune or rheumatologic disorders, although his daughter has severe Crohn's disease. Further laboratory workup revealed an elevated PTT and factor VIII activity < 1% that were consistent with severe acquired hemophilia A. The patient was prescribed an anti-inhibitor coagulant complex FEIBA infusion and discharged thereafter.

Discussion: Common causes of factor VIII inhibitors include pregnancy, rheumatoid arthritis, malignancy, systemic lupus erythematosus, and drug reactions. Patient was not found to have any such pertinent medical history; therefore, the etiology of his condition remains unclear. Emerging case presentations report a link between Crohn's disease (CD) and acquired hemophilia in adults, which could be a contributing factor given the patient's daughter has a history of severe CD. This case report provides insight into the workup and management of a patient presenting with a spontaneous hematoma, secondary to a rare disorder of acquired hemophilia A with no known trigger. The possible link between acquired hemophilia and an underlying IBD should also be further examined.

59) RIBAVIRIN THERAPY FOR LCMV INFECTION CAUSED BY LABORATORY NEEDLESTICK INJURY

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Lymphocytic choriomeningitis virus (LCMV) is an ambisense arenavirus whose wildtype variants rarely cause infections in immunocompetent hosts. The usual route of infection is through direct contact with rodents or material contaminated with rodent excreta. LCMV infection among immunocompetent adults may be asymptomatic or limited to a nonspecific, self-limited viral syndrome (fever, myalgia, headache, nausea, and vomiting) after a 1- to 3-week incubation, though severe meningoencephalitis has been reported. In many immunology laboratories, pathogenic strains of LCMV are commonly used as models of viral infections. We report a needlestick injury in a graduate student working with a pathogenic strain of LCMV who became symptomatic with fever and was treated with ribavirin with rapid resolution of symptoms. Antibody titers to LCMV were negative at the time of onset of symptoms, but convalescent titers drawn 4 weeks later were positive confirming recent infection with LCMV. Persons with similar occupational exposures to LCMV have been reported in the literature to have progressive illness and development neurological symptoms. Our experience suggests that early treatment with ribavirin, either immediately after occupational exposure or early on after onset of symptoms, be considered to prevent disease progression and the development of neurological symptoms.

60) COVID ASSOCIATED ANCA-VASCULITIS: IMPLICATIONS ON THERAPY

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Introduction: In the treatment of severe ANCA associated vasculitis, the addition of plasma exchange therapy (PLEX) to immunosuppressive therapy is not routinely recommended. Since the start of the COVID-19 pandemic, there have emerged several case reports of COVID induced ANCA vasculitis. Treatment of these patients not been well established due to a paucity of literature. Here we present a case of COVID associated Granulomatosis with Polyangitis (GPA) treated with pulse dose steroids, Rituximab (RTX), and PLEX therapy.

Case: A previously healthy 21-year-old male presented to the ED with hemoptysis in the setting of new COVID infection. On presentation he was hypoxic, tachycardic, and hypotensive prompting admission to the ICU. His hypoxia and hemoptysis worsened leading to intubation and bronchoscopy, showing alveolar hemorrhage in all lobes. His renal function slowly deteriorated with UA notable for RBCs. His combination of symptoms prompted rheumatologic work-up notable for positive ANCA with PR3 antibodies. Renal biopsy was obtained and showed severe necrotizing crescentic glomerulonephritis. With these findings he was diagnosed with GPA either unmasked or induced by his COVID infection. The patient was started on high dose immunosuppression and RTX therapy. His renal function continued to deteriorate, ultimately requiring initiation of renal replacement therapy. Following placement of his dialysis catheter, concurrent PLEX therapy was initiated. His Respiratory status slowly improved and he was extubated on day 19. Following discharge, he had good renal and pulmonary recovery and was off dialysis and supplemental oxygen.

Discussion: Here we show a case of COVID associated GPA treated successfully with combination immunosuppression and PLEX therapy. While current recommendations do not recommend routine addition of PLEX therapy in severe GPA, it remains unclear if COVID associated vasculitis represents a distinct entity. More studies will be need to investigate the clinical implications of COVID associated vasculitis.

61) A CASE OF ANTICOAGULATION IN MOYAMOYA DISEASE WITH ACUTE THROMBOSIS

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Introduction: Moyamoya Disease is a rare cerebrovascular disease – with a national incidence of 0.086 per 100,000 –characterized by the primary stenosis of Circle of Willis vessels and secondary neovascularization of fragile collateral vessels into the subsequently underperfused space predisposing patients to hemorrhagic stroke. In patients with thrombosis, initiation and management of anticoagulation must be weighed cautiously.

Case: Patient is a 49 YO female with PMHx of Factor V Leiden and Moyamoya Disease with right MCA stenosis who presented on POD#9 from a Superficial Temporal Artery to Middle Cerebral Artery bypass revascularization with a one-day history of fevers and left pleuritic upper back pain. Post-op recovery had been uncomplicated, and patient flew home POD#7. She arrived at the ED with stable vitals and without dyspnea, neurologic deficits, or extremity swelling on exam. CT C/A/P showed extensive 5-lobe pulmonary embolism with no signs of right heart strain as well as possible small splenic infarct. CT head with contrast showed unremarkable post-operative changes. Hematology was consulted, and on day 1 of hospitalization, the patient began anticoagulation with low-intensity heparin protocol at 0.2-0.3 U/mL Unfractionated Heparin (UFH). On day 5, heparin concentration was increased to therapeutic levels between 0.3-0.7 U/mL UFH with no complications. On day 7, 5 mg Apixaban BID was started, and the patient was discharged one day later.

Discussion: We present a post-operative Moyamoya Disease patient presenting with thrombosis and a question of whether to anticoagulate. While Moyamoya Disease treatment guidelines recommend administering antiplatelet drugs rather than anticoagulation when managing thrombosis, the risks of anticoagulation were overruled by the acute need for pulmonary emboli treatment. Thus, anticoagulation was closely monitored as it advanced from subtherapeutic to therapeutic levels. Overall, we believe this case is a helpful teaching tool when considering anticoagulation in patients with Moyamoya Disease with acute thrombosis.

62) A RARE CASE OF LEMIERRE'S SYNDROME PRECEDED BY MONONUCLEOSIS INFECTION

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Introduction: Lemierre's Syndrome (LS) is a life-threatening, rare (annual 3.6 cases per 1 million) complication of pharyngitis in young adults classically characterized by the oral anaerobe *Fusobacterium necrophorum*'s invasion into the pharyngeal space resulting in Internal Jugular Vein (IJV) septic thrombophlebitis and hematogenous seeding to distant organs –most commonly the lungs.

Case: An 18 YO female with a PMHx of asthma and a recently diagnosed mononucleosis infection 3-weeks prior presented with 1-week of worsening cough, dyspnea, and fevers. In the ED, patient was febrile to 39.6 C, tachycardic to 130 bpm with a 20.2 WBC, and no neck tenderness on exam. Chest CT showed multilobar pneumonia with superior segment RLL abscess and 20cm left-sided empyema. Diagnostic thoracentesis yielded pleural fluid growing *Fusobacterium necrophorum* consistent with Lemierre's Syndrome. A chest tube was placed and antibiotics were narrowed from Vancomycin/Zosyn to Unasyn on day 2; however, daily fevers and tachycardia persisted suggesting inadequate source control. On day 6, pleural decortication was performed with no complications and resulted in cessation of fevers. On day 9, a CT C/A/P revealed 2 new cavitory left lung lesions consistent with septic emboli. A TTE and CT Head/Neck venogram showed no thrombus, so anticoagulation was not initiated. On day 15, the patient was discharged with 4 weeks of PO Augmentin. A 3-week follow-up CT chest showed improved lung lesions.

Discussion: We present a non-classical case of LS following mononucleosis infection. Lack of IJV thrombophlebitis on imaging defines this as "Atypical LS" and was used to justify clinical restraint from anticoagulation despite continued septic emboli. Only a handful of case reports in the past 40 years describe a mononucleosis infection preceding the classic metastatic infection by *Fusobacterium necrophorum* –which may delay diagnosis. We hope this case increases awareness among clinicians of LS's diverse manifestations.

63) THE TELOMERES TELL ALL: A CASE OF SHORT TELOMERE SYNDROME IN A PATIENT WITH PANCYTOPENIA, CRYPTOGENIC CIRRHOSIS, AND INTERSTITIAL LUNG DISEASE

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Introduction: Short telomere syndrome (STS) is an inherited multi-organ disease resulting from premature shortening of telomeres. Patients may present with bone marrow failure, interstitial lung disease (ILD), immunodeficiency, and liver disease. They may also have macrocytosis, premature graying of hair, and skin or nail changes. Patients with STS who undergo bone marrow or lung transplantation experience poor outcomes and increased rates of complications. However, post-operative outcomes for STS patients who undergo liver transplantation remain undefined.

Case: A 52-year-old male with cryptogenic cirrhosis underwent orthotopic liver transplant. Transplant course was complicated by severe thrombocytopenia attributed to heparin-induced thrombocytopenia (HIT) and drug-dependent thrombocytopenia, primary cytomegalovirus (CMV) viremia, and right hepatic vein thrombus. He was discharged from the hospital on valganciclovir, mycophenolate, tacrolimus, and prednisone. Three weeks later, he was readmitted with worsening neutropenia. Past medical history was otherwise notable for ILD and chronic thrombocytopenia attributable to immune thrombocytopenic purpura (ITP). He had multiple family members with hematologic malignancies, autoimmune disorders, or cirrhosis. Evaluation revealed cellular marrow with pancytopenia that persisted despite improving CMV titers and holding anti-rejection medications. The patient was referred for genetic counseling and telomere length analysis. His lymphocyte telomere lengths were found to be below the first percentile, and genetic testing revealed a variant of unknown significance in the TERT gene. With the constellation of telomere length, ILD, cryptogenic cirrhosis, unexplained persistent cytopenias, premature graying, and nail abnormalities, he met clinical criteria for STS. He required routine filgrastim injections and ongoing surveillance.

Discussion: It is important to consider STS in patients with cryptogenic liver disease, especially in the setting of ILD, bone marrow failure, and a suggestive family history. Though reports of outcomes after liver transplantation are few, our case suggests that patients with STS are predisposed to complications such as adverse medication reactions, infections, and organ dysfunction.

64) 18-YEAR-OLD PRESENTING WITH NON-SPECIFIC ABDOMINAL/BACK PAIN DIAGNOSED WITH METASTATIC EBV NASOPHARYNGEAL CARCINOMA

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Introduction: Nasopharyngeal carcinoma (NPC) is a rare malignancy caused by EBV with incidence under 1 per 100,000 persons-years, more common in African ethnicity. There is a higher prevalence of EBV with promiscuous individuals. NPC is thought to be caused by the aberrant establishment of virus latency in epithelial cells displaying premalignant genetic changes.

Case Presentation: An 18-year-old African homosexual male presented with abdominal pain and unintentional weight loss for one month. The patient was seen at ED multiple times and the workup including CT abdomen was unrevealing. He presented a year later with bilateral posterior iliac crests pain. Pelvis x-ray was unremarkable and the patient managed conservatively. He was admitted to hospital two months later for worsening symptoms and this time CT abdomen revealed T10 vertebral body sclerosis with MRI showing heterogeneous enhancement. Biopsy of the lesion was recommended but he left against medical advice and lost to follow-up for an outpatient PET scan. He subsequently had various ED visits for persistent pain and left AMA without further outpatient follow-up. The records from ED visits showed the patient had progressive weight loss from 94.3kg to 66.8kg in two years. In late 2021, the patient presented with complaints of cervical adenopathy and pain. He underwent cervical lymph node core biopsy resulting in metastatic EBV-positive lymphoepithelial carcinoma. CT pelvis revealed sclerotic lesions in the anterior left iliac wing and posterior right ilium. The cycle of admissions and leaving AMA continued which resulted in metastasis to the left humerus. Palliative radiotherapy and chemotherapy ensued after establishing care.

Discussion: This case illustrates a presentation of end-stage NPC with nonspecific back/abdominal pain and unintentional weight loss in an adolescent. The combination of Covid-19 effects on routine outpatient care as well as a lack of continuity of care contributed to a very late diagnosis and subsequent poor outcome for this case.

65) HEMORRHAGIC PANCREATIC PSEUDOCYST IN A PATIENT WITH PANCREATIC DIVISUM MANAGED WITH CYSTOGASTROSTOMY

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Introduction: Pancreatic divisum is the most common congenital pancreatic anomaly affecting 10% of individuals. Failure of fusion of the ventral and dorsal duct system with narrowing of the minor papillary orifice makes the pancreas prone to injury due to high intrapapillary dorsal ductal pressure; yet, fewer than 5% are symptomatic with infrequent bouts of pancreatobiliary-type pain and even fewer develop chronic pancreatitis or pseudocyst formation. Infrequently, hemorrhaging can cause pancreatic pseudocysts to grow very large and become extremely painful or even life-threatening.

Case Presentation: A 43-year-old male with a history of recurrent alcohol-related pancreatitis was admitted for abdominal pain and 13lb weight loss. He reports abstinence from alcohol for a year, but he continued to have pancreatitis flares. The work up revealed acute anemia and CT with a large 22 x 10.8 cm hemorrhagic pancreatic pseudocyst. CT-angiogram showed no active bleeding but marked pancreatic duct dilation. ERCP revealed complete pancreatic duct disruption with pancreatic divisum and he underwent common bile duct and pancreatic duct sphincterotomy. Upper endoscopy with EUS showed no mass in pancreatic head but there was a large heterogeneous fluid from the gastric body. FNA yielded 5mL of sanguineous fluid. The patient underwent cystogastrostomy with stent placement to drain pseudocyst into the stomach and was monitored in ICU post-operatively. He had self-limiting melena with no signs of infection and improved general appearance with resolution of his abdominal pain.

Discussion: This case illustrates a patient with pancreatic divisum with recurrent bouts of acute on chronic pancreatitis resulting in hemorrhagic pancreatic pseudocyst formation. A combination of EUS/ERCP with ductal sphincterotomy, and cystogastrostomy with stent placement resolved this patient's abdominal pain significantly. Pancreatic hemorrhagic pseudocyst is an uncommon but serious complication of recurrent pancreatitis, for which pancreatic divisum should be in the differential.

66) DOUBLE TROUBLE: COVID-19 PNEUMONIA CONCURRENT WITH COVID-19 ASSOCIATED PULMONARY ASPERGILLOSIS (CAPA)

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Introduction: Invasive pulmonary aspergillosis is a serious complication in patients severely ill with COVID-19. This phenomenon has been termed CAPA and is estimated to occur in 20-30% of mechanically ventilated COVID-19 patients. The increasing incidence of CAPA raises concerns about this superinfection as an additional contributor to mortality.

Case Presentation: A 52-year-old unvaccinated male with past medical history of asthma and OSA presented with worsening dyspnea ten days after testing positive for COVID-19. Vitals were remarkable for oxygen saturation of 65%. CBC demonstrated leukopenia (WBC 1.7). Physical exam revealed scattered bilateral crackles. He was placed on HFNC due to critical hypoxemia. CXR revealed multifocal, bilateral opacities consistent with COVID-19 pneumonia.

He was started on dexamethasone and remdesivir and admitted to the MICU for acute hypoxemic respiratory failure. Here, baricitinib was also added. Linezolid and cefepime were added for fear of bacterial superinfection but discontinued after receiving negative blood and sputum cultures. Four days later, new leukocytosis and worsening dyspnea prompted a repeat respiratory culture, growing mold on preliminary read. Voriconazole was initiated due to concern for *Aspergillus* infection and was continued upon confirmation. CT revealed left pneumomediastinum, small right apical pneumothorax, and worsening bilateral opacities. Despite ongoing treatment, he required NC at rest and HFNC with minimal exertion. He was discharged home with HFNC approximately two months from admission.

Discussion: Patients with severe COVID-19 have increased risk of developing CAPA, which is associated with high morbidity and mortality. Additionally, high-dose corticosteroids used to treat COVID-19 patients are independently associated with increased risk of CAPA. The typical clinical presentation involves refractory fever, pleural rub, chest pain, or hemoptysis, but CAPA can present with subtler signs as in this case (i.e., mild leukocytosis and worsening dyspnea). Due to potentially subtle presentations, clinicians should exercise a low threshold to promptly identify and treat CAPA. Voriconazole is the first-line anti-*Aspergillus* agent.

67) TAKE A CONSERVATIVE APPROACH TO MANAGING PNEUMOMEDIASTINUM IN COVID-19 INFECTION

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Case Presentation: A 69-year-old male with past medical history of bipolar disorder, schizophrenia, and substance abuse presented to the ED with SI, HI, and hallucinations. He tested positive for COVID-19 at an outside hospital a week prior to presentation.

Initial vitals showed elevated BP (187/77 mmHg) and tachypnea (26 breaths/minute). Physical exam showed lethargy and abdominal tenderness. Labs showed elevated CRP (5.55 mg/dL, ref: < 0.50), ferritin (3695 ng/mL, ref: 30.0 - 400.0), and D-dimer (1.75 mg/L, ref: 0-0.69). CXR showed patchy bilateral opacities consistent with COVID-19 pneumonia.

Upon receiving 1mg of Ativan due to agitation, his oxygen saturation dropped to 88%, and he was placed on 2L NC and started on remdesivir. He also had a temperature of 103°F and dexamethasone was started. He further declined, requiring 55L flow and 80% FiO2 HFNC and 15L Oxy mask. Elevated D-dimer and worsening oxygen needs prompted initiation of enoxaparin and MICU transfer.

In the MICU, baricitinib was also started. His D-dimer increased, and CT PE showed extensive pneumomediastinum (SP) and subcutaneous emphysema. Cardiothoracic surgery was consulted and conservative management was recommended. Dexamethasone was tapered, and oxygen was weaned. Upon breathing successfully on room air, he was discharged.

Discussion: SP is a rare condition in which air is found in the mediastinum, and it is associated with asthma, chronic lung disease, and mechanical ventilation. Although it is uncommon in viral pneumonias, there have been increased reports of SP with COVID-19 pneumonia. Although the mechanism is not completely elucidated, it is thought to be due to increased alveolar pressure and injury in the setting of severe COVID-19 pneumonia. In combination with a strong cough and increased work of breathing, this causes subpleural alveolar rupture. Despite unclear mechanism, SP is usually a self-limiting condition. These patients should be monitored for SP-related cardiovascular and respiratory complications. Conservative management is usually sufficient.

68) SPONTANEOUS RIGHT LOWER EXTREMITY PAIN IN AN ELDERLY MALE: A RARE CASE OF ACQUIRED HEMOPHILIA A

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A 74-year-old male with a medical history pertinent for hypertension, atrial fibrillation and coronary artery disease presents to the emergency department with sudden onset pain in his right lower extremity. The pain is without a clear inciting event and is constant and throbbing. There are no alleviating factors and the pain is provoked by movement. His family medical history and social history is unraveling.

On examination the patient is hemodynamically stable. Examination of his skin reveals a large ecchymosis on his right upper extremity that is non-painful. He also has tense pitting edema in the right lower extremity.

Initial labs reveal a normocytic anemia with a hemoglobin of 7.5 and an appropriate reticulocyte index. A complete metabolic panel was unremarkable. A bedside ultrasound of the right lower extremity displays a fluid collection without an obvious clot identified. A CT scan of the abdomen and pelvis is completed showing a large right sided hematoma measuring 5.8 x 3.5cm. Coagulation studies are obtained. The patient's INR is normal, however PTT is elevated to 93.9. Factor studies are obtained showing less than 1 percent activity of factor VIII with incomplete correction of clotting times on mixing studies.

The patient's clinical presentation with laboratory studies showing a deficiency in factor VIII that incompletely corrects with a mixing study, was diagnostic for an acquired hemophilia A.

Acquired hemophilia A (AHA) is a rare coagulation disorder caused by spontaneous inhibition of factor VIII that effects 1 in 1 million people per year. In contrast to inherited hemophilia A, bleeding associated with AHA tends to be mucocutaneous, however there are reports of significant intracranial bleeding. Early identification, triage, and management of these patients is important. Treatment is multifaceted and focused on control of active bleeding and elimination of the factor VIII inhibitor through immunosuppressive regimens.

69) CLINICAL AND ETHICAL CONSIDERATIONS OF ACUTE AUTOIMMUNE LIVER FAILURE

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Introduction: Autoimmune hepatitis is an uncommon cause of acute liver failure and can be difficult to diagnose and manage when classic serum and pathology markers are absent. This report describes acute liver failure secondary to presumed autoimmune hepatitis initially presenting with syncope and discusses the ethical considerations of treatment options in the face of diagnostic uncertainty.

Case: A 67-year old previously healthy white male with hepatic steatosis and social alcohol use presented with acute liver failure following a syncopal event. A review of systems was notable only for painless jaundice, with scleral icterus and jaundice on exam. Diagnostic workup revealed ferritin of 13458 mcg/L, normal immunoglobulins, positive ASMA, negative AMA, other labs non-diagnostic. Liver biopsy demonstrated severe active hepatitis with siderosis only. Liver transplant evaluation was halted following discovery of obstructive coronary artery disease. The patient developed encephalopathy with ALF refractory to IV steroids. Following an overnight rapid response for hypotension, Hepatology recommended a trial of plasma exchange. The patient died of multiorgan failure and coagulopathy before the family could decide whether this was in keeping with his goals of care.

Discussion: This case demonstrates how a thorough workup can still result in diagnostic uncertainty, and the difficulty in managing steroid non-responsive disease. It is unknown whether an earlier trial of plasma exchange performed while the patient was more clinically stable would have changed the outcome. The events around this patient's end-of-life care also serve as a reminder that the timing of interventions and their alignment with a family's goals of care are as important as the interventions themselves. Finally, this case suggests that earlier trials of second-line therapies while patients are still clinically stable may be prudent.

70) THE NEED FOR A FULL INFECTIOUS WORKUP: A CASE OF PNEUMOCYSTIC PNEUMONIA

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Introduction: Here we present a case of progressive shortness of breath due to undiagnosed HIV and PJP pneumonia.

Case Presentation: A 52 year old female with a history significant for recurrent PE, seronegative rheumatoid arthritis and RAD with exacerbation presented with a fever and SOB. The patient was tachypneic, had increased work of breathing, and radiating chest pain on exertion. Two weeks earlier the patient was admitted for bronchitis and treated with inhalers. The current admission was treated as bronchitis with no relief of symptoms. Initial assessment indicated lower left lobe pneumonia, for which antibiotics were given empirically.

The PE and cardiac workup was negative; TTE with bubble study revealed no shunt. A chest CT found patchy ground-glass opacities with right upper lung consolidations, concerning for an inflammatory process. The patient was given high dose steroids with minimal improvement, which called for further evaluation. V/Q scan was negative and imaging indicated no ENT-related pathology. Two weeks post admission, the patient was found to be HIV positive, and bronchoscopy revealed pneumocystic pneumonia. ART therapy and Bactrim were initiated and upon improvement, the patient was discharged.

Discussion: It is important to note that patients may not initially disclose HIV risk factors, or may be unaware of behaviors that could expose them to HIV. Our patient did not have typical risk factors for HIV such as needle use or IVDU, and the suspected cause was a previous sexual partner. Patchy ground-glass opacities were noted in the initial CT scan, however an opportunistic pathogen was not considered until later in the admission course as an HIV screening had not been conducted. This case hopes to encourage clinicians to obtain a full history and perform an infectious workup in order to check for undiagnosed HIV in patients presenting similarly.

71) RECURRENT FOCAL NODULAR HYPERPLASIA WITH PREGNANCY? A CASE REPORT

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Case Presentation: A 31-year-old female with no pertinent past medical history presented with right upper quadrant (RUQ) abdominal discomfort after giving birth to her first child. Prior to pregnancy, patient was taking oral contraceptives for nine years. Patient complained of mild, dull pain, aggravated by activity. Imaging revealed a 7 by 6 cm focal nodular hyperplasia (FNH) lesion. Patient declined suggested surgery. Months later, symptoms of RUQ discomfort worsened and repeat imaging showed a slightly larger mass. Patient opted for bland embolization over surgery, which resolved symptoms with no recurrence. After the patient's next two pregnancies, one of which resulted in a miscarriage, imaging showed a reoccurring FNH lesion. IR embolization resolved the associated RUQ abdominal pain in both occurrences.

Discussion: Focal nodular hyperplasia (FNH) is a benign hepatic mass with a prevalence of 0.3-3% [1]. FNH is characterized by the proliferation of hepatocytes that is generally asymptomatic but can present as abdominal pain.

FNH tends to have a predilection towards women ages 20-50, suggesting a possible correlation between estrogen levels and the incidence of this condition. Although oral contraceptive (OCPs) use was initially thought to be related to the incidence of FNH, recent literature has not found a significant correlation. The role of hormones in FNH remains controversial, with many cases correlating increased tumor size with pregnancy and prior OCP use along with regression after delivery and discontinuation, respectively.

Conclusion: This case aims to highlight and reiterate the possible association between estrogen-related and pregnancy-related FNH, as seen with persistent recurrence of FNH after each pregnancy in this patient. This case aspires to encourage clinicians to consider prophylactic IR embolization for future pregnancies in patients presenting with a similar etiology. Due to the rising incidence of FNH in women of child-bearing age and the disputed nature of its hormonal association, further research is necessary.

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72) KEEP AN EYE OUT FOR NEUROSYPHILIS

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Case Presentation: A 55-year-old Caucasian female with history significant for CLL presented with worsening eye floaters. The patient also complained of a headache, with no associated eye pain, jaw pain, or eye flashes. On physical, she had bilateral disc edema, increased intraocular pressure bilaterally, cataracts, dry eyes, and uveitis. Vital signs and labs were unremarkable. Imaging was not significant for any intracranial abnormality.

MRI of the orbits was unremarkable. The LP yielded CSF showing lymphocytic pleocytosis with high WBCs and RBCs, low glucose, and high protein levels with a normal OP. ID consult on encephalitis/meningitis recommended no antibiotic therapy. A rheumatologic and infectious work up were negative. The working diagnosis was CNS involvement of her lymphoma. Patient's peripheral blood and CSF were positive for CLL cells. Surprisingly, the RPR screen test was reactive and was confirmed with a positive fluorescent *T. pallidum* antibodies (FTA-ABS) test. The patient was deemed to have neurosyphilis and treatment was indicated. Given the patient's allergy to penicillin, she was desensitized and started on IV penicillin for 10 days, with IM benzathine penicillin on the last day. Patient presented with no intraocular inflammation and improved optic nerve edema on follow up two weeks later.

Discussion: This case highlights the wide spectrum of clinical syndromes of early neurosyphilis and serves to alert clinicians of the less common and non-specific presentations of early neurosyphilis such as the ocular symptoms of disc edema, papilledema, double and blurry vision, and floaters. Abnormalities of several cranial nerves can be seen, including involvement of cranial nerves II, III, IV, VI, VII, and VIII[1].

This atypical presentation highlights the importance of considering neurosyphilis as a differential diagnosis in any patient with cranial nerve abnormalities, specifically those with risk factors for syphilis. These patients may benefit from an RPR panel earlier in their clinical course.

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73) THE TRIFECTA: RASH, JOINT PAIN AND LEUKOPENIA

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Introduction: Dermatomyositis (DM) is an immune-mediated myopathy characterized by inflammatory and degenerative changes of the muscle and skin. A subset of cases are positive for MDA5 antibody (MDA5) and may present with additional mucocutaneous and systemic features including: arthritis, panniculitis and rapidly progressive, treatment refractory interstitial lung disease. Here we present a case of monoarticular joint pain in a patient with MDA5+ DM.

Case: A 20-year-old female with a history of MDA5+ DM maintained on immunosuppression with prednisone and methotrexate presented with acute right elbow pain out of proportion to exam. Ten days prior to presentation, patient was noted to be at her baseline with difficulty climbing stairs and lifting items overhead when she developed progressive right sided elbow pain. Presentation was concerning for septic arthritis given immunosuppression and she underwent emergent arthrocentesis and MRI. Additionally, calcinosis cutis was considered in the setting of DM, for which she underwent expedited skin biopsy. Findings were negative for septic arthritis and calcinosis cutis and consistent with DM flare. Prior to presentation, DM had been poorly controlled on current outpatient regimen as demonstrated by persistent proximal muscle weakness, elevated inflammatory markers, respiratory muscle weakness, Gottron papules, photo-distributed poikiloderma and alopecia. Patient was hospitalized for DM flare and treated with a four-day course of IVIG, leading to rapid improvement in symptoms.

Discussion: Here we present a case of DM presenting with acute monoarticular joint pain out to proportion to exam and found to have severe edema and inflammatory changes involving the right distal triceps consistent with DM-mediated arthritis. Overall, this case highlights that DM, while typically classified as causing diffuse weakness and myalgias, can also trigger localized symptoms. It is therefore important to consider undertreated or flaring DM as a cause of monoarticular joint pain.

74) A CASE REPORT OF ACUTE PANCREATITIS AND PEPTIC ULCER/GI BLEEDING CAUSED BY PAZOPANIB TREATMENT

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Introduction: Pazopanib is an emerging tyrosine kinase inhibitor (TKI) used most commonly to treat renal cell carcinoma. While other kinase inhibitors are known to be associated with acute pancreatic, Pazopanib-induced pancreatitis and peptic ulcer/gastrointestinal (GI) bleeding is rarely reported.

Case Presentation: We report a case of a patient with metastatic renal cell carcinoma taking pazopanib. The patient presented with abdominal pain, bloody stool who was diagnosed with pancreatitis and a peptic ulcer/GI bleeding. Abdominal computed Tomography (CT) imaging showed new peripancreatic soft tissue stranding, consistent with pancreatitis. Esophagogastroduodenoscopy (EGD) revealed inflammation along the greater curvature of stomach and antrum (Image I). The patient was treated for acute pancreatitis and peptic ulcer. Pazopanib was suspended. On follow up visits, the patient did not complain of any further episodes of epigastric pain or blood bowel movements. A follow-up EGD at 3 months showed improvement of the ulcer. On follow up visits, patient did not complain of any further episodes of epigastric pain or blood bowel movements.

Discussion: Although we cannot confirm the definite association between acute pancreatitis, GI bleeding/peptic ulcer and Pazopanib, the timeline of developing these conditions after starting Pazopanib, lacking of risk factors and previous reported cases suggest a possible association.

Conclusion: Physicians should know that acute pancreatitis and peptic ulcer/ GI bleeding have been recognized as a potential adverse event of Pazopanib treatment. A detailed medication review should be performed in patients with acute pancreatitis and/or peptic ulcer/ GI bleeding. Promptly stopping TKIs, including Pazopanib, should be considered in these patients. Further research and guidelines is required to adequately monitor patients on TKI therapy.

75) THE OTHER *NEISSERIA*: A CASE OF *NEISSERIA ELONGATA* BACTEREMIA AND AORTIC VALVE ENDOCARDITIS

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Introduction: Infective endocarditis (IE) is typically associated with *Staphylococcus* and *Streptococcus* species, with fewer cases caused by HACEK organisms. A high degree of clinical suspicion is required to promptly diagnose this condition which may present with vague symptomology. Here we present a case of IE in which an unexpected culprit bacterium was identified on blood culture.

Case: Our report describes a 36-year-old male with a history of Grave's disease who presented with one month of fever, fatigue, myalgias, arthralgias, and mental fog. Prior outpatient workup for tick-borne disease was negative. In the emergency department, he was febrile, tachycardic, and mildly hypotensive. Broad infectious workup was initiated as was empiric cefepime and vancomycin. Leukocytosis, thrombocytopenia, and elevated inflammatory markers were identified on laboratory testing. CT chest revealed aortic valve (AV) thickening, and head MRI/MRA demonstrated an evolving subacute infarction of the right temporal lobe. TTE confirmed an AV vegetation measuring 1.9 cm by 1.3 cm with associated severe regurgitation and mild stenosis. Initial blood cultures returned positive for *Neisseria elongata*, and antibiotic therapy was narrowed to ampicillin 2 grams every four hours and ceftriaxone 2 grams every 12 hours for CNS penetration. He fulfilled 1 major and 3 minor modified Duke criteria, thus meeting diagnostic criteria for native valve community acquired IE. His course was complicated by pulmonary edema due to severe valvular regurgitation, necessitating transfer to the cardiothoracic ICU prior to surgical intervention. AV replacement was planned for 2 weeks after antibiotics were started, pending stability of the vegetation. Immunodeficiency workup was initiated given the unusual causative organism for this patient's bacteremia and lack of known risk factors for this disease.

Discussion: This presentation highlights a rare case of *Neisseria elongata*-associated AV endocarditis in a previously healthy young male. Endocarditis as the result of an uncommon organism should prompt evaluation for underlying immunodeficiency.

76) WHEN TURNING YELLOW HAS LASTING EFFECTS

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Introduction: Crigler Najjar Syndrome (CNS) is caused by mutation in the UGT1A1 gene leading to impaired bilirubin glucuronidation and characterized by jaundice and indirect hyperbilirubinemia. CNS type 2, a milder form, typically presents as asymptomatic, persistent jaundice that is exacerbated by illness, stress, or drug use. Here, we present an unusual CNS exacerbation.

Case: A 28-year-old male with epilepsy and CNS type 2 presented to the ED with recurrent generalized seizures. He appeared jaundiced, lethargic, and unable to communicate. Vitals signs were unremarkable. Physical exam was pertinent for significant jaundice without rash. Labs revealed a total bilirubin level of 29.3 with stable liver function tests, thought to be due to an exacerbation of his CNS type 2. Neurology was consulted and medications were titrated to better control the seizures. His home phenobarbital was started as well, with the hope of reducing his bilirubin levels. Unfortunately, his bilirubin remained greater than 20 for 16 days before plasmapheresis was initiated. At day 20, his bilirubin fell below 20. Despite achieving better bilirubin levels and seizure control, the patient's mental status did not improve. He developed an ulceration on the glans of his penis that was initially thought to be a pressure injury from a foley catheter. The catheter was removed, and a RPR was checked that resulted positive. An LP was unremarkable with a negative CSF VDRL. Infectious disease was consulted and recommended empiric treatment for neurosyphilis. The patient's mentation improved significantly with treatment, however, did not get back to his baseline. Ultimately, he was diagnosed with bilirubin-induced neurologic dysfunction (BIND).

Discussion: When dealing with exacerbations of CNS, search for the underlying trigger is essential. If not quickly and adequately treated, prolonged elevations of bilirubin can lead to irreversible consequences of bilirubin-induced neurological dysfunction.

77) MIMICKING MYELODYSPLASTIC SYNDROME: IMPORTANCE OF DIFFERENTIAL DIAGNOSIS

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Copper deficiency is a rare nutritional deficiency with hematological manifestations that mimic those found in myelodysplastic syndrome—a hematological malignancy incurable without allogeneic hematopoietic stem cell transplantation. Bone marrow biopsy findings and peripheral blood counts are oftentimes insufficient to differentiate the two conditions. Moreover, the symptoms of copper deficiency can arise years after the surgery, making diagnosis a challenge. In patients with new-onset pancytopenia, copper deficiency must be considered on the differential, especially in the setting of known risk factors such as bariatric surgery, zinc supplementation, and celiac disease. Herein we present a case of a 61-year-old female with a remote history of gastric bypass being evaluated for MDS in the context of progressive pancytopenia and new-onset paresthesia. The patient was found to have low serum copper and ceruloplasmin. Copper supplementation largely resolved the hematological abnormalities, but the limb paresthesia remain. This case highlights the need to identify copper deficiency early and distinguish it from MDS in order to prevent permanent neurological deficits and catastrophic response should the patient undergo hematopoietic stem cell transplantation. The steady rise of bariatric surgeries performed to curb the obesity epidemic will likely increase the prevalence of nutritional deficiencies, including copper deficiency. Most importantly, early diagnosis can alleviate symptoms and spare patients toxicities associated with chemotherapeutic agents or allogeneic transplant.

78) HARPS OF COMFORT: VIRTUAL MUSIC SESSIONS FOR COVID-19 AND PATIENTS IN ISOLATION

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Background or Significance: Patients with severe COVID-19 infection suffer from difficult symptom burden including anxiety, dyspnea, and loneliness that requires multi-modal management. Family members and healthcare team members witnessing and participating in caring for these patients also often experience feelings of helplessness, anxiety and depression. Music-thanatology is a specialty of symptom palliation that recognizes music has the capacity to comfort body, mind, and spirit.

Purpose of the project or study: A novel pathway to offer virtual music-thanatology sessions and other therapeutic music to help with symptom palliation in COVID-19 patients was developed and implemented in the fall of 2020 with ongoing success.

Literature review: Music-thanatology is a service in which the raw materials of music comfort critically ill and dying patients. Patients receiving music-thanatology experienced decreased agitation, wakefulness, and dyspnea (Freeman et al., 2006; Ganzini et. al., 2015). Additionally, family members reported that music vigils resulted in increasing calm, relaxation, and comfort for patients (Ganzini et al., 2015)

Description of Sample or Population: Adult patients with COVID-19 requiring ICU care Setting: Three ICUs at a large, Magnet designated academic medical center

79) RECURRENT PULMONARY EMBOLISM IN A PATIENT WITH NEPHROTIC SYNDROME ON RIVAROXABAN THERAPY

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Introduction: Hypoalbuminemia plays an essential role in the pathogenesis of thromboembolism in patients with nephrotic syndrome. Albumins bind arachidonic acid making it unavailable to convert to thromboxane A₂, a protein taking part in clot formation. With hypoalbuminemia, thromboxane A₂ levels are increased, favoring a pro thrombotic state. We present a case of recurrent pulmonary embolism (PE) with inferior vena cava (IVC) thrombus in a patient with profound hypoalbuminemia, who failed anticoagulation with rivaroxaban.

Case Presentation: A 22 year old G1P1 female presented with dyspnea and chest pain. Past medical history included preterm delivery 4 months ago, complicated by preeclampsia with persistent nephrotic range proteinuria of 42g in 24h, and provoked PE diagnosed 1 month prior, compliant with Rivaroxaban 20mg. She was afebrile, tachycardic, saturating on room air. Labs were significant for albumin <1.0g/dL. CT PE showed acute bilateral pulmonary emboli of moderate clot burden, without right heart strain. BOVA score 0. She was diagnosed with recurrent PE and started on heparin drip. Despite no oxygen requirement and stable vital signs, patient was complaining of worsening symptoms. Transthoracic echo showed an elongated mass in inferior vena cava, suspected of a clot, with normal ventricular function. CT venogram of the abdomen confirmed the presence of a clot in the supra-renal IVC measuring 2.6cm in length and 1.1cm in width. She subsequently underwent percutaneous mechanical suction thrombectomy using a T24 flotriver, resulting in successful thrombus removal. Following the procedure, patient reported significant improvement in her symptoms. She was transitioned from heparin to warfarin and remained symptom free during follow up 1 month later.

Conclusion: Nephrotic syndrome should be considered in all young patients with PE. Vitamin K antagonists and heparin remain the preferred treatment choices, as the action of novel oral anticoagulants may be affected by hypoalbuminemia and increased activity of clotting factors.

80) “ALL THAT WHEEZES IS NOT ASTHMA:” MITRAL REGURGITATION IN A SEVERE PERSISTENT ASTHMATIC

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43-year-old woman with severe persistent asthma and AVNRT status-post ablation presented with a 1-month history of dyspnea on exertion, which failed to improve despite multiple courses of glucocorticoids. She had normal vital signs, new systolic murmurs best heard at the left sternal border and the apex, inspiratory rales at the lung bases and diffuse end-expiratory wheezing. EKG showed new incomplete left bundle branch block. Chest x-ray and chest CT were both notable for bilateral ground glass opacities and small pleural effusions. Transthoracic echocardiogram revealed ejection fraction 61% and new moderate tricuspid regurgitation, severe mitral regurgitation, and moderate pulmonary hypertension. A transesophageal echocardiogram found mitral regurgitation of the posterior leaflet secondary to both ventricular dilation and thickening of the chordae tendineae. She started medical therapy for heart failure with preserved ejection fraction and discharged with plan for future surgical mitral valve intervention.

Symptoms of an asthma exacerbation include dyspnea, wheezing, cough, and chest tightness. Treatment is short-acting beta-agonists and short courses of glucocorticoids. This patient failed to improve after two separate treatment attempts, and had a new heart murmur and EKG findings, which prompted evaluation for a cardiac etiology.

Mitral regurgitation (MR) is a common valvular disease that arises from abnormalities of any part of the mitral valve apparatus. MR may be caused by a primary abnormality or secondary to another cardiac disease and is often asymptomatic until it becomes severe. Severe MR manifests as heart failure or pulmonary edema, and patients can report exertional dyspnea, cough, wheeze, and fatigue.

Medical therapy is aimed at reducing preload and afterload and increasing cardiac contractility but has a limited role in the treatment of primary MR as it does not address the primary disease process. For symptomatic patients with severe primary MR, like our patient, mitral valve repair or replacement is recommended.

81) ALTERED MENTAL STATUS IN AN ELDERLY WOMAN, MUST BE THE URINARY TRACT INFECTION, OR IS IT?

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Introduction: The association between delirium and urinary tract infections (UTIs) in geriatric populations has been widely acknowledged by the health-care community. However, alternative causes of cognitive deficits in elderly patients, may be overlooked for conventional diagnoses. Here we describe a patient with altered mental status (AMS) likely due to hypercalcemia.

Case Presentation: An 80-year-old female with past medical history significant for Grave's disease s/p thyroidectomy on vitamin D, calcium and levothyroxine supplements presented with 1 week of malodorous urine and 3 weeks of auditory and visual hallucinations. She reported chills but no nausea or fevers. She had no history of schizophrenia or bipolar disorder.

In the ED she was vitally stable, afebrile, with labs significant for a urinalysis suggestive of UTI, creatinine 1.76 mg/dL, and calcium of 12.3 mg/dL. CT of the head showed no acute abnormalities. Urine cultures had >100,000 cfu *E. coli*, treated with a course of cefalexin. Further investigation found an iPTH of 2.8 pg/mL, 25-hydroxyvitamin D2 & D3 of 471.2 ng/mL and vitamin D 1,25-dihydroxy of >450 pg/mL. As a result, all vitamin D and calcium supplements were held.

Discussion: Here we present a patient with a UTI, AKI, hypoparathyroidism, hypervitaminosis D and hypercalcemia leading to chills and auditory and visual hallucinations. A UTI paired with AMS in a female over the age of 65 seems like a closed case, however hypercalcemia could not be explained. Furthermore, hallucinations preceded the urinary symptoms by 2 weeks. Previous thyroidectomy led to incidental hypoparathyroidism treated with vitamin D and calcium supplements. Due to her age and prescribed supplementations, it is plausible that the hypercalcemia and hypervitaminosis D was caused by inadvertent supplement overdose, supported by her elevated 25-hydroxyvitamin D2 levels. The hypercalcemia then precipitated her hallucinations and caused AKI. This case displays additional mechanisms of AMS in elderly patients.

82) IRREDUCIBLE LATERAL DISLOCATION OF THE PATELLA WITH VERTICAL AXIS ROTATION IN A CHILD

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This case report describes an irreducible fixed lateral patellar dislocation, with rotation about the vertical axis, in a 13-year-old female patient following a simple fall from standing height. Open reduction and medial repair were necessary. Radiographs at follow up demonstrate a reduced patella without signs of complication. This report details an injury that is exceptionally rare in the pediatric population and, to the best of our knowledge, is the first case report to detail such a significant injury following a simple fall from standing. The purpose of this case report is to increase understanding of this rare condition in the pediatric population and provide an outline for management.

83) EBV VIREMIA: A RED HERRING, A HARBINGER AND A DRIVER OF EXTRANODAL NK/T-CELL LYMPHOMA PRESENTING AS HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS (HLH)

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Background: Extranodal NK/T-cell lymphoma (ENKTCL) is a rare, aggressive EBV-driven neoplasm that comprises 5%-10% of non-Hodgkin lymphomas. HLH, a life-threatening condition of immune dysregulation, is the presenting disorder in 11% of ENKTCLs. We present a case of ENKTCL masquerading as secondary HLH with persistent EBV viremia confounding an already challenging clinical picture.

Case: A 35-year-old previously healthy woman was diagnosed with HLH after initially presenting with six weeks of recurrent fevers, rash, fatigue and weight loss. Extensive workup to identify the precipitant for HLH including full body imaging, bone marrow biopsy and endoscopic visualization of the sinuses was unrevealing beyond a moderately positive EBV PCR titer of 38,905. In the absence of a better explanation, HLH was presumed secondary to active EBV and treated with steroids and rituximab. After five months of therapy she was readmitted with HLH and a persistently elevated EBV titer of 35,481. PET imaging completed as part of ongoing efforts to identify an HLH trigger showed sinus hypermetabolic activity. Subsequent biopsies revealed stage II ENKTCL which was believed to be the true driver of HLH and treated with chemotherapy and radiation. Treatment coincided with EBV nadir of 562. Restaging PET scan was without overt residual lymphoma. Two months later EBV increased to 616,595 followed by recurrent HLH. Without evidence of relapsed lymphoma, the significance of persistent EBV viremia was again in question. After weeks of further investigation liver and repeat bone marrow biopsies revealed stage IV ENKTCL, which we believe was ultimately driven by persistent EBV viremia peaking at 1,819,701. Despite aggressive therapy she succumbed to complications of treatment and progressive disease.

Discussion: Although the diagnostic challenges of HLH are widely recognized, this case illustrates further layers of complexity highlighting the importance of high clinical suspicion and awareness of the various implications of EBV viremia.

84) PARANEOPLASTIC CUSHING SYNDROME: A CASE OF RECURRENT SMALL CELL LUNG CANCER

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Introduction: Lung cancer is a leading cause of malignancy within the United States. Small cell lung cancer (SCLC) is a subtype accounting for 15% of these diagnoses. It is an aggressive, poorly differentiated, and high-grade neuroendocrine carcinoma. SCLC is associated with multiple paraneoplastic syndromes. Ectopic Cushing's syndrome (ECS) is one such condition that can have devastating consequences.

Case: A 64-year-old female with history of Stage IIIB SCLC status post chemoradiation in 2019 presented with fatigue, weakness, and palpitations. Physical exam revealed dorsocervical fat pad, abdominal striae, sinus bradycardia, and blood pressure >220/100 mmHg. Labs were notable for Na 148 mmol/L, K 1.9 mmol/L, and serum bicarbonate 46 mmol/L. Abdominal CT showed nonspecific bilateral adrenal gland thickening. Due to these findings, hyperaldosteronism was initially considered. Further diagnostics included a random cortisol of 64.5 mcg/dL and elevated 24-hour urine cortisol, suggestive of excess adrenocorticotrophic hormone (ACTH) production. Dexamethasone suppression testing was negative. Additionally, she had a normal aldosterone-renin activity ratio, elevated dehydroepiandrosterone sulfate (DHEA-S) 268 pg/mL, ACTH 246 ug/dL, and 11-deoxycorticosterone 23.60 ng/dL. PET-CT confirmed avid hilar lymphadenopathy, and MRI brain showed enhancing lesions concerning for metastatic SCLC. As a result, she was diagnosed with ECS. Her hospital course was complicated by multiple tachyarrhythmias despite aggressive supplementation and mineralocorticoid antagonism for refractory hypokalemia. Anti-cortisol agents were discussed though deferred. Patient pursued comfort cares and passed away soon after.

Discussion: Paraneoplastic syndromes require high clinical suspicion for early diagnosis and prompt management. ECS should be suspected with Cushingoid phenotypes, hypertension, hypernatremia, hypokalemia, and metabolic alkalosis. ECS, seen in 1-5% of SCLC cases, is due to hypercortisolism in an ACTH-dependent mechanism. Diagnosis consists of comprehensive imaging, plasma ACTH >20 pg/mL, non-suppressed morning cortisol, elevated 24-hour-urine-free cortisol, and tissue sampling. Anti-cortisol agents such as Ketoconazole, Mitotane, Metyrapone, and Etomidate can be used as temporizing agents until initiating platinum-based chemotherapy.

85) PEMBROLIZUMAB INDUCED ENDOCRINOPATHY

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Introduction: Endocrinopathies associated with checkpoint inhibitor immunotherapy are well described. We report a case of new onset diabetes in a patient receiving pembrolizumab for metastatic squamous cell carcinoma.

Case Presentation: This is an 87-year-old male with medical history significant for recurrent squamous cell carcinoma of the head and neck with pulmonary metastasis on pembrolizumab, hypothyroidism and coronary artery disease who presented with fatigue and polyuria. On physical examination he was cachectic and had a percutaneous endoscopic gastrostomy (PEG) tube in place. Labs on presentation were notable for glucose 1137, Anion gap 18, negative urine ketones, lactate 3.2, Hemoglobin A1C 7.9%, C-peptide 0.74 and TSH 16.81. Chart review showed previous evidence of a suppressed TSH with repeat values to above 50 for which he was started on Levothyroxine 2 weeks prior to presentation. Endocrinology was consulted and concluded that his clinical picture was consistent with pembrolizumab induced diabetes mellitus and hypothyroidism. . After initial glycemic control with insulin drip, he was transitioned to a basal-bolus insulin regimen with a correction scale to account for tube feeds. Hyperglycemia continued to improve and he was discharged home on an appropriate insulin regimen.

Discussion: Pituitary, thyroid or adrenal gland inflammation as a result check point inhibitors often presents with non-specific symptoms such as nausea, headache, fatigue and vision changes. The overall incidence of clinically significant endocrinopathies in patients treated with checkpoint inhibitors is approximately 10%. Acute onset of type 1 diabetes mellitus occurs in approximately 0.2 to 0.9% of cases. In several case series, patients typically presented with severe hyperglycemia or DKA. . All required insulin therapy at diagnosis and remained insulin dependent for diabetic control. Low C-peptide levels in the setting of hyperglycemia may be suggestive of immunotherapy mediated diabetes.

86) SYMPTOMATIC ILIAC MASS IN PRIMARY LUNG ADENOCARCINOMA

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Introduction: Lung adenocarcinoma, a non-small cell lung cancer (NSCLC), is the most common primary lung cancer in the US. NSCLC metastases more commonly affect the axial skeleton with few reported incidences of iliac fossa involvement[1].

Case Presentation: An 83-year-old woman with a medical history significant for multiple malignancies (Stage IV diffuse large B cell lymphoma, MALT lymphoma, ER-positive breast cancer), lupus, ischemic colitis, gastroesophageal reflux disease, hypothyroidism, hyperlipidemia, essential hypertension, osteoarthritis, and 39-pack years presented with a painful iliac mass of primary pulmonary adenocarcinoma origin. The patient initially reported left lower quadrant (LLQ) pain a year prior. An abdominal CT showed a new lytic lesion in the right ileum with inflammatory changes noted in the sigmoid colon. Biopsy revealed metastatic carcinoma with focal positivity for Napsin and Thyroid Transcription Factor (TTF), markers of pulmonary adenocarcinoma. Further evaluation with colonoscopy showed colitis and the patient was admitted with sepsis, pyelonephritis, and colitis. A chest CT revealed left upper lung malignancy with hilar lymph node involvement and bilateral pleural effusions. Thoracentesis improved her LLQ pain and dyspnea. Guardant assessment revealed that the patient was Performance Status 3 and therefore not a good candidate for chemotherapy. Patient was discharged with hospice informational consultation and a plan to continue current treatment and reevaluate in 2-3 weeks.

Discussion: Primary lung adenocarcinoma is a common malignancy which can metastasize to the bone, brain, liver, and adrenal glands[2]. The GI tract is not a common region of metastasis of lung cancer. Complications include weight loss, fatigue, hemoptysis, dyspnea, and paraneoplastic syndromes[3]. The presence of a symptomatic iliac mass of lung origin is a rare etiology which necessitates further research. This case provides insight to clinicians about the possibility of an iliac mass being linked to a lung adenocarcinoma and start appropriate therapy promptly to lead to better patient prognosis.

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87) ACUTE RENAL FAILURE AS A RESULT OF RHABDOMYOLYSIS FROM MYXEDEMA COMA

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Introduction: Hypothyroidism, one of the most prevalent endocrine disorders worldwide, has a wide range of clinical presentations ranging from asymptomatic to myxedema coma. First introduced in the beginning of 1900, myxedema coma was seen as the result of severe and long-term untreated hypothyroidism. The term refers to a life-threatening form of a decompensated hypothyroid state and is considered to be a true medical emergency. The mortality rates can range from 25-60%. Complications of myxedema coma include coma, respiratory failure, myocardial ischemia, sepsis, GI hemorrhage, acute renal failure, etc. We will present a case of myxedema coma leading to acute renal failure in the setting of rhabdomyolysis.

Case Presentation: A 50-year-old female with a history of hypothyroidism previously on levothyroxine presented to the emergency department with altered mental status. Patient's initial lab work showed blood glucose 46, TSH 129 with free T4 of 0.5, lactic acid of 4.5, AST 837, and ALT 269. The patient was initially treated with 200 mcg levothyroxine, 2L lactated ringers, 100mg hydrocortisone three times daily, and levothyroxine 75mcg daily. The patient's mentation improved the following day with the interventions. However, the hospital course was complicated by a high anion gap metabolic acidosis. Due to a concern for rhabdomyolysis, CPK was obtained which was elevated at 29,000. The patient subsequently developed acute renal failure because of rhabdomyolysis. With supportive measures, the patient was able to stave off dialysis.

Discussion: In the available literature, it is uncommon to see a case of acute renal failure secondary to rhabdomyolysis caused by myxedema coma. One hypothesis to the renal failure is that the myxedema coma leads to the patient being down for a prolonged period resulting in rhabdomyolysis. An alternative hypothesis is prerenal azotemia from myxedema coma induced drop in cardiac output, and peripheral vasoconstriction.

88) LEFT ELBOW PAIN AND SWELLING IN AN IMMUNOSUPPRESSED HOST: INFECTION OR SOMETHING MORE SINISTER?

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Introduction: Anaplastic T-cell lymphoma is a rare, aggressive lymphoma that typically presents with a rapidly enlarging symptomatic mass, most commonly in the neck or abdomen. Patients often present with advanced disease.

Case Description: A 48-year-old male with PMH of seronegative RA presented with 6-month history of left elbow and upper extremity swelling with synovitis. No resolution of symptoms despite numerous medication changes. MRI demonstrated possible osteomyelitis left humerus. He was taken to OR for debridement, biopsy, skin grafting, and wound vac placement. Patient received broad spectrum antibiotics. A single elbow culture isolated *paenibacillus*, which was treated due to immunosuppressed status. Pathology results demonstrated anaplastic large T-cell lymphoma. He was discharged to hematology. The patient re-presented to ER 4 days after discharge with progressive weakness and lower extremity edema. He was admitted to the ICU, started on broad-spectrum antibiotics and stress-dose steroids. Broad infectious workup was negative and presentation was suspected HLH. Repeat elbow MRI demonstrated disease progression and he was started on chemotherapy. Hospital course was complicated by tumor lysis syndrome. He was discharged with plans to continue chemotherapy. He presented prior to starting cycle 2 of chemotherapy with orthostatic hypotension. He was aggressively fluid-resuscitated and started on broad-spectrum antibiotics. Presentation was concerning for possible recurrent HLH. Non-contrast head CT demonstrated metastatic intracranial lesions. The patient passed away 3 weeks later, less than 3 months after initial diagnosis.

Discussion: This patient's diagnosis was delayed in the outpatient setting, as recurrent left elbow swelling and pain were attributed to a flare of his known rheumatological disease for almost one year. The patient had an unusual presentation of a rare and aggressive cancer, and it is difficult to determine whether patient's outcome would have changed with earlier diagnosis.

89) ADULT HEMOPHAGOCYTIC LYMPHOHYSTIOCYTOSIS IN THE SETTING OF DISSEMINATED TUBERCULOSIS

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Background: Hemophagocytic Lymphohistiocytosis (HLH) is a rare life-threatening condition that predominantly affects pediatric patients, caused by excessive lymphocyte and macrophage activation.

Case Description: 46-year-old male with ESRD on HD, NICM, hypertension, DM II, hepatitis B, recent sepsis from VRE bacteremia and acute cholangitis status-post cholecystostomy tube placement presented with 103°F fever and altered mentation. Studies were notable for platelets 51, hemoglobin 8.4, and CT with a pulmonary cavitory lesion and hepatosplenomegaly. He received broad antibiotic coverage but eventually needed ICU transfer for BiPAP requirements and sepsis. Elevated ferritin (37,974) and LDH (800) were discovered, prompting an HLH work up with elevated triglycerides, IL2 receptor, and bilirubin. Secondary HLH work up including autoimmune serologies, Quantiferon, CMV, EBV, and Aspergillus testing were negative. The patient left AMA, with Decadron initiated before discharge. He re-presented to our hospital 1 week later with similar symptoms and inflammatory marker elevations. Given high HLH suspicion and deteriorating status while on Decadron, Anakinra (IL-1 antagonist) was initiated. A bone marrow biopsy eventually revealed significant HLH and granulomas suggesting an infectious etiology causing HLH. Eventually the patient required MICU transfer for altered mentation causing airway protection concerns. A BAL was negative for TB, but lumbar puncture revealed TB in the CSF, the likely etiology of his HLH. He received RIPE therapy. His inflammatory markers and clinical picture initially improved after TB and HLH therapies, but he unfortunately developed recurrent fevers and confusion; CTOH showed an evolving abscess concerning for tuberculoma. He left AMA but has since presented to an outside hospital for altered mentation, where he left AMA prior to admission.

Conclusions: This case illustrates the rare manifestation of HLH in an adult caused by disseminated TB, the high suspicion required to identify and begin treatment of both the HLH and the underlying condition, and the often-poor outcomes.

90) AMLODIPINE-ASSOCIATED DRUG-INDUCED HYPERSENSITIVITY

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Introduction: Drug-induced hypersensitivity syndrome is an uncommon, potentially life-threatening reaction to various medications¹. While several specific drugs are commonly offending culprits, there is potential for reaction to any medication. Diagnosis and treatment can be challenging, and prompt cessation of the suspected drug is essential for management.

Case presentation: A 30-year-old male with hypertension and end stage renal disease presented with fever. The patient also had two weeks of a painless, pruritic rash encompassing his extremities, trunk, back, and abdomen. Amlodipine was started for hypertension three months prior. An initial infectious work-up yielded no etiology. Amlodipine was discontinued and a punch biopsy supported the diagnosis of drug-induced hypersensitivity. The patient defervesced within 3 days and his rash improved. Interestingly, the patient did not develop systemic eosinophilia until 10 days after admission. He was ultimately discharged on Day 13 with prednisone. He followed up with dermatology 8 weeks later at which time his symptoms had resolved.

Discussion: Drug-induced hypersensitivity typically occurs 2-8 weeks following new medication initiation. In our case, the patient experienced symptoms 10-12 weeks later. Another unique feature of this case includes lack of supportive laboratory findings, though absence of eosinophilia is not uncommon and it should not be relied upon as a definitive diagnostic marker. Amlodipine is an uncommon offending agent, but prompt cessation led to rapid clinical improvement, which emphasizes the need to consider drug discontinuation when drug-induced hypersensitivity is even remotely suspected^{3,4}. Certain genetic markers may play a role in predicting patients' risk, though these are not routinely performed tests². In conclusion, drug-induced hypersensitivity is a dangerous medication reaction and presents with nonspecific symptoms, so clinicians should have a low threshold to include it in the differential diagnosis and stop new medications to prevent devastating sequelae⁵.



Figure 1. Image of morbilliform rash diffusely distributed along back and bilateral upper extremities; photograph taken on presentation.

91) UNIQUE CASE OF LUNG CARCINOID TUMOR PRESENTING AS POST-OBSTRUCTIVE PNEUMONIA

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Introduction: Carcinoid tumors are rare, neuroendocrine tumors (NET) that produce amines, polypeptides, prostaglandins, and stain positive for chromaffin. Most carcinoid tumors originate from the GI system while others from lung, presenting with cough, haemoptysis, wheezing, and post-obstructive pneumonia (PNA).

Case: A 35-year-old male with PMH asthma, HTN, GERD, and recent PNA presented with right chest pain, leukocytosis and tachycardia.

Initially admitted to OSH 8 days prior for acute hypoxic respiratory failure secondary to post-obstructive PNA. CXR revealed partial RML and RLL atelectasis. CT PE revealed occluded bronchus intermedius with mass-like, nodular right infrahilar opacity. Pulmonology performed bronchoscopy and biopsied mass. ID work-up positive for gram positive cocci (RLL BAL.) Discharged from OSH day 5 with Augmentin.

Upon re-admission for chest pain, CT PE confirmed occlusion of bronchus intermedius and increased right lung consolidation. Pulmonology placed 3 stents. Biopsy results confirmed carcinoid tumor. CTAP and MR brain revealed no metastases. Discharged day 3 with lidocaine patch, oxycodeone, albuterol nebulizer and acetylcysteine. Robotic right middle and lower bilobectomy performed 3 months later. Pathology confirmed 3.8cm typical carcinoid tumor, grade 1 with negative nodes and margins.

Discussion: Most carcinoid tumors occur in the GI tract or lungs. Among lung cancers, carcinoid tumors are relatively rare, comprising 1-2% of all lung malignancies in the USA. Carcinoid tumors are divided into two subclasses: typical (low grade and more common) and atypical (high grade). Surgical resection with mediastinal lymph node sampling is the preferred treatment for low or intermediate grade tumors. For small peripheral tumors, sleeve resection spares lung parenchyma. Lobectomy is preferred for larger, proximal tumors. Many patient's treatment course involves multiple rounds of antibiotics for infection delaying discovery of the primary cause of obstruction. Fortunately, our patient's initial hospitalization biopsy led to modification of his treatment plan early in his second hospital stay.

92) CASE OF GRANULOMATOSIS WITH POLYANGIITIS PRESENTING WITH WEIGHT LOSS, ANEMIA AND ACUTE KIDNEY INJURY

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Introduction: Granulomatosis with polyangiitis (GPA) is an antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis of small vessels secondary to autoimmune predisposition with an environmental trigger. The variable clinical presentation of GPA can make diagnosis challenging but often presents with respiratory and renal manifestations.

Case: A 61-year-old male with a past medical history of psoriasis, tobacco use and cavitory lung lesions presented with one month of 15-lb weight loss, hyperkalemia, anemia and acute kidney injury (AKI). Within two months prior to admission, the patient reported cellulitis of the external nasal bridge, nasal dryness, bilateral foot numbness, abnormal taste and painful tongue ulcers. Labs including urine protein electrophoresis and autoimmune antibodies were collected revealing proteinuria, urinary dysmorphic RBCs, elevated Cr (3.5), BUN (50) and light chain proteins, hyperkalemia requiring chelation and anemia requiring blood transfusion. Bronchoalveolar lavage infectious workup was negative. Chest CT revealed bilateral apical lung cavities with necrotizing granulomas on biopsy. Diagnosis of GPA was made following positive c-ANCA and symptoms of sinusitis, oral mucosal lesions, pulmonary cavitation with necrotizing granulomas and intrinsic AKI. Rheumatology started weekly rituximab infusions for 4 weeks and prednisone that would be tapered over months.

Discussion: GPA typically presents with non-specific symptoms, such as fever, malaise, weight loss, myalgias and arthralgias. These prodromal symptoms may last for months without evidence of specific organ involvement, including ENT, pulmonary/tracheal, kidney, cutaneous, ophthalmic and neurologic. Although diagnosis should be suspected in a presentation with constitutional symptoms and other clinical evidence of glomerulonephritis or respiratory tract involvement, suspicion is further increased with detection of ANCA (especially c-ANCA). Overall, the diagnosis of GPA is based upon the combination of characteristic clinical findings, laboratory tests and imaging studies. Histologic examination of an affected organ's tissue biopsy remains the most definitive method to establish a diagnosis and is still often required.

93) EXCEPTIONAL RESPONSE TO CABOZANTINIB IN METASTATIC, ROS1-GOPC FUSION MUTATED BREAST CANCER

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ROS1 is a proto-oncogene that encodes a type I integral membrane protein with receptor tyrosine kinase (RTK) activity. ROS1 mutations are seen in 3.9% of breast cancer but infrequently result in a clinically targetable mutation. Cabozantinib has been shown to be highly effective at inhibiting ROS1 activity in many solid tumors, particularly in tumors that harbor resistance to crizotinib therapy. However, the clinical efficacy of Cabozantinib in GOPC-ROS1 fusion mutations remains unclear. Here we report a unique case of using ROS1 targeted therapy in treating gain-of-function GOPC-ROS1 mutation in metastatic breast cancer resistant to crizotinib.

A 69-year-old female that presented with a breast mass was found to have ER+/PR-/HER2- invasive ductal carcinoma. The patient was initially treated with standard lumpectomy followed by adjuvant endocrine therapy. Years later, the patient began to experience progressive dyspnea. Chest imaging demonstrated a large right pleural effusion. Histopathological analysis of the pleural fluid of the right lung suggested metastatic ductal carcinoma of the breast. Analysis of the pleural fluid by next generation sequencing detected an activating fusion mutation of ROS1-GOPC. After a partial pleurectomy for recurrent right malignant pleural effusion and brief therapy with fulvestrant and CDK4/6 inhibitors, crizotinib was initiated. However, the patient eventually developed crizotinib resistance and it was discontinued. Shortly thereafter, magnetic resonance imaging (MRI) of the brain revealed multiple foci indicating disease progression. She underwent whole brain radiation, and cabozantinib was initiated which resulted in a significant reduction in disease burden. Response was shown through significant decrease in tumor marker CA27.29 as well as radiological improvement in the sizes of brain metastases. Despite a good initial response, the patient experienced progression after 5 months of therapy and ultimately succumbed to her disease shortly after.

94) A LIKELY CASE OF DAPTOMYCIN INDUCED ACUTE EOSINOPHILIC PNEUMONIA

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Introduction: Daptomycin is a cyclic lipopeptide antibiotic with activity against gram positive organisms. Eosinophilic pneumonia is a rare, but known complication of daptomycin therapy. Mainstays of treatment include supportive care, withdrawal of the offending drug, and systemic glucocorticoid treatment. Here we present a likely case of daptomycin induced acute eosinophilic pneumonia.

Case presentation: This is a 70 year old male with a history of ILD on chronic corticosteroid therapy and mycophenolate, ischemic cardiomyopathy complicated by HFrEF with an EF of 10%, who presented with 4 days of worsening dyspnea, fever of 101.3, and malaise. Of note, he had been started on daptomycin about 4 weeks prior to presentation for culture negative endocarditis. On presentation vitals notable for an oxygen saturation of 89%. Physical exam demonstrated diffuse bilateral lung crackles. Initial labs notable for pancytopenia (WBC 3.5, Hgb 13.4, Plt 121), CRP of 18.3, ESR of 58. Admission chest x-ray was notable for diffuse multifocal airspace opacities. Infectious workup was unremarkable. Ensuing CT chest demonstrated new patchy peripheral and peribronchial consolidations and patchy ground-glass opacities in both lungs, findings concerning for daptomycin induced eosinophilic pneumonia. Patient's mild dyspnea and hypoxia had improved at this time, so further workup including bronchoscopy were deferred. He was started on a 3 week prednisone burst, and daptomycin was held. At follow up 4 weeks later imaging demonstrated improvement in his lung injury, and resolution of his symptoms.

Conclusion: Eosinophilic pneumonia is a rare, but well documented complication of daptomycin therapy. Early recognition is key, as the condition can progress to respiratory failure. Early treatment with removal of the offending agent and corticosteroid therapy leads to reversal of symptoms in most cases. Diagnostic criteria exist, and should be applied in the appropriate clinical scenario.

95) IT'S NEVER JUST A UTI

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Introduction: Urinary tract infections are a common diagnosis in patients admitted to the hospital. Often, the urinalysis simply represents asymptomatic bacteriuria and delays clinician discovery of true underlying pathology.

Case Presentation: A 52 year old female with a history of breast cancer, mastectomy and chemotherapy presented to the ED with altered mental status. Patient was found to be cachectic, encephalopathic, febrile to 102.1, 98% on room air, lungs clear to auscultation. Chest X-ray revealed faint bilateral nodular opacities. Urinalysis was positive for leukocyte esterase and WBCs. Patient was started on ceftriaxone and admitted. On further chart review, it was noted the patient had an axillary lymph node dissection two months prior. The pathology report revealed occasional acid-fast bacilli and a Positive Mycobacterium Tuberculosis Complex PCR test. Unfortunately, this had not been addressed. CT chest/abdomen/pelvis revealed diffuse nodular opacities with apical predominance and areas of cavitation. Bronchoscopy samples were positive for 4+ Acid-Fast Bacilli. Lumbar Puncture showed very high protein, 29 WBC. MRI Brain revealed diffuse leptomeningeal enhancement, ring enhancing lesions consistent with tuberculomas. Patient was diagnosed with Disseminated Tuberculosis with Tuberculous meningo-encephalitis and started on Rifampin, Isoniazid, Pyrazinamide, Ethambutol, and dexamethasone.

Discussion: This case illustrates the importance of looking beyond the often default diagnosis of UTI. Additionally, this reaffirms the necessity to delve into the details of a patient's chart when admitting for conditions that warrant a broad differential diagnosis such as altered mental status. Annually, there are approximately 7,800 TB cases; of which, miliary TB accounts for 2 percent [1]. It is possible this patient had latent tuberculosis before undergoing chemotherapy, that then led to dissemination. Unrecognized, this led to a life-threatening infection with severe and debilitating consequence.

96) A RARE OCCURRENCE OF EXTRAGONADAL CHORIOCARCINOMA IN THE LUNG

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Introduction: Germ cell tumors (GCTs) are overgrowths of cells from the reproductive tract. Extragenadal GTCs usually seed the mediastinum or retroperitoneum, but seldom present as a lung mass. Here we present a case of an extragonadal GCT in the lung.

Case Presentation: A 54-year-old African American female with past medical history of tobacco use presented with worsening shortness of breath and cough. She reported having hemoptysis 2 months ago which resolved, unexplained weight loss of 30 lbs over 6 months, orthopnea, and diaphoresis. Physical examination was positive for wheezing and rhonchi, tachycardia, respiratory distress, and dampened lung sounds. Hypoxia improved with 2L of nasal cannula. Chest X-ray demonstrated a right lower-lobe lung mass of 18 cm with supraclavicular and mediastinal lymphadenopathy. A trans-esophageal echocardiogram demonstrated displacement of the heart, aorta, and left atrium compression. Elevated serum tumor markers β -hCG, CA-125, and LDH with imaging suggested a GCT. GCT, specifically choriocarcinoma, was confirmed with an endobronchial biopsy. VIP chemotherapy was initiated, consisting of VePesid (etoposide), ifosfamide, Platinol (cisplatin). Unfortunately, patient experienced multi-organ failure and died soon after.

Discussion: This patient presented with lung mass and elevated β -hCG, CA-125, and LDH tumor markers. Initially, GCTs seemed unlikely due to the absence of pelvic masses. Choriocarcinoma was discarded as the patient was status post hysterectomy. Although rare, GCTs should not be discarded due to hysterectomy or lack of pelvic mass. The prognosis of choriocarcinoma is poor and timely intervention is critical. The current treatment regimen is based on gonadal GCTs; there is no RCT data to guide treatment in patients with mediastinal GCTs. Interestingly, choriocarcinoma containing a sarcomatoid-component can be resistant to VIP chemotherapy which might've led to poor prognosis in the patient. Research is needed to further understand the etiology and develop better therapeutics against GCTs.

97) THINKING OUTSIDE THE PARENCHYMA: A CASE OF PRIMARY PULMONARY ANGIOSARCOMA

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Introduction: Primary pulmonary angiosarcoma (PPAS) is a rare, aggressive malignant vascular tumor that presents with nonspecific symptoms including cough, dyspnea, and hemoptysis.

Case: A 75-year-old male with end-stage renal disease secondary to diabetic nephropathy status-post kidney transplant (DCD, 2007) presented to the hospital with shortness of breath, cough, and acute hypoxemic respiratory failure concerning for pneumonia. Laboratory evaluation was notable for acute kidney injury and anemia. He was placed on BiPAP and broad-spectrum antibiotics without improvement. He therefore underwent bronchoscopy notable for right lower-lobe bleeding/oozing, and chest tube placement with bloody, exudative pleural effusions not consistent with hemothorax. Infectious and oncologic workups were negative.

Due to worsening hypoxemia and respiratory distress, he was intubated and transitioned to meropenem, trimethoprim/sulbactam, and voriconazole given concern for PJP versus invasive aspergillosis. Imaging revealed an organizing pneumonia pattern of lung injury with discrete large nodules, right sided consolidation with a loculated pleural effusion, and bilateral ground-glass opacities. Repeat bronchoscopy was consistent with diffuse alveolar hemorrhage; repeat infectious workup was notable only for positive CMV PCR, and he was started on IV ganciclovir. BAL cytology was negative for malignancy. Rheumatologic and hematopoietic disorders were also worked up and ruled out, and he eventually passed away from multi-organ failure. Post-mortem analysis revealed multifocal bilateral pulmonary nodules with large, pleomorphic spindled to epithelioid cells within a rich network of poorly formed blood vessels. Given exclusive lung involvement, he was diagnosed with multifocal, bilateral primary pulmonary angiosarcoma.

Discussion: Primary pulmonary angiosarcoma is difficult to identify and often mis-diagnosed as pneumonia or pulmonary embolism. Diffuse alveolar hemorrhage is an uncommon but observed complication of PPAS. In addition, PPAS cells are frequently missed on bronchoalveolar lavage and require direct tissue sampling for diagnosis. Treatment includes surgical resection for localized disease; radiation and chemotherapy have been performed without significant success.

98) AN UNUSUAL PRESENTATION OF JAMESTOWN CANYON VIRUS ENCEPHALITIS IN A DIABETIC PATIENT

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Jamestown Canyon virus is an arbovirus that belongs to orthobunyavirus of the California subgroup. 179 cases of Jamestown Canyon virus have been reported in last 10 years (2010-2020) and 42% (76) of the cases were from Wisconsin.

A 59-year old male with medical history significant for diabetes mellitus presented with ataxia, confusion, polyuria, polydipsia, witnessed seizures pointing towards diabetic ketoacidosis upon admission. MRI showed medial temporal hyper-intensities concerning for HSV encephalitis however HSV PCR, VZV PCR and viral titers were negative. Patient had low WBC count, but CRP and ESR were elevated suggesting an ongoing inflammatory process. Treatment with acyclovir was initiated. Most likely differential based on initial MRI was HSV encephalitis, however negative PCR studies prompted further diagnostic workup. Repeat MRI in 5 days showed improvement in medial temporal lobe hyper-intensities but revealed new right occipital lobe involvement which was unusual and indicated a rapidly progressive course. Also, whether the improvement in medial temporal lobe was because of acyclovir initiation or improved post-ictal phenomenon was not clear. Common bacterial, viral and fungal infection panel and malignancy workup was negative. CSF Arbovirus IgM panel was presumptively positive for Jamestown Canyon antibody and Arbovirus panel came back positive for Jamestown Canyon virus. Patient had a prolonged and complicated hospital course and required rehabilitation but made full recovery and was discharged home.

Making a diagnosis of Jamestown canyon virus is a diagnostic challenge given its rarity and similarity to other infectious processes causing encephalitis. We report such a case to increase awareness among providers regarding varied presentation and course of the disease.

99) VARIOUS PRESENTATIONS OF THE OLFACTORY HALLUCINATION IN TWO PATIENTS WITH MIGRAINE DISEASE

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Introduction: Migraine prevails in about 12% of the general population, with the migraine aura accountable for at least one-third of these cases. Aura is a transient sensory disturbance that gradually arises before a migraine headache or shortly after the headaches start and can recur. The most common aura is the visual aura, followed by the sensory aura, speech, and motor auras. Olfactory hallucinations preceding the headache phase of migraine are rare. To date, the International Classification of Headache Disorders (ICHD) has not recognized them as a subset of migraine aura. This study reports two different presentations of migraine with the olfactory hallucinations: a case with the typical hallucinatory olfactory symptoms preceding migraine headaches and another case with longstanding olfactory hallucinations.

Methods: Patients were identified from electronic health records who had a diagnosis of chronic migraine with aura by the ICHD-3 criteria and reported having Phantosmia (PO) aura before, during, or after their migraine attacks.

Results: Two distinct patient cases were reported. Patient 1 presents with a typical PO aura before their migraine headache in which they note the smell of burning for about 30 minutes before the their headache starts. In contrast, Patient 2 experiences a longstanding PO aura. This patient describes that they can smell cigarette smoke from the beginning of their headaches up to 3-7 days after the headaches are gone. The smell persisted with Patient 2's migraines even when they lost their ability to smell due to COVID-19.

Discussion: The olfactory hallucination may present differently in patients with migraine disease. Additionally, an olfactory hallucination that occurs for several days after the migraine headache resolves has never been reported in the literature. Based on the clinical significance of migraine with olfactory hallucinations, we propose that the ICHD classify this phenomenon as a subtype of aura in the future.

100) GRANULOMATOSIS WITH POLYANGIITIS PRESENTING AS PULMONARY-RENAL SYNDROME

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Introduction: Granulomatosis with polyangiitis (GPA) is a rare autoimmune disorder that causes inflammation of blood vessels resulting in vasculitis. The disease predominantly affects the upper respiratory tract, lungs, and kidneys; although it can impact almost any organ. GPA is part of a group known as the ANCA-associated vasculitides (AAV), and is classified based on high positivity for c-ANCA antibody (~75%) and necrotizing granulomas on biopsy.

Case: A 61-year-old male with a history of tobacco use, psoriasis, and recently discovered cavitory lung lesions (necrotizing granulomas) was referred to our ED for evaluation. At presentation, the patient reported 1-month of bilateral calf pain, poor appetite, and unintentional weight loss. Additional history was positive for fevers, headaches, nasal congestion, tinnitus, mouth ulcers, and cellulitis. Vitals were stable. Physical examination showed cachectic appearance and white tongue plaques. Labs demonstrated: hemoglobin 7.8 g/dL, potassium 6.2 mmol/L, and creatinine 3.79 mg/dL (baseline ~1.0). He was admitted for unexplained acute renal failure and concerns for malignancy. A multiple myeloma panel revealed an SPEP M-spike of 0.15 g/dL IgG kappa. Bilateral renal ultrasound was negative. Chest/abdomen/pelvis CT redemonstrated biapical cavitory lung lesions (LUL 6.6x4.3 cm; RUL 1.5x2.3 cm), normal kidneys, and no bone lesions. Nephrology and pulmonology were consulted, who considered pulmonary-renal syndrome. Rheumatologic workup was positive for ANCA antibody (titer 1:320) and c-ANCA (PR3, 250 AU/mL). The patient was diagnosed with GPA and started on an induction regimen of rituximab and steroids.

Discussion: Here we report a case of GPA that demonstrated classic multiorgan involvement but also mimicked malignancy, making it challenging to diagnose. Given GPA's variability in presentation and high morbidity/mortality, we emphasize the importance of interdisciplinary collaboration to the diagnosis and management of these multisystem disorders. Additionally, we highlight the value of prompt clinician recognition of pulmonary-renal syndrome and its high association with autoimmune disease.

101) A CASE OF METASTATIC LUNG ADENOCARCINOMA PRESENTING WITH HEMORRHAGIC PERICARDIAL TAMPONADE

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Introduction: In malignant pericardial effusions, lung cancer is the most commonly prevalent underlying malignancy. It typically occurs by direct spread or as a side effect of cancer therapy and is usually late in the course of the malignancy. In our case, we present a patient who developed malignant pericardial tamponade in addition to having only minimal progression of disease with no distant metastases.

Case Presentation: A 68-year-old male with 40 years of smoking history and COPD was diagnosed with a 1.8cm central lung mass during screening CT chest. He was advised to undergo surgical resection, as the lesion was not accessible to biopsy due to its location. Unfortunately, the patient denied surgery and opted for watchful observation. One year later, he presented with complaints of abdominal pain, he was evaluated with CT abdomen/pelvis, which showed moderated amount of pericardial effusion. His echocardiogram confirmed pericardial tamponade and 1.6 L of hemorrhagic pericardial fluid was drained on pericardiocentesis. PET scan revealed metastatic disease only in local lymph nodes. Cytology revealed adenocarcinoma with less than 1% PD-L1 expression. Currently, he is improving on the treatment with carboplatin, pemetrexed, and pembrolizumab.

Discussion: Pericardial tamponade as a presentation of extracardiac malignancies is rare and its presentation as an initial symptom is more so uncommon. This typically occurs when there are metastases to the pericardium or as a side effect of oncologic treatments. Other cardiac manifestations can include constrictive pericarditis, myocardial infarction, congestive heart failure, and dysrhythmias. Diagnostic clues can be seen on physical exam, EKG, and chest X-ray. However, the gold standard for diagnosis is echocardiography. Treatment options vary based on the severity of presentation, from pericardiocentesis, and pericardiotomy to pericardectomy. Recurrence is also very common. Lastly, this is often a poor prognostic indicator for patients that develop this condition, owing to the typical widespread disease state of the primary malignancy.

102) PROSTATE CANCER PROGRESSION AND SERUM PSA LEVEL DIGNOSTIC DILEMMA

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Among U.S. men, prostate cancer is the second most common cancer and the most common cause of cancer-related death, according to the CDC¹. For three decades, physicians have monitored prostate cancer patients using the levels of serum prostate-specific antigen (PSA) proteins released by prostate cells. Many studies suggest PSA levels after prostate cancer treatment are sensitive indicators of the disease's progress, helping predict disease activity and volume².

We report a case of a 75-year-old male with metastatic prostate adenocarcinoma whose cancer had progressed despite a relatively low PSA level. Prostatic biopsy revealed acinar type adenocarcinoma, Gleason score 4+5 = 9, 4+3 = 7, 4+4 = 8, 3+3 = 6 in right prostatic lobe, left lobe, right apex and left apex respectively with perinural invasion. His serum PSA level was under 4 ng/mL at diagnosis. A bone scan revealed prominent increased activity near the mid left tibia, CT abdomen/ pelvis did not show any nodal or bone metastasis, and Pylarify PET/CT scan showed lytic lesion to left inferior pubic ramus and mid shaft left tibia. The patient was started on 22.5 mg leuprolide acetate every 3 months and 50 mg bicalutamide once daily and palliative radiotherapy and zoledronic acid for his bone lesion. His serum PSA level dropped to 0.3 ng/mL in 2 months with the treatment. Later, the patient's evaluation with CT urogram revealed progression of his disease to the posterior bladder wall and rectum. CT guided biopsy of left pubic ramus revealed poorly differentiated adenocarcinoma. Currently, the patient is being treated with palliative chemotherapy.

Most patients with metastatic prostate cancer present with high serum PSA levels; less than 1% have low PSA levels³. According to our literature review, atypical histological variants or nonsecretory prostate cancer can be present with aggressive progression with low level of serum PSA.

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103) A CASE OF CUTANEOUS LEUKOCYTOCLASTIC VASCULITIS IN THE SETTING OF INFECTIVE ENDOCARDITIS AND MISSED SESSION OF MAINTENANCE HEMODIALYSIS

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Introduction: The biopsy-proven incidence of cutaneous leukocytoclastic vasculitis (CLCV) in the United States is rare (~45 per 1,000,000 persons/year), but over the last 10 years, a greater incidence of cases has been reported in association with infective endocarditis (IE).^{1,2}

Case: A 48-year-old Caucasian male with history of ESRD (secondary to IgA nephropathy and failed renal transplant) and 19-day history of MSSA bacteremia and IE (on Cefazolin) presented with severe nausea, weakness, and new onset of petechial rash 3 days after missed hemodialysis. On presentation, patient was hypertensive but afebrile. On physical exam, he had palpable non-pruritic but mildly tender purpura/petechiae and severe pitting edema in all extremities. He had a splinter hemorrhage in the left 4th digit nail bed and endorsed severe tenderness to palpation of bilateral upper extremities. Laboratory workup was notable for hyperkalemia and hyponatremia. Blood cultures were negative. Electrolyte imbalance and nausea improved significantly following emergent hemodialysis. On Day 4, punch biopsy of the petechial lesions demonstrated perivascular inflammatory infiltrate of neutrophils, lymphocytes, some eosinophils, and nuclear dust which was suggestive of CLCV. By Day 5, petechiae and purpura were improving rapidly and spontaneously. No changes were made to the patient's antibiotics regimen.

Discussion: This patient had multiple risk factors for CLCV including underlying systemic disease (i.e. IgA nephropathy) and infection (i.e. IE and MSSA bacteremia) being treated with a beta-lactam antibiotic (i.e. Cefazolin).¹ However, as the rash presented 19 days after the diagnosis and start of antibiotic treatment for IE, alternative etiologies for the CLCV must be considered to avoid adverse effects from incomplete treatment. Interestingly, CLCV developed rapidly in the setting of missed hemodialysis and cleared within 3 days of emergent hemodialysis. The incidence of LCV in patients on maintenance hemodialysis for ESRD has been reported only 5 times since 2007 and warrants further investigation.³

104) YET ANOTHER COMPLICATION OF COVID-19

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Introduction: Amidst the changing facets of COVID-19 pandemic, long term complications in post COVID-pneumonia continue to evolve. Post-COVID organizing pneumonia is a significant pulmonary disease with currently limited guidelines on diagnosis and treatment.

Case Presentation: A 63-year-old male with a PMH of coronary artery disease, type II diabetes mellitus (T2DM), and hypertension presented to the ED 4 weeks after his initial diagnosis of COVID-19 pneumonia with acute hypoxemic respiratory failure. During his initial diagnosis he was treated according to CDC guidelines.

Imaging revealed worsening parenchymal opacities, bibasilar bronchiectasis, and component fibrosis and SaO₂ of 87% at rest. In addition, the patient had bilateral subsegmental pulmonary emboli. He also demonstrated right foot drop, significant weight loss, and normocytic normochromic anemia. After ruling out other acute pathologies, the patient was started on apixaban, aspirin, prednisone, pantoprazole, Bactrim, and 3L NC. The patient was discharged in improving condition on domiciliary oxygen with a planned slow taper of prednisone over 6-8 weeks.

Discussion: The etiology of Post COVID organizing pneumonia (PCoVOP) remains speculative although is hypothesized to be a result of alveolar epithelial injury secondary to a provocative insult that can have an excellent prognosis when diagnosed early and treated properly. Several cases of post COVID-19 Organizing pneumonia (PCoVOP) have been reported¹ and this report highlights challenges in diagnosis, limited guidelines on treatment and importance of awareness and early pulmonary involvement including plans for pulmonary rehabilitation with the evolution of the COVID-19 pandemic, this report is one of the 4 patients that presented with similar clinical manifestation. Large scale studies are needed to understand the temporal course of PCoVOP and establish treatment guidelines.

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BMJ Case Reports CP 2021;14:e246119.

105) A LONGITUDINAL CASE OF HEPATIC EPITHELIOID HEMANGIOENDOTHELIOMA, A RARE LIVER MALIGNANCY

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Introduction: Hepatic epithelioid hemangioendothelioma (HEH) is a rare neoplasm with an estimated incidence of less than 1 per 1 million.¹ The mean age of diagnosis is 41.7 years.² Given its rarity and varied clinical course, treatment for HEH remains highly individualized. HEH may spontaneously regress with time, and as a result, observation becomes a common initial course of management.³ If intervention is deemed appropriate, surgical resection, liver transplantation, chemotherapy, and radiation therapy may be warranted. We report a case of Stage IV HEH that resulted in liver transplantation.

Case: 21 year old healthy female who initially presented with an umbilicated skin lesion on the mandible, pathology of which was inconclusive. The patient returned with multiple months of progressive right upper quadrant abdominal and flank pain. CT of the chest and abdomen revealed hypodense liver masses, noncalcified pulmonary nodules bilaterally, and thyromegaly with bilateral hypodense thyroid nodules. Liver biopsy confirmed HEH. The initial mandibular skin lesion was also identified to be a HEH metastasis. A nine month trial of a PI3 kinase inhibitor was unsuccessful. Monitoring of the patient's metastatic disease and consideration for liver transplantation took place over the next four years. After successful transplantation, she is now healthy with sites of metastasis remaining stable.

Discussion: This case is a good representation of HEH, a rare hepatic malignancy that is difficult to diagnose given its nonspecific presentation and indolent course. With treatment, the five-year survival rate is estimated at 43-55%.³ Worse prognosis is associated with lung or multiple organ involvement, presence of ascites, age above 55, and male gender.³ In spite of our patient's metastatic disease at diagnosis, her age and good overall health meant liver transplantation was a viable treatment option. The patient is now stable ten years post-diagnosis and six years post-transplant.

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106) COLONIC BEZOAR: A RARE CAUSE OF LARGE BOWEL OBSTRUCTION

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Bezoars are ball-like masses of undigested or partially digested material which build up in the digestive tract. They often are made up of food debris as well as foreign material like swallowed hair. These rare masses account for less than 5% of all cases of gastrointestinal obstruction, and when found, are most often in the stomach. Colonic bezoars are extremely rare and here we report a case of a colonic bezoar causing a large bowel obstruction. Our aim is for clinicians to avoid premature closure and keep their differential diagnosis broad when treating large bowel obstructions.

A 70-year-old Caucasian female with type 2 diabetes, hypertension, hyperlipidemia, breast cancer on anastrozole, status post remote appendectomy and cholecystectomy presented to the emergency department (ED) with left lower quadrant abdominal pain and constipation for three days. Her vitals were stable. The physical exam was without signs of peritonitis. Basic laboratory workup was within normal limits. Computed tomography of the abdomen and pelvis demonstrated an impacted stool ball in the mid descending colon with upstream dilatation of the transverse colon and some associated wall thickening and inflammatory changes. The findings were most consistent with stercoral colitis. Given her clinical stability, the patient was ultimately discharged with an extensive bowel regimen. She returned the next day with ongoing pain despite having had one bowel movement (BM) since her initial ED discharge. An abdominal x-ray revealed a “stool ball” in the descending colon and persistent proximal large bowel dilatation. At this time, Gastroenterology (GI) was consulted given her persistent pain. GI performed a flexible sigmoidoscopy later that afternoon after a few tap water enemas in the ED failed to improve patient status. Flexible sigmoidoscopy revealed a large solid stool collection with surrounding fibrous material in the sigmoid colon, consistent with a colonic bezoar. Breakage of the bezoar was accomplished endoscopically, and the underlying mucosa appeared ulcerated. Biopsies were taken and showed a “self-limited colitis”. The patient continued to have BMs the 2 days following flexible sigmoidoscopy, her symptoms resolved, imaging showed resolution of the collection, and she was ultimately discharged on an oral bowel regimen.

We present an exceedingly rare cause of large bowel obstruction. Bezoars are rare to begin with and most commonly found in the stomach, but they are very seldom found in the colon. It is important for clinicians to consider a colonic bezoar in a patient with abdominal pain and constipation who is not improving with a bowel regimen.

107) A CASE OF IGA VASCULITIS WITH EXTENSIVE GI PERFORATION AND ACUTE KIDNEY INJURY

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Introduction: IgA vasculitis (IgAV) is a rare subtype of leukocytoclastic vasculitis involving IgA dominant systemic immune complex deposits attacking smaller vessel walls. IgAV oftentimes follows an upper respiratory infection and can present with symptoms from palpable purpuras to systemic inflammation.

Case Presentation: A 66-year-old female with no significant PMH presented with LUE pitting edema, pharyngitis, odynophagia, LE macular rash, and positional dizziness. Physical exam demonstrated abdomen tenderness and bilateral LE petechial pinpoint lesions. Labs showed high anion gap metabolic acidosis, acute kidney injury, hyponatremia, elevated CRP, and high ASO titer. Autoimmune and infectious workup, cardiac imaging/tests were essentially negative; EGD showed active duodenitis and esophagitis with ulceration. Punch biopsy from patient's heel confirmed direct immunofluorescence features of IgAV. Patient was discharged but readmitted due to exacerbation of symptoms with increased non-blanching petechiae on knees, finger joints, feet, calves, and flanks. Further labs noted significant anemia and bacteriuria. She was started on IV solumedrol and rituximab. Subsequent EGD, colonoscopy, IR angiogram, and CTA demonstrated multiple bleed locations from duodenal and esophageal ulcerations, non-bleeding jejunal ulcers, abnormal blush distal to small bowel, and an active mid-distal small bowel bleed with intraluminal hemorrhage requiring multiple transfusions. She developed septic, hypovolemic cardiogenic shock. Blood cultures were positive for *Klebsiella*; antibiotics, antifungals, and vasoactive agents were initiated. Patient's condition continued to deteriorate and was offered exploratory laparotomy and esophagogastroduodenoscopy. Her POA opted for hospice care.

Discussion: IgAV is predominantly a childhood disease with around 3-26 cases per 100,000 children as opposed to adults with rarer incidence of 0.1-1.8 per 100,000 adults. Symptoms were classic manifestation of IgAV, possibly post-GAS or viral infection. Glucocorticoids and other immunosuppressors have been observed in literature to be effective. Unfortunately, the patient passed away due to GI bleed complications demonstrating its lethality.

108) MODERN MALIGNANT MESOTHELIOMA MANIFESTATION

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Introduction: Malignant pleural mesothelioma (MPM) involves uncontrolled growth of mesothelial cells that form the lining of pleural serous layers. MPM has been linked with asbestos exposure in mining and manufacturing occupations. Incidence in the US is 2500 cases per year; it often presents with chest pain, weight loss, and dyspnea with an unforgiving prognosis of 4-18 months.

Case Presentation: A 56-year-old male with significant PMH of HTN, HLD, hepatic steatosis, and ulcerative colitis presented to ED in October 2021 for worsening coughs disrupting ADLs; he was taking mesalamine, mercaptopurine, and lisinopril. Patient additionally described 8-pound weight loss over the last year, night sweats, RUQ pain, and fatigue; he denied travel outside country. Exam demonstrated diminished right lung breath sounds, wheezing, tachycardia, and elevated temperatures. After admittance, tests including ECG, diagnostic tap post-thoracentesis, flow cytometry, CT chest/abd/pelvis with contrast, and infectious workup demonstrated right pleural nodular thickening and effusion with lower lobe collapse. Patient presented twice in November 2021 due to recurrent pleural effusions and acute hypoxic respiratory failure from bilateral pulmonary emboli; pleuroscopy with biopsies confirmed epithelioid MPM and pulmonary stent was placed. After tumor board discussion, patient was not a surgical or immunotherapy candidate; he underwent five carboplatin/pemetrexed/bevacizumab palliative chemotherapy sessions. Unfortunately, his condition deteriorated over six months with three ED visits; last visit he presented with pneumonia, hyponatremia, hypomagnesemia, and hypokalemia. Per family's wishes, patient was sent to hospice care and in May 2022 he passed away at his home.

Discussion: As patient worked in HVAC and maintenance with asbestos exposure, this case is a classic representation of MPM. While MPM is relatively rare, incidence has increased over the last decade due to tumor development lag time of 30 to 50 years post-asbestos exposure. Unfortunately, there is no cure for MPM; multimodal approaches of surgery, chemotherapy, radiotherapy, and immunotherapy has been noted.

109) LUNG CANCER WITH HEMORRHAGIC PERICARDIAL EFFUSION, CARDIAC TAMPONADE, AND VOCAL CORD PARALYSIS

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Introduction: Lung cancer accounts for 12.4% of all diagnosed cancers and is the leading cause of cancer death worldwide. Most symptoms appear at advanced stages due to tumor effects such as coughs from compression, pleural thickening, or SVC syndrome. Here we present the unique case of cardiac tamponade as presenting manifestation of metastatic lung cancer.

Case presentation: 53-year-old male with newly identified mediastinal mass presented to the ED with atrial flutter RVR and new syncopal event. ED workup revealed tamponade physiology on transthoracic echocardiogram. Patient had been evaluated for persistent cough and hoarseness of voice by ENT; CT chest/PET CT revealed hypermetabolic anterosuperior mediastinal mass. Patient underwent emergent pericardiocentesis of 435 cc of hemorrhagic fluid with drain placement. Malignant cytology was positive for malignant cells positive for Moc31, BErEP4, and negative for TTF1, calretinin, and D240. A multidisciplinary tumor board established diagnosis as metastatic adenocarcinoma of pulmonary origin. During the one-week hospital stay, patient had recurrent AFib with RVR that spontaneously converted to stabilized sinus rhythm. Patient also had recurrent pleural effusion which was treated with PleurX catheter placement. Pericardial drain was successfully removed without recurrence and metastatic workup was completed. Imaging has also revealed encasement of proximal left common carotid, left internal mammary, and left pulmonary artery. Post-discharge, patient completed radiotherapy and is on chemotherapy regimen with Carboplatin, Pemetrexed, and Pembrolizumab; continues to be stable. For vocal cord paralysis, he has undergone vocal cord augmentation, regaining voice.

Discussion: While pericardial effusions have a wide range of etiologies, cardiac tamponade secondary to hemorrhagic pericardial effusion has become recognized as a rare initial presentation of metastatic lung adenocarcinoma. This highly complex case only started with a benign complaint of hoarseness 8 weeks prior, reiterating laryngeal nerve involvement secondary to tumor compression as ddx after local pathologies are ruled out and need of multidisciplinary management.

110) AN UNEXPECTED SOURCE OF CARDIOEMBOLIC STROKE

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Introduction: Cardioembolic strokes are commonly associated with malignancy by inducing a hypercoagulable state but are rarely caused by marantic endocarditis. Deposition of fibrin and platelets without infectious organisms to cardiac valves in marantic endocarditis is usually related to malignancies. Our case depicts a patient with active malignancy presenting with embolic strokes found to have blood culture negative valvular vegetations consistent with marantic endocarditis.

Case Presentation: An 83-year-old female with recent diagnoses of renal and splenic infarcts and metastasis to the liver with unknown primary presented with left sided weakness. Neuroimaging displayed bilateral multifocal ischemic strokes however reperfusion strategies were bypassed due to prolonged symptoms. Permissive hypertension, antiplatelet, and statin therapies were provided while etiological evaluation included transthoracic echocardiogram showing mild aortic and mitral valve regurgitation. Patient later developed shock with multiorgan failure including respiratory failure requiring intubation. Transthoracic echocardiogram was done to further evaluate the differential diagnosis of shock which showed large aortic and mitral valve vegetations with severe regurgitation, later confirmed by transesophageal echocardiogram. Blood cultures were obtained and broad-spectrum antibiotics were initiated. Concern for marantic endocarditis increased as blood cultures remained negative so heparin infusion was started. The patient was transitioned to hospice care after family discussion.

Discussion: Clinical presentation of marantic endocarditis depends on location of emboli which frequent the brain, kidneys, and spleen, as in our patient. Emboli are more common compared to infectious vegetations due to lack of inflammation on valvular apparatus. Our patient initially did not have vegetations on transthoracic echocardiogram due to recent embolization but recurrence led to valvular dysfunction and heart failure. Treatment focuses on addressing underlying cause, systemic anticoagulation, and possible surgical intervention however cure is rare. Marantic endocarditis is an underdiagnosed entity which changes management and prognosis for patients with active cancer and concerns for systemic emboli.

111) A CASE OF REVERSIBLE COMPLETE HEART BLOCK IN IMMUNE CHECKPOINT INHIBITOR-ASSOCIATED MYOCARDITIS

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Background: The introduction of T-cell targeted immunomodulators blocking immune-checkpoints has revolutionized the field of oncology. With the advent of immune-checkpoint inhibitors (ICI's), there has been a growing body of discovery of side-effects related to this therapy. Modulation of the immune response within the body can manifest in inflammation and end-organ tissue damage, coinciding with a variety of adverse events. Albeit rare, ICI-related myocarditis has been documented as a severe, often lethal outcome of toxicity from this immunotherapy.

Case: A 73-year-old female with history of Stage IVB adenocarcinoma of the lung undergoing palliative chemoradiation with recent initiation of pembrolizumab presented to the emergency department with worsening dyspnea on exertion and lightheadedness. She was found to be significantly bradycardic with heart rate ranging 20-30 BPM. ECG showed evidence of complete heart block. Electrophysiology was consulted and patient underwent urgent semi-permanent pacemaker placement. CTA Coronary was negative for coronary artery disease, and subsequent cardiac MRI confirmed a diagnosis of myocarditis. Oncology was consulted and she was started on high-dose IV steroid therapy for ICI-related myocarditis. On day two of admission, she developed atrial flutter with rapid ventricular response that was treated with amiodarone. Given the overall reversible nature of her myocardial injury, the decision was made to not pursue permanent pacemaker placement. Her complete heart block resolved with steroid therapy prior to discharge. At cardiology follow-up, she was noted to be symptomatically improved with no recurrence of brady- or tachyarrhythmia.

Discussion: ICI-associated myocarditis is a rare, yet severe adverse event with emerging prevalence in the context of increasing use of immunomodulator therapy in treatment of several malignancies. This case expands on a growing body of evidence for ICI-related myocarditis with associated complete heart block, which is ultimately reversible and improved with administration of IV steroids.

112) A CASE OF COVID-19 INFECTION WITH ACUTE LIVER INJURY WITHOUT RESPIRATORY SYMPTOMS

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Introduction: Coronavirus disease (COVID-19) has emerged as the most consequential global health crisis since the 1918 influenza pandemic. As the virus targets ACE2 receptors, COVID-19 acutely affects the respiratory system, however additional symptoms can manifest in other major organ systems. Here we present the case of a patient who demonstrated an acute liver injury (ALI) from COVID-19 without significant respiratory symptoms.

Case presentation: A 34-year-old female with significant PMH of ESRD and DM type 1 S/P simultaneous kidney and pancreas transplantation presented to the ED with intractable nausea, emesis, and inability to take her oral medications. She was taking mycophenolate sodium, tacrolimus, and prednisone. Patient tested positive with COVID-19 four days prior, with persistent non-bloody and non-bilious emesis, pharyngitis, and nonproductive cough worsening over two days prior. Physical exam including respiratory was unremarkable; however, chest X-ray was consistent with COVID-19. Labs were significant for AST at 1462 unit/L, ALT at 995 unit/L, and alkaline phosphatase at 395 unit/L indicating ALI. UA was significant for pan-sensitive *E. coli* urinary tract infection (UTI). Hepatitis panel (Hep A/B/C/E), acetaminophen, and salicylate levels were negative; patient denied alcohol usage. Patient was admitted to floor for ten days and further workup such as ultrasound of RUQ/kidneys were unremarkable. Patient's COVID-19 was managed with Decadron, UTI was treated with ceftriaxone, and ALI was treated with N-acetylcysteine. Hepatology agreed that ALI was most likely due to COVID-19 hepatitis. By stable discharge, AST measured at 573 unit/L, ALT at 478 unit/L, alkaline phosphatase at 101 unit/L., an 80% reduction.

Discussion: This COVID-19 presentation is unconventional as it involved an immunosuppressed patient with relatively mild respiratory symptoms and an ALI. While pathogenesis of COVID-19 hepatitis is unknown, it is hypothesized to be multifactorial, stemming from ACE-2 mediated viral replication and associated immune-mediated inflammatory response or drug-induced liver injury.

113) RARE CASE OF SERRATIA VERTEBRAL OSTEOMYELITIS

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Native vertebral osteomyelitis (NVO) accounts for 3 to 5% of all osteomyelitis and patients frequently present with nonspecific symptoms. Due to potential for NVO to cause irreversible spinal injury, clinicians must have a low index of suspicion to expeditiously diagnose and treat these infections. We are presenting a rare case of NVO caused by *Serratia marcescens* in a 48-year-old male whose chief complaint was persistent neck pain. Risk factors for developing NVO from *Serratia marcescens* include intravenous drug use, recent spinal surgery, and immunosuppression. The IDSA guidelines for NVO recommend obtaining inflammatory markers and MRI of the spine to diagnose NVO, with imaged guided biopsy for culture data.

Clinical presentation: The patient is a 48-year-old male with history of intravenous drug abuse who presented to the hospital with a 3-month history of progressive neck pain radiating to his right arm. His vitals were stable. Physical exam was significant for tenderness to palpation over the right paraspinal musculature in the cervical and thoracic spine regions but negative spinal tenderness. Labs were significant for an elevated ESR and CRP. MRI demonstrated osteomyelitis/discitis at C3-C4 with no evidence of abscesses/fluid collection. Blood cultures were obtained and patient was started on Cefepime and Vancomycin. Neurosurgery performed an image guided cervical biopsy. Cultures from biopsy grew *Serratia marcescens*. The infectious disease team recommended oral Ciprofloxacin 750 mg twice daily for total duration of 8 weeks.

Conclusion: The most common organisms that cause vertebral osteomyelitis are *Staphylococcus aureus* and gram-negative bacilli such as *Pseudomonas aeruginosa*. It is rare to see *Serratia* causing vertebral osteomyelitis or discitis. Management includes image-guided biopsy, MRI of the spine, and treatment with fluoroquinolones for a duration of 8 weeks.

114) A CASE OF STUBORN TULAREMIA

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Tularemia is a zoonotic disease caused by *Francisella tularensis*, which is a fastidious gram-negative, non-motile, aerobic pleomorphic coccobacillus bacterium. In the United States, approximately 250 cases are reported per year. *F. tularensis* presents with different clinical syndromes depending on route of exposure. The most common manifestation is with ulceroglandular disease (40-50%), followed by primary glandular infection (10-25%), and very rarely oculoglandular, septic, oropharyngeal and pneumonic forms. Ulceroglandular tularemia is characterized by a cutaneous ulcer at the site of inoculation and tender regional lymphadenopathy. Typically, mild to moderate cases are treated with Ciprofloxacin or Doxycycline for 14 to 21. Here, we present a rare case of mild to moderate ulceroglandular tularemia that required extended course of antibiotics.

A 30 year old male presented with a red and painful papule with associated right sided submandibular and deep cervical lymphadenopathy. He had a cat who was known to hunt rodents and rabbits outdoors. Cat passed away from an unknown illness 1 week before patient developed symptoms. Based on his presentation and laboratory results, he was classified as mild to moderate ulceroglandular Tularemia with serum titer of 1:640. He was initially started on Ciprofloxacin 500 mg twice daily for 21 days. However, his antibiotic course was prolonged because of his persistently elevated titers. Despite 13 weeks of Ciprofloxacin, his serum titers were still rising and he had no clinical improvement. He was then transitioned to Doxycycline 100 mg twice daily for 21 days. Ultimately, he required a total of 26 weeks of Doxycycline therapy to have his serum titers stabilized to 1:160 at which point he demonstrated clinical improvement. This prolonged course of antibiotics is atypical with mild to moderate tularemia. This case highlights the importance routinely monitoring titer levels and clinical symptoms to monitor the response to the antibiotics when treating tularemia.

115) ABERRANT RIGHT SUBCLAVIAN ARTERY RESULTING IN UPPER AIRWAY OBSTRUCTION AND DYSPHAGIA LUSORIA

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Introduction: An aberrant right subclavian artery is an exceedingly rare condition that falls under the umbrella of congenital vascular rings. Involvement of the tracheobronchial tree and esophagus dictates symptomatology. Medical literature is limited, however there appears to be a bimodal distribution in the age of presentation.

Case Presentation: A 42-year old female with history of cerebral palsy and asthma presented to the emergency room with 10 days of wheezing despite albuterol treatment, followed by 1 day of postprandial coughing. CT chest angiography showed significant tracheal luminal collapse at thoracic inlet and aberrant subclavian artery. On examination, she was in acute respiratory distress, tripodding with audible stridor and evident sialorrhea, in addition to diffuse end-expiratory wheezes. She was transferred to ICU and intubated. Several attempts to extubate her were futile and she underwent placement of tracheostomy and PEG tube. Following tracheostomy, the patient was again extubated and remained stable on 6 LPM oxygen via trach mask. Cardiothoracic surgery and interventional cardiology were consulted and performed right carotid to right subclavian artery bypass graft, followed by plugging of the aberrant subclavian artery. Further review of the patient's CT scan showed a cervical spine osteophyte causing countercurrent compression of the aberrant Subclavian artery, and subsequently near-total occlusion of the esophagus and significant compression of the tracheal lumen. The patient was discharged with close follow up.

Discussion: This case illustrates a congenital anatomical abnormality manifesting in a hyper-acute presentation. The most commonly reported symptoms with congenital vascular rings include dysphagia, dyspnea, retrosternal pain, and cough. Symptoms are present in only 7-10% of cases, and prevalence is higher Down's, DiGeorge, and Edwards' syndromes. Treatment with open surgery or endovascular stent-grafting is indicated for symptomatic relief and for prevention of complications due to aneurysmal dilatation.

116) MEDIASTINITIS IN SETTING OF ANCA-ASSOCIATED VASCULITIS

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Introduction: ANCA-associated vasculitis (AAV) is a rare disease characterized by inflammation of small- and medium-sized vessels and the presence of anti-neutrophil cytoplasmic antibodies.

Case: A 66-year-old male presented to the emergency department with 2 months of joint pain, progressive dysphagia, fatigue, weight loss, chest pain, and shortness of breath found to have mediastinitis on imaging. Differential diagnoses at the time included mediastinitis secondary to infectious or a rheumatologic etiology. The patient did not report a history of cardiothoracic surgery nor did he have any signs of dental disease. His CT and esophagram were negative for esophageal tears. The next morning, the patient developed several non-painful, shallow oral cavity ulcers varying in size along with palpable purpura on his left medial ankle. Lab results revealed an elevated CRP, elevated RF, positive ANA screen, positive anti-dsDNA antibodies, and positive antichromatin antibodies. The following day, the patient developed asymptomatic bilateral scleral injection and worsening bilateral hand and digit edema. Punch biopsy of his left medial ankle and incisional biopsy of the lower lip revealed deep vessel vasculitis consistent with granulomatosis with polyangiitis (GPA). On his third day, lab results revealed p-ANCA serology, interestingly inconsistent with GPA's c-ANCA predominance. This finding, when combined with his positive anti-dsDNA and anti-chromatin antibodies without traditional lupus findings led to the concern for hydralazine-induced vasculitis for which the patient has been taking for hypertension. The patient was started on oral steroids and improvement in scleral injection, extremity swelling, joint pain was observed. He now follows with rheumatology and began rituximab therapy.

Conclusion: Both vasculitis-induced mediastinitis and hydralazine-induced vasculitis are extraordinarily rare conditions for which literature remains primarily in case reports. This case not only builds the literature of these conditions, but it is the first to connect them.

117) A DANGEROUS DOG LICK, WHICH ENDED UP IN INTENSIVE CARE UNIT

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Introduction: *Pasteurella multocida* is a zoonotic organism which is part of normal flora of domestic and wild animals. It can transmit to humans following bite or scratch from domesticated and wild animals. Non-traumatic transmission from saliva of host is also documented (1). We report such a case of transmission of *P. multocida* following dog lick.

Case Description: 61 years old male with PMH significant for insulin dependent DM, peripheral diabetic neuropathy, CKD, CAD s/p stents, who presented with fever, chills, worsening generalized weakness and altered mental status. Patient had a recent history of right ankle diabetic ulcer. He mentioned that his dog used to lick his wound. Patient was in septic shock on presentation, requiring vasopressors and admission to intensive care unit. Further investigation showed osteomyelitis of right ankle on MRI and *Pasteurella multocida* bacteremia. Initially placed on broad spectrum antibiotics, which was later tailored down to Piperacillin/Tazobactam. Patient recovered successfully with antibiotics and negative pressure wound therapy.

Discussion: Gram-negative bacteremia remains the most common cause of septicemia requiring hospitalization. *P. multocida* is a gram negative anaerobe, whose transmission can be traumatic versus non-traumatic. Presentations can vary, ranging from local abscess formation and tenosynovitis to more serious cases including septic arthritis or osteomyelitis, or even septic shock generally depending on the depth of traumatic injury and inoculum present (2). The proposed mechanism behind our patient developing *Pasteurella* bacteremia is that the organism got introduced to his lower extremity wounds when his dog licked his wound. Further it might have spread hematogenously leading to the development of septic arthritis as well as bacteremia.

Conclusion: This highlights the importance of patients with diabetic foot infections or chronic lower extremity ulcerations to be counseled about the avoidance of pets at home in order to prevent exposure to infectious pathogens like *Pasteurella*.

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118) A FORGOTTEN MIMICKER OF RHEUMATOID ARTHRITIS

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Introduction: Leprosy may mimic several rheumatological diseases including Rheumatoid Arthritis (RA). Musculoskeletal system is the third most common system manifestation in Leprosy (2). Sometimes it may be the only system involved in some early presentations, as in our case.

Case description: We present the case of a 77-year-old male who initially presented with complaints of stiffness of shoulder and hips with elevated CRP. It was initially diagnosed as polymyalgia rheumatic. However, after symptoms worsened, diagnosis of seropositive rheumatoid arthritis was made. Over a period of 10 years, he was being treated with methotrexate, hydroxychloroquine and prednisone. Subsequently, he started having new numbness in his arms and a rash in his left lower extremity. It began as painful plaque with only minor improvement with cephalexin. Biopsy of rash lead to diagnosis of leprosy.

Discussion: Autoantibodies can be present in autoimmune diseases as well as infectious diseases like leprosy (3). This adds to diagnostic uncertainty when leprosy presents as rheumatological manifestations. The articular involvement in leprosy can present in multiple ways ranging from arthritis to deformed joints. (2). Pathogenesis of arthritis in leprosy is considered to be from *Mycobacterium leprae* evoking an immunological reaction (1). Currently, the use of biological agents like TNF alpha inhibitors for treatment of rheumatoid arthritis is on a rise. Some reports suggests increased incidence of Leprosy in patients receiving TNF alpha inhibitors (4). Hence, it is important to have awareness about the rheumatological manifestations of leprosy.

Conclusion: This case highlights the importance of considering leprosy as a differential, especially when a patient fails to improve with initial therapy of rheumatoid arthritis, prior to starting biological agents. Carefully looking for neurological and dermatological manifestation in the disease course, even in areas with low prevalence of leprosy, such as United States, is important.

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119) KIKUCHI DISEASE: A RARE CAUSE OF CERVICAL LYMPHADENOPATHY, RASH AND ARTHRITIS

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Introduction: Kikuchi disease is a rare and benign condition with an unknown etiology that typically presents as isolated cervical lymphadenopathy in a young woman. Other symptoms may include fever (35%), rash (10%), arthritis (7%), fatigue (7%) and hepatosplenomegaly (3%). The disease has been reported world-wide but is most prevalent in Asia. Diagnosis is made by characteristic findings on lymph node biopsy and by excluding other causes of lymphadenopathy.

Case: A 23-year-old female presents with four months of non-tender, waxing and waning cervical lymphadenopathy. She also has migratory poly-articular arthritis and transient non-pruritic maculopapular rash on her trunk and upper extremities. She denies fevers, unintended weight loss, or antecedent infection. She reports occasional night sweats and chills. Other rheumatologic review of systems is benign with no significant exposures or travel history. Exam is notable for multiple enlarged, non-tender cervical lymph nodes, small areas of a maculopapular rash on her right arm and back, and no evidence of synovitis on joint exam. Broad infectious and rheumatologic laboratory work-up is unrevealing. Core needle biopsy is ultimately non-diagnostic given the small sample size but did not have concerning features for lymphoma. Given lower concern for infectious or malignant etiology, she is put on a prednisone taper and almost immediately has symptomatic improvement. By her eight-month follow-up she is free of symptoms off prednisone. The possibility of Kikuchi disease is raised.

Discussion: Kikuchi disease is usually self-limited and resolves within six months. Cases with severe or persistent symptoms have shown rapid improvement with glucocorticoids. Excisional biopsy would be the next step if this patient's lymphadenopathy were to return to confirm the diagnosis. Use of hydroxychloroquine is efficacious for treatment of recurrent disease. Kikuchi disease is associated with the development of systemic lupus erythematosus; therefore, patients should be followed up for several years after diagnosis.

120) OPERATION TAFRO: STORMING THE CASTLE

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Here we report a case of a rare entity called TAFRO syndrome. TAFRO syndrome is a subclass of idiopathic multicentric Castleman's disease (TAFRO-iMCD). Castleman's disease (CD) is a group of lymphoproliferative disorders that share various features and include a wide spectrum of etiologies, presentations, and treatments. TAFRO-iMCD is more specifically defined by the presence of thrombocytopenia (T), ascites (A), myelofibrosis (F), renal dysfunction (R), and organomegaly (O). The etiology of TAFRO-iMCD remains unclear and there are several different theories including clonal disease, autoimmune disease, or viral infection other than HHV-8. The estimated incidence of MCD is 1500-1800 cases/year in the US and roughly 30% of those are iMCD. Of that 30%, only a fraction is classified as TAFRO syndrome. Diagnosis requires certain histopathological findings of biopsied lymph nodes including hypervascularity, plasma cell pathology or a mixed variant. First line treatment is with anti-IL-6 directed therapy and includes siltuximab and tocilizumab. The prognosis of iMCD is poor with 35% of patients dying within 5 years and 60% dying within 10 years. This case follows a 57-year-old man with no prior medical history who presented with dyspnea on exertion and edema. He was found to have volume overload (ascites and pleural effusions), splenomegaly, thrombocytopenia, lymphadenopathy, and renal failure requiring hemodialysis. On admission, a workup was started which revealed an overwhelmingly inflammatory state which was not elucidated until a biopsy of his lymph nodes revealed his diagnosis. He was started on high dose corticosteroids, tocilizumab, and rituximab with improvement of his clinical status. He survived his hospitalization with improvement of his renal function no longer requiring dialysis and stabilization of his platelet counts. He continues to take tocilizumab every 2 weeks and is tapering off prednisone.

121) STREPTOCOCCUS INTERMEDIUS BACTEREMIA AND PYOGENIC LIVER ABSCESS IN A PATIENT WITH NO RISK FACTORS

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This case report depicts a 38-year-old male with no significant past medical history who was admitted for fever of unknown origin and sepsis. He was then found to have *Streptococcus intermedius* bacteremia and pyogenic liver abscess. Treatment course was complicated by pleural empyema leading to readmission. The case presented here adds to the medical literature, where a clear underrepresentation has been noted, and outlines a unique case of *Streptococcus intermedius* liver abscess complicated by pleural empyema in a patient without significant medical history, risk factors or typical physical exam findings.

122) COLD ABSCESS: A CASE OF REFRACTORY EMPYEMA NECESSITANS FROM *ACTINOMYCES MEYERI*

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Introduction: *Actinomyces* species are known to cause indolent infections particularly in the thoracic space and have a propensity to form ‘cold’ abscesses with minimal systemic symptoms. Empyema necessitans (EN) is an uncommon complication of empyema caused by extension of the infection into surrounding tissues. We present a case of EN from *Actinomyces* in a patient presenting with a chest wall abscess.

Case: A 75-year-old man presented with three days of malaise. He had been admitted one month prior after a similar presentation with a loculated left-sided empyema from *Streptococcus intermedius*. He received IV antibiotics and a chest tube but ultimately required VATS decortication, and was discharged on a short course of amoxicillin-clavulanate. On readmission he had sepsis physiology with elevated lactate and inflammatory markers. Exam was notable for diminished breath sounds at the left base with accompanying dullness to percussion. Interestingly he had a 3cm non-fluctuant, minimally-painful subcutaneous nodule at the site of prior chest tube insertion. Shortly after admission the patient had spontaneous drainage of gray, malodorous, purulence from this nodule while changing his clothes. A CT chest without contrast was obtained which was concerning for re-accumulation of the loculated left empyema with new development of a fistulous tract and resultant skin abscess consistent with empyema necessitans. Pleural fluid grew *Actinomyces meyeri* and two other unidentifiable gram negative rods. He was managed with a chest tube and required several weeks of penicillin-based IV antibiotic therapy.

Discussion: EN is a rare complication of both empyema and pulmonary actinomycosis, which typically has a good prognosis with appropriate antibiotic therapy. Careful consideration should be given to patients with known or recent empyema who present with subcutaneous nodules on the chest wall to evaluate for EN, particularly knowing that the fastidiousness of organisms known to cause this, including *Actinomyces*, makes them difficult to identify.

123) CLINICAL AND SEROLOGIC DETERIORATION FOLLOWING MITRAL VALVE REPLACEMENT

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Cardiac prosthesis related hemolytic anemia is a well described phenomena although there remains significant variance in definitions and an overall lack of management guidelines¹. Since the advent of new age prosthetic valves, hemolytic anemias are rather uncommon with an incidence of < 1% and are most likely a result of paravalvular leak (PVL)². New or worsening anemia following valve repair warrants further investigation with a high index of suspicion for hemolysis. PVL may be described as clinically significant if it causes heart failure symptoms and hemolytic anemia < 10 g/dL². Several case series and prospective registry have been established to further examine interventions and associated outcomes³.

Here we describe a case of a 66-year-old male with complex medical history of interstitial lung disease, mitral valve replacement, and chronic anemia presenting with acute hypoxic respiratory failure. Initial evaluation revealed interstitial edema and bilateral pleural effusions identified on chest x-ray, and associated laboratory values suggesting hemolysis. Subsequent transesophageal echocardiogram (TEE) identifying paravalvular leaks with gradient dependent flow and overall severe regurgitation.

Through serial laboratory evaluation, an established timeline, and 3D TEE imaging, we aim to highlight an appropriate diagnostic approach to worsening anemia with a temporal association to valve replacement in patients with a cardiac prosthesis. Furthermore, we will describe common medical and interventional management as supported by the current field of literature recognizing a lack of consensus recommendations.

124) A CASE OF HYPERCOAGULABILITY AND AN UNLIKELY PFO

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In a patient presenting with emboli in the arterial and venous circulation, the clinician should consider the presence of a patent foramen ovale (PFO) allowing paradoxical embolization. A hypercoagulable state may also be present in this setting, and malignancy is an important risk factor.

A 62-year-old woman presented with acute right arm numbness. She noted progressive shortness of breath and chest pain for the past three days, and increased work of breathing on 1L supplemental oxygen. The abdomen was distended, but nontender. Strength was diminished in the right upper extremity with diminished sensation and dysmetria. CT and MR brain imaging revealed numerous infarcts involving bilateral cerebral and cerebellar hemispheres. Further imaging revealed extensive bilateral pulmonary emboli and a splenic infarct. Due to the presence of multiple embolic events, TEE was performed revealing a PFO. On further questioning, she revealed progressively increasing post-menopausal bleeding for the past year. The patient was subsequently evaluated and diagnosed with endometrial carcinoma. She was treated with anticoagulation for the pulmonary emboli, started chemotherapy for the endometrial carcinoma with plans for a hysterectomy, and scheduled for surgical closure of the PFO.

This case demonstrates the impact of a PFO, and how a hypercoagulable state can lead to devastating effects in such patients. The sequence of events that likely occurred in this patient were triggered by the underlying endometrial induced prothrombotic state. The resulting right-sided thromboembolism and extensive pulmonary embolism caused elevated right heart pressures, leading to opening of the undiagnosed PFO, and scattered embolic showers to the brain and spleen. A thorough workup for acute cerebral infarcts in patients with a high suspicion for paradoxical embolus is crucial in determining the etiology of a patient's stroke. Additionally, elucidating the etiology of hypercoagulability is critical in successful treatment of patients after numerous emboli are discovered.

125) AN UNCOMMON PRESENTATION AND UNCOMMON CAUSE OF CHRONIC INVASIVE FUNGAL RHINOSINUSITIS FOLLOWING NASAL SEPTAL MANIPULATION

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Introduction: With the increase in the number of immunocompromised patients, there has been an increase in unusual manifestations of aggressive fungal infections like invasive rhinosinusitis. Patients often present with symptoms of chronic rhinosinusitis for months before the development of complications. Patients are often older, mildly immunocompromised, and have history of recent nasal/sinus interventions or intranasal cocaine use.

Case Presentation: A 61-year-old construction worker presented with a five-months of left-sided facial numbness (left alar to the infraorbital region to the left side of his lip) and tingling inside his left nose. Symptoms started two weeks after a septoplasty to correct deviated septum. Of note, his Hgb A1c five months before and one month after the procedure were 9.9 and 13.6, respectively. MRI brain showed an expansile mass at the left pterygo-palatine fossa with extension into the pterygoid muscles/ masticator space and thickening of V2 and V3, concerning for malignancy. CT angiogram of head and neck showed polypoidal mucosal thickening of the left maxillary and sphenoid sinus without hypervascularity to suggest malignancy. He underwent endonasal resection and surgical pathology of the mass showed features consistent with Mucorales infection. The patient was treated with four weeks of IV amphotericin B followed by six months of Posaconazole.

Discussion: Recently, diabetes mellitus/hyperglycemia has become a common risk factor for the development of acute/chronic invasive fungal sinus infections. Patients with suspected fungal sinusitis should get early nasal endoscopy with biopsies of the affected tissue. Ample tissue should be obtained, including tissues from viable areas to detect vascular invasion and morphology of the fungus. Biopsy specimens should be evaluated intraoperatively to assure sufficient diagnostic tissue was obtained. Histopathologic findings from the surgical specimen can guide initial treatment until culture results return. Cultures are usually positive but can have false negative result due to fastidious nature of Mucorales.

126) COMPLEX PRESENTATION AND CHALLENGING MANAGEMENT OF CRYPTOCOCCAL MENINGITIS: A CASE REPORT

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Introduction: *Cryptococcus neoformans* is an encapsulated fungal pathogen that may infect immunocompromised patients. Cryptococcal meningitis is the most common cause of fungal meningitis and a leading cause of morbidity and mortality (more than 80%) in patients with non-protective immune responses (HIV infection). Clinical predictors suggesting a poor prognosis include abnormal mental status and cerebrospinal fluid antigen titer >1:1024.

Case Description: JP is a 56 yo M with past medical history significant for HIV and delusional disorder who presented to Emergency Department with one week of extreme weakness associated with coughing, shortness of breath, unsteady gait, visual hallucinations, and 22lb weight loss in two weeks. CT Head without contrast was unremarkable. CT Chest W Contrast demonstrated patchy ground glass opacities in the posterior segment left upper lobe.

The patient was admitted and started on Doxycycline 100mg PO BID and Cefepime 2,000 IV TID for empiric treatment of multifocal pneumonia. Three days later, a serum culture was significant for *Cryptococcus neoformans* with a serum *Cryptococcus* antigen of >1:1024 and CD4 11. The patient was treated with two weeks of flucytosine 25mg/kg q6h and amphotericin 3mg/kg. Additionally, prophylactic Bactrim treatment was initiated. After two weeks, the flucytosine and amphotericin was discontinued, and fluconazole 800mg daily was started. After two weeks, this dose was decreased to 400mg daily with intention to further reduce the dose after six more weeks. Due to concern for immune reconstitution inflammatory syndrome, ART therapy was started five weeks following treatment induction.

Discussion: We present a case of disseminated Cryptococcal infection in a 56yo M. After presenting with multiple predictors for a poor prognosis, this patient was successfully treated and recovered from infection. This case emphasizes the importance and success of prompt diagnosis and treatment initiation as well as aggressive therapy.

127) EYE SPY A RARE CASE OF OCULAR SYPHILIS

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Background: Ocular syphilis is an early clinical manifestation of neurosyphilis, an infection of the central nervous system by *Treponema pallidum*. Ocular manifestations occur in less than one in 1 million diagnosed with syphilis. Given the rarity of this complication and increasing rates of syphilis, clinical symptoms may go underdiagnosed or misdiagnosed.

Case Description: A 61-year-old male with a significant past medical history of remote syphilis that was treated in the 1970s presented to the emergency department for a re-evaluation of an 8-day history of right eye pain, photophobia, and tearing. His physical exam revealed sclero-uveitis without neurological deficits. A positive rapid plasma reagin (RPR) of 1:16 was found. Subsequently, the patient was started on intravenous benzylpenicillin (penicillin G) 4 million units every 4 hours. His right sclera progressively improved in redness, inflammation, and pain. He was discharged home after 2 days with follow up for RPR titers in 3, 6, and 12 months.

Discussion: Approximately 56% of cases of ocular syphilis present with bilateral symptoms. Notably, about one third of subjects with isolated ocular syphilis did not present with any other indications of syphilis infection. Once ocular syphilis is suspected, it can be diagnosed first through serologic testing. These tests include but are not limited to non-treponemal testing such as venereal disease research laboratories (VDRL) and RPR. Treponemal tests are utilized concomitantly, and those include enzyme immunoassays and fluorescent treponemal antibody absorption test (FTA-ABS). If serologic tests are positive, a lumbar puncture is performed to confirm the diagnosis.

Conclusion: Here we present a rare case of monocular anterior uveitis due to syphilis without any other neurological involvement such as nuchal rigidity or confusion. We present this case to increase awareness among clinicians to consider this diagnosis in patients with any remote history of syphilis and unexplained ocular manifestations.

128) SHUNT-DRIVEN HIGH-OUTPUT HEART FAILURE IN A PATIENT WITH KIDNEY DISEASE

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A 50-year old male presented to the emergency room after he was discovered to be tachycardic during a routine outpatient clinic visit. At the time of his initial exam, the patient was hemodynamically stable and asymptomatic, with heart rates sustained in the 170s. EKG was significant for atrial flutter, and the patient was admitted to the cardiology service for management. On exam, the patient was found to be significantly volume overloaded. Despite baseline kidney function, the patient did not respond adequately to increasingly aggressive diuresis. Right heart catheterization eventually revealed high-output cardiac failure, with shunting occurring through the patient's known dialysis fistula. After fistula ligation, the patient had adequate response to IV diuretics and was eventually discharged home in stable condition.

129) ANGIOTENSIN-CONVERTING ENZYME INHIBITOR (ACEI) INDUCED ANGIOEDEMA WITH RESULTANT AIRWAY OBSTRUCTION FOLLOWING ENDOTRACHEAL INTUBATION

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Case Presentation: A 61 yo female with a PMH of chronic pancreatitis, hypertension, brain aneurysm, and cerebrovascular accident presented to the ED for shortness of breath. Previously, she was admitted for shortness of breath secondary to ACE-I induced angioedema, during which she was intubated with facial swelling. During repeat hospitalization, the patient developed a stridor with respiratory distress and was placed on 15 L of oxy mask. Bronchoscopy revealed severe tracheal stenosis with multilevel damage to tracheal rings, warranting urgent tracheostomy. One month after discharge, the patient was seen in clinic by ENT. Transnasal laryngoscopy was performed, revealing near total subglottic/tracheal stenosis of 3cm stenosis length, presumed secondary to traumatic intubation for prior angioedema management. She was aphonic with plans for staging/exploratory direct microlaryngoscopy and bronchoscopy to determine the extent of stenosis.

Discussion: ACE-I induced angioedema, a consequence of excessive levels of bradykinin, has an incidence of 0.1% to 0.7% (largely in women and African Americans) and accounts for approximately one-third of angioedema cases in the ED.

Patients present with swelling in the face, tongue, and airways, with symptoms occurring within weeks to years of ACE-I treatment. It warrants emergency intervention due to life-threatening obstruction of the airways. Several cases in the literature demonstrate admission to the ICU in patients with such symptoms.

Post intubation tracheal stenosis is a well-known complication of endotracheal intubation, yet its mechanism is unclear. While extensive literature exists on tracheal stenosis due to traumatic intubation and ACE-I induced angioedema, respectively, there is a gap on tracheal stenosis secondary to traumatic intubation during the management of ACE-I induced angioedema.

Conclusion: This report summarizes an unusual instance of tracheal stenosis secondary to intubation during ACE-I induced angioedema. It highlights the importance of careful intubation practices in patients with suspected airway edema.

130) ANAPLASMOSIS IN A CHRONICALLY IMMUNOSUPPRESSED PATIENT: NEW CONSIDERATIONS IN TREATING TICK-BORNE ILLNESS

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Introduction: Human Granulocytic Anaplasmosis (HGA) is a tick-borne illness endemic to the upper Midwest United States. This disease typically manifests with a fever, headache, malaise, nausea, and vomiting. Less commonly, it may present more severely with signs of sepsis and lingering symptoms following treatment.

Case Presentation: A 41-year-old female with a history of Crohn's disease on azathioprine presented with four days of nausea, myalgias, rigors, palpitations, and severe headache. Patient noted a tick bite one week prior. Presentation was significant for fevers to 102.8F, tachycardia, leukopenia (2,900/mL), thrombocytopenia (29,000/mL), and liver enzyme elevations (AST 60 units/L and ALT 50 units/L). Initial evaluation for infection was negative, including Lyme serologies, CT abdomen, and UA. Patient was started on empiric IV vancomycin and aztreonam. Subsequent blood smear showed intracellular morulae, and doxycycline therapy was started on day two of admission. Patient's symptoms improved over three days inpatient. HGA diagnosis was confirmed via PCR results after discharge, and laboratory abnormalities were confirmed to have resolved one week later. However, the patient continued to experience tachycardia and palpitations for over eight months.

Discussion: This case brings into consideration whether immunosuppression may be related to worsened symptoms and longer disease course in HGA. Our patient received suitable antibiotic treatment on day six of illness after a one-day delay, indicating that the window for optimal treatment may be shorter in immunosuppressed patients.

Conclusions: It may be valuable to increase the length of antibiotic treatment (>10 days) for HGA in immunosuppressed patients. Additionally, in endemic areas like the Midwest, testing for anaplasma should be considered in all patients with a recent history of a tick bite. Finally, it may be appropriate to consider empiric doses of doxycycline in immunosuppressed patients in the context of tick exposure.

131) MYSTERY MASS: A WISCONSIN CASE OF VALLEY FEVER IN THE SETTING OF TOBACCO USE AND METASTATIC PROSTATE CANCER

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Coccidioidomycosis is a fungal infection endemic to the desert Southwest. Around 20,000 cases of coccidioidomycosis infection (also known as Valley Fever) were reported to the CDC in 2019, and an additional 130,000 cases were estimated to be undiagnosed or misdiagnosed. Of these infections, less than 10% occur outside the endemic regions of Arizona and California.

Our patient is a 67yo male from Wisconsin with a history of tobacco use and metastatic prostate cancer. Prior prostate treatment included docetaxel, oral bicalutamide, SBRT to a left acetabulum metastasis, and radiation to prostate. Current treatment included lupron, IV zometa infusions, and enzalutamide. During a surveillance oncology visit he was found to have increasing PSA and underwent repeat staging. CT scan and bone scan showed no clear evidence of disease progression. After another 6 months of rising PSA, PSMA PET-CT was obtained and was negative for indication of progression of prostate cancer, but did show a new 3.8cm non-avid mass in the right lower lung. Due to concern for a new primary malignancy, FDG PET-CT was obtained and showed an FDG-avid RLL mass as well as active lymph nodes at level 4, paratracheal, and subcarinal areas. Mediastinal lymph node biopsy via EBUS was negative for malignancy. IR guided lung biopsy showed necrotic debris with abundant fungal organisms. *Coccidioides* serology was ultimately positive. History confirmed recent travel to Arizona. He was started on oral fluconazole and tolerated the treatment well. He was largely asymptomatic during the disease course, noting a nagging cough he attributed to “smoker’s cough”.

Although patients with history of tobacco use are at high risk for primary lung cancer, It is important to keep infections in the differential of lung mass. History of travel and exposures may reveal the possibility of atypical infections including fungi. His rising PSA likely indicates occult disease.

132) RECURRENT FOCAL SEGMENTAL GLOMERULOSCLEROSIS FOLLOWING COVID-19 VACCINATION

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Focal segmental glomerular sclerosis (FSGS) is a histological finding in patients with proteinuria. Biopsy proven FSGS is seen in up to 35% of adults with idiopathic nephrotic syndrome. The clinical signs and symptoms of FSGS include the following: nephrotic-range proteinuria, hypertension, microscopic hematuria, and hypercreatininemia, which may progress to renal failure. Proteinuria is due to effacement of the foot processes leading to increase in glomerular permeability.

We report the case of a 56-year-old female with a history of focal segmental glomerulosclerosis (FSGS) and AML (dx 2013, relapsed 2015) s/p allogeneic peripheral blood stem cell transplant (2015), who was seen in nephrology clinic with complaints of diffuse swelling (3 weeks after receiving her second COVID vaccination). Lab work revealed urine protein-creatinine ratio (UPCR) of 19.8 and serum creatinine of 1.41 mg/dL (baseline 1.0 mg/dL). These findings were concerning for recurrent FSGS. She was started on 60 mg prednisone daily, with return to her baseline creatinine within 1 month. Steroids were quickly tapered, and she began Mycophenolate Mofetil BID for maintenance immunosuppression.

FSGS may be primary (idiopathic), secondary, or genetic. Secondary FSGS can be related to viruses (HIV, parvovirus B19, CMV), drugs (IV heroin, anabolic steroids, IV bisphosphonates), or certain medical conditions (obesity, sickle-cell disease, diabetes, reflux nephropathy, unilateral kidney agenesis). There have been an increasing number of case reports describing patients with active COVID-19, or history of COVID-19, diagnosed with collapsing variant-FSGS. It has been postulated that COVID-19 vaccination can induce immune activation which allows for reactivation of glomerular disorders or development of de novo glomerular pathology. The inflammation from our patient's vaccination may have led to the recurrence of her FSGS. Response rates remain variable depending on the underlying pathology and immunosuppressive regimen used. Our patient however has had a favorable response to immunosuppression with significant improvement in proteinuria.

133) A RARE CASE PRESENTATION OF MILLER FISHER SYNDROME

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Introduction: Guillain Barré Syndrome (GBS) is a rare post-infectious neuromuscular paralysis of the parasympathetic nervous system. Infection classically presents as an ascending, flaccid weakness alongside sensory deficits. However, there are reports of rare variants of GBS that alter the modalities of the eyes and even gait. Here we present a rare case of a variant of GBS: Miller Fisher Syndrome (MFS).

Case presentation: A 63-year-old male with past medical history of hyperlipidemia and diabetes mellitus presented to an outside hospital with diplopia and new onset weakness, paresthesia, and numbness in bilateral lower extremities three days following a mild viral infection. The patient was discharged after two days without acute intervention following extensive negative workup including imaging, syphilis, vitamin B12 deficiency, thyroid abnormalities, acetylcholine receptor abnormalities, stroke/atherosclerosis, and acute demyelination. Four days later, he presented to us with worsening leg weakness and a reported fall, recent urinary incontinence, and new onset weakness with decreased sensation in bilateral hands. Physical exam was significant for diminished to absent patellar and Achilles reflexes bilaterally and mild left fourth cranial nerve palsy. Additional workup included lumbar puncture with protein 257 mg/dL, lymphocytes 100%, and glucose 66 mg/dL. Ascending paralysis, diplopia, and areflexia led to a clinical diagnosis of GBS, specifically MFS variant due to cranial nerve involvement. The patient was treated with plasmapheresis and discharged to an inpatient rehab facility due to deconditioning nine days later with improving symptoms.

Discussion: While the worldwide incidence of GBS is 1 in 100,000, the MFS variant represents a rare incidence of approximately 1 in 1,000,000. GBS-MFS is characterized by ophthalmoplegia, areflexia, and ataxia, all were present in this patient. While IVIG was initially administered, plasmapheresis was required due to advanced case presentation. This represents a classic case of MFS variant. Early recognition is critical for initiating prompt treatment and preventing long-lasting effects.

134) CONFOUNDING CHEMOTHERAPY CONCERN

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Introduction: Hand-foot syndrome (HFS) is an adverse side effect that can occur with chemotherapeutic agents including high dose capecitabine. While capecitabine is used to treat metastatic colorectal and breast cancers, 43-71% of patients treated with single agent capecitabine is reported to show HFS symptoms. While not lethal, HFS can affect quality of life by presenting with palmoplantar numbness, tingling, burning pain, and/or hyperpigmentation; in advanced stages, blistering and ulceration may occur.

Case presentation: Here we present a case of a 39-year-old female with ER+/PR+/HER2+ metastatic breast cancer to the brain, lymph nodes, liver, and chest wall treated with herceptin, capecitabine, tucatinib presented with SOB. She was found to have isolated subsegmental pulmonary embolism in the right lower lobe, with no evidence of right heart strain. She was started on heparin and found to be medically stable for discharge. However, on physical exam she had incidental findings of dark black discoloration on the creases of palms and soles of feet bilaterally. Patient reported associated paresthesia and swelling. As a result, all chemotherapeutics were held for the duration of her 2 day stay. Ultimately, an oncology consult was called due to concern for medication side effects. This specialized team immediately identified the symptoms of HFS, discontinued the capecitabine alone, and recommended aggressive hydration with thick emollients.

Discussion: Here we have a case of Grade 1 HFS reaction to capecitabine presenting with hyperpigmentation and paresthesias. Differential diagnoses include allergic reactions, erythromelalgia, and hand-foot skin reaction. The reaction is readily managed by pausing/reducing capecitabine and conducting supportive measures such as topical emollients and immersing the extremities in cold water. Prompt intervention will allow for quicker recovery, return to an effective chemotherapeutic protocol with less side effects, and prevent progression to advanced stages.

135) A MYSTERIOUS SOURCE OF MELENA

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Patients presenting with melena are often found to have an upper gastrointestinal source: melanic stool on exam has a likelihood ratio of 25 for upper gastrointestinal bleed (1). But what if repeated endoscopies are unimpressive?

Mr. S is a 75 year old male with a history of atrial fibrillation on apixaban for three years, NASH cirrhosis, chronic anemia (baseline hemoglobin 12 mg/dl) who presented with two weeks of melena and weakness. His admission Hgb was 5.5 mg/dL and the rectal exam confirmed melena. He underwent multiple endoscopies, colonoscopies, and a capsule study which did not identify a source. CT chest, abdomen, and pelvis showed no evidence of a hematoma and laboratory studies showed no coagulopathy. His melena and anemia persisted, receiving in total nine units of blood across multiple days. Throughout admission, he noted periodic episodes of mild, self-limiting epistaxis and slight morning hemoptysis with associated metallic “gurgling” sensation in his throat. Otolaryngology performed a bedside direct laryngoscopy which revealed a minimal varicosity of the right vallecule which was probed without incident.

Pulmonology performed a bronchoscopy to evaluate his hemoptysis, which was unremarkable, but the patient had an episode of brisk oral bleeding requiring intubation for airway protection. Repeat endoscopy after intubation showed fresh blood but no source. Otolaryngology subsequently visualized actively bleeding vallecular varices which were cauterized. He remained intubated overnight and was extubated without incident the following day. His hemoglobin remained stable and began recovering following cauterization.

Vallecular varices are exceedingly rare causes of bleeding and more often present with hematemesis than melena. In the three other case reports published on vallecular varices, patients presented with hemoptysis, not melena (2-4). This patient had an unusual presentation of a rare cause of bleeding that required considering sources above the gastrointestinal tract for a successful diagnosis.

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136) TEPROTUMUMAB INDUCED ENCEPHALOPATHY- A RARE SIDE EFFECT OF A NOVEL THERAPEUTIC

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Introduction: Teprotumumab is a novel therapeutic intravenous monoclonal antibody approved by United States Food and Drug Administration (FDA) in 2020 for treatment of thyroid eye disease (TED). It inhibits signaling at IGF-1 receptors which has been implicated in the pathogenesis of this disease. It is fairly well tolerated with mild to moderate side effects including muscle spasm, diarrhea, weight loss, hyperglycemia and infusion reactions. There is only one case report to date indicating rapidly progressing cognitive decline as a potential side effect of this drug. We present a case of encephalopathy associated with teprotumumab therapy with significant improvement after plasmapheresis.

Case: A 62-year-old woman with a history of hypertension, Graves' disease, multiple thyroid nodules, and TED presented with one week of intermittent altered mental status and confusion. Her husband first noticed these symptoms shortly after the third infusion of teprotumumab. She had difficulty performing basic tasks including activities of daily living along with extreme mood swings, anterograde amnesia, aphasia, insomnia, tremors, and anxiety. Neurologic evaluation demonstrated significant cognitive, visuospatial and linguistic impairments. Extensive evaluation showed no signs of metabolic, infectious, toxic, or structural causes for her confusion. Based on a prior case report demonstrating improvement with plasma exchange after failing steroid and intravenous immunoglobulin therapy (IVIG) in a similar patient, the decision was made to start plasma exchange treatment. The patient underwent five plasma exchanges on alternating days, with the first occurring 13 days after her last teprotumumab infusion. Following her fifth plasma exchange, the patient's neurocognitive symptoms completely resolved.

Discussion and conclusion: To our knowledge, this is the second reported case of encephalopathy associated with teprotumumab therapy. Our case report highlights and further reinforces the efficacy of plasma exchange therapy in such cases. Clinicians should consider this diagnosis in a patient with encephalopathy after teprotumumab infusion and consider plasma exchange in an appropriate clinical setting.

137) NEOSARTORYA PSEUDOFISCHERI PAPILLARY MUSCLE ABSCESS: ECHOCARDIOGRAPHIC AND PATHOLOGIC CORRELATES

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Background: Fungal infection is a rare cause of endocarditis and is typically only seen in immune suppressed or compromised patients. *A. fumigatus* is the most common cause of fungal endocarditis.

Case Presentation: A 36-year-old woman presented to for evaluation of pulmonary edema in the setting of right lower lung abscess. Past medical history was notable for cystic fibrosis status-post bilateral lung transplant complicated by chronic rejection. Bronchoalveolar lavage had grown multiple colonies morphologically identified as *A. fumigatus*. Anti-fungal treatment with posaconazole was initiated then broadened to include amphotericin B and caspofungin due to clinical deterioration. CT-guided transthoracic lung biopsy from the abscess was sent for molecular sequencing and the isolate was identified as *Neosartorya pseudofischeri*. Prior isolates previously classified as *A. fumigatus* were then sequenced and relabeled as *N. pseudofischeri*.

Echocardiography revealed normal right ventricle size, function was borderline reduced, and estimated right ventricular systolic pressure was 69 mmHg. Left ventricular chamber size was normal, ejection fraction was 75%. The mitral chordae appeared to have four large ovoid masses. There was flail of the posterior mitral leaflet and significant mitral regurgitation. Given the normal left ventricular chamber size and hyperdynamic function with acute pulmonary edema, it was felt that this represented severe acute mitral valve regurgitation. A clinical diagnosis of fungal infective endocarditis was rendered. Over the next 48 h the patient shifted to comfort measures only and expired. Post-mortem examination of the heart showed mitral valve prolapse and multiple vegetations on the tips of the papillary muscles and posterior leaflet of the mitral valve with evidence of fungal colonization upon staining.

Discussion: This is the only known case of native valve *N. pseudofischeri* cardiac infection. Despite similar morphology, it is imperative to distinguish between *N. pseudofischeri* and *A. fumigatus* to provide timely, lifesaving treatment due to differing antifungal sensitivities.

138) MYELOID SARCOMA IN THE PANCREAS: A CASE OF RECURRENT ACUTE MYELOID LEUKEMIA

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Introduction: Myeloid sarcoma (MS), a unique subtype of acute myeloid leukemia (AML), is an extramedullary mass consisting of myeloid blasts. Clinical manifestations of MS vary according to the size and location of the mass. It primarily occurs in lymph nodes, skin and soft tissues, bone, testis, CNS, and gastrointestinal tract. While rare, extramedullary MS can occur in the pancreas and mimic primary pancreatic cancer.

Case Description: A 69-year-old male with a history of AML s/p allogeneic BMT in 2014 and BPH presented to the ED with jaundice, dark urine, and pruritis. He was otherwise asymptomatic without abdominal pain, nausea, diarrhea, pale stools, or weight loss. Labs obtained in the ED resulted with elevated AST/ALT, ALP, total and direct bilirubin, lipase, and CA 19-9; BMP and CBC were unremarkable. CT abdomen pelvis demonstrated a 2.6x4.6x2.7cm, ill-defined pancreatic head/uncinate process mass concerning for malignancy with obstruction of the pancreatic and bile ducts with no evidence of metastatic disease within the abdomen or pelvis. Gastroenterology performed an ERCP with stenting and EUS with biopsy of the pancreatic head mass.

Final cytology of the specimen was positive for myeloblasts consistent with myeloid sarcoma: immunostains showed atypical cells that stain positive for CD45, CD43, CD34, CD117, CD33, and MPO. Bone marrow aspirate demonstrated normocellular bone marrow, morphologically and immunophenotypically negative for AML. He was admitted to the malignant hematology service who started him on chemotherapy with CLAG-M (cladribine, cytarabine, filgrastim with mitoxantrone). Currently, cytogenetic results are pending and the transplantation team is discussing BMT.

Discussion: Hematological malignancies, such as MS, may manifest as a soft mass, which often causes misdiagnosis. MS should be kept in mind when evaluating a pancreatic mass, especially in a patient with history of prior AML, despite positivity for CA 19-9 and imaging suggestive of a primary pancreatic malignancy.

Research Posters

139) RAPID PROGRESSION OF ATHEROSCLEROSIS BURDEN SHOWN IN LUPUS NEPHRITIS RENAL TRANSPLANT RECIPIENTS

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Background: Cardiovascular disease (CVD) is a leading cause of morbidity and mortality for those with lupus nephritis (LN) who undergo renal transplant. LN represents an independent risk factor for CVD. Here we examine renal atherosclerosis (r-ASCL) in patients who underwent renal transplantation due to LN.

Methods: This is a single-center retrospective study of kidney transplant recipients with ESRD due to LN who underwent kidney biopsy between 1994 and 2019. The presence and severity of r-ASCL was graded at each renal biopsy for up to four total subsequent biopsies post-transplant to determine r-ASCL progression over time. Primary outcome was prevalence of renal arteriosclerosis in post-transplant biopsies. Prevalence of r-ASCL was compared to published age-matched healthy controls and patients with LN on native kidney biopsy.

Results: A total of 134 renal transplant patients were included in our study. The overall prevalence of r-ASCL was 45% in the first transplant biopsy. Over an average of 3.8 years after renal transplant, there was an 18% increase in any r-ASCL and a 23% increase in moderate-to-severe r-ASCL on subsequent biopsies.

Conclusion: Our study highlights striking progression of r-ASCL in transplant recipients with 23% progressing to moderate-severe r-ASCL in less than four years after transplant. R-ASCL prevalence was higher than age-matched healthy peers, but lower compared to age-matched LN peers, despite having higher ASCVD risk factors highlighting role of acute inflammation leading to higher r-ASCL burden. Our findings highlight a possible role of timely and targeted treatment of ASCVD risk factors in reducing r-ASCL occurrence in transplant patients which needs to be evaluated in future studies. In future studies we will examine how r-ASCL progression predicts future CVD events in transplant patients with a history of LN.

140) PERCEPTION OF ADVANCED PRACTICE PROVIDERS IN HOSPITAL MEDICINE REGARDING INTEREST IN ACADEMIC ADVANCEMENT AND SCHOLARSHIP

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Objectives: PAs and NPs understand scholarly activities and mentorship are imperative in academic medicine for career advancement, however, most early career APPs do not feel prepared when asked to participate in projects. To guide the development of support programs, this study identified perceived benefits, challenges, and barriers to participating in academic advancement and scholarly projects.

Methods: We surveyed 27 APPs in one hospitalist group at Medical College of Wisconsin from June 2 to 14, 2022. A Qualtrics survey for self-reported years experience, involvement in scholarly work, perceived benefit for doing scholarly projects, barriers to scholarship and career advancement, and interventions that may facilitate career development was emailed to all APPs in the hospitalist group. Responses were anonymous.

Results: Of the 27 APPs surveyed, 62.9% had 0-3 years experience and 70.3% had no scholarly work experience such as writing case reports, working on original research or QI projects. In fact, 81.4% had completed zero scholarly projects in their career. APPs perceived benefits of participating in scholarly projects included 59.2% stating it serves as a foundation for scientific writing and publication and 55.6% stating it helps develop their CV. When asked to rank importance in barriers to scholarship and career advancement and 59.2% indicated lack of time due to clinical and administrative responsibilities and 55.5% indicated lack of incentives. When asked about interventions that may facilitate scholarship, 70.3% said protected time and 70.3% said incentives like financial gain or recognition from their employer.

Conclusions: Our findings highlight that APPs in this hospitalist group perceive multiple benefits of scholarly activities, even early in their careers. Barriers to participation include lack of incentives, time, and lack of knowledge about scholarship and mentorship opportunities. More would pursue scholarship if protected time and financial incentives were offered. A structured peer mentorship program could encourage scholarly work.

141) MINDFUL COLORING WITH CHILDREN AT GOLDEN HOUSE DOMESTIC ABUSE SHELTER

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Introduction: Adverse childhood experiences (ACEs), including abuse, neglect, and household dysfunction, can affect brain development and how the body responds to stress. ACEs correlate with increased risk of diabetes, asthma, cancer, depression and decreased educational attainment. Mind-body methods attenuate negative symptoms while promoting self-regulation and positive health, social, and academic behaviors.

Objective: To assess the effect of a mindful coloring intervention on hope, resilience, and mood in children who have experienced ACEs.

Methods: Six children ages 7-13 at Golden House Domestic Abuse Shelter participated in weekly mindfulness coloring sessions as availability allowed. Participants colored what they visualized during a self-affirming meditation reading. Identical pre- and post-tests were administered each session to assess resilience and hope using standardized children's scales and mood using a novel scale.

Results: There were no statistically significant changes between overall pre- and post-test scores for resilience ($p=0.95$), hope ($p=0.52$), or mood ($p=0.54$), nor over time for hope ($p=0.14$) or mood ($p=0.71$). There was a statistically significant negative change in resilience scores over time between the first half of sessions and the second half ($p=0.0058$), corresponding to the first and second months participants resided at the shelter.

Conclusions: This decline in resilience scores may be a consequence of ACEs and shelter inhabitation during this transitional period, demonstrating the necessity of further support for children experiencing ACEs. Identification of this effect may inform future intervention design to precisely target the mechanisms of ACE-associated ramifications.

142) TOPICAL TREATMENT OF CUTANEOUS SQUAMOUS CELL CARCINOMA IN SITU AND THE IMPACT OF CLINICAL RISK FACTORS AND POSITIVE HISTOLOGIC MARGINS AT THE TIME OF DIAGNOSIS

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Background: Topical 5-fluorouracil (5-FU) and imiquimod are commonly used by clinicians for cutaneous squamous cell carcinoma in situ (cSCCis), although their use is off label for these indications. Limited data exists for the efficacy of topical treatments for cSCCis, with most published studies limited by size, follow-up, and inconsistent treatment regimens. To our knowledge, no studies have evaluated the importance of histologic margin on the diagnostic biopsy prior to topical treatment for cSCCis. We sought to identify the efficacy of topical 5-FU and imiquimod in the treatment of cSCCis with positive histologic margins at the time of diagnosis and evaluate the influence of various risk factors on recurrence.

Methods: We conducted a single-institution retrospective chart review of patients seen at the Froedtert Memorial Lutheran Hospital Dermatology Clinic from 01/01/2014 – 12/01/2021. Pathology records were screened for cSCCis with positive histologic margins on diagnostic biopsy and patients were included if they were subsequently treated with curative intent with either topical 5-fluorouracil or imiquimod. We identified any recurrences of cSCCis within a two-year time period from the initial biopsy.

Results: In 215 adult patients treated with 5-FU (n=210) or imiquimod (n=5) after biopsy-proven cSCCis, 11 patients had pathology-proven cSCCis recurrence (5.1%), 8 patients had clinical recurrence without repeat biopsy (3.7%), and 1 patient had upstaging to invasive cSCC (0.47%). Recurrence was more likely with larger diameter lesions at initial biopsy ($p=0.02417$), with 50% increased odds of recurrence for each unit increase in diameter (cm). Recurrence was more likely after treatment with imiquimod (3/5, 60%) compared to 5-FU (17/210, 8.1%) ($p=0.0062$).

Conclusion: Topical 5-FU is an appropriate therapy for cSCCis in correct clinical scenarios. Extra consideration should be taken for 5-FU use in larger diameter cSCCis lesions. Although limited by sample size, our study does not support using imiquimod for cSCCis.

143) BONE HEALTH AND OSTEOPOROSIS IN TOTAL KNEE ARTHROPLASTY PATIENTS

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Introduction: Osteoporosis is underdiagnosed and undertreated before total knee arthroplasty (TKA). Poor bone health is associated with significant complications, including periprosthetic fracture and aseptic loosening. Previous research examining osteoporosis in total knee arthroplasty (TKA) is largely retrospective, limited to patients with a previous indication for DXA and bone health evaluation. This constraint may lead to an overestimation of osteoporosis prevalence in TKA. The purpose of this study is to prospectively report the prevalence of osteoporosis in a cohort of patients prior to TKA.

Methods: This prospective cohort study began on September 1, 2019, and included 100 elective TKA patients. Inclusion criteria were age ≥ 50 years and primary TKA. All patients obtained clinical DXA and bone health evaluation. Existing bone health was not a recruitment factor. Fracture risk was estimated via FRAX. Osteoporosis was defined by World Health Organization criteria [T-score ≤ -2.5] or clinically [T-score ≤ -2.5 , T-score > -2.5 and < -1.0 and a fragility fracture or an elevated FRAX risk, or prior hip/spine fracture].

Results: The study included 100 patients, 68 females and 32 males, mean age of 67.2 ± 7.7 . T-score osteoporosis was observed in 16 patients and 49 had osteopenia; 47 had clinical osteoporosis. Mean FRAX major osteoporotic fracture (MOF) risk [fracture of the spine, hip, humerus, or wrist] was $11.1\% \pm 7.6\%$ and hip was $2.2\% \pm 3.3\%$. Regarding high fracture risk, 13 patients had a MOF risk $\geq 20\%$ and 21 had a hip fracture risk $\geq 3\%$.

Discussion and Conclusion: Clinical and T-score osteoporosis are frequent in a typical cohort of TKA patients, with a rate of preoperative osteoporosis (47%) supporting findings of previous retrospective studies. Orthopedic surgeons should recognize bone health before elective arthroplasty. Further study into preoperative bone health screening and optimization is warranted.

144) BONE HEALTH SCREENING TO IDENTIFY TOTAL KNEE ARTHROPLASTY PATIENTS FOR PREOPERATIVE DXA: A BONE HEALTH OPTIMIZATION EFFORT

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Introduction: Bone health optimization is a process where osteoporotic patients are identified, evaluated via modalities such as dual-energy x-ray absorptiometry (DXA), and treated when indicated. There are currently no established guidelines to determine who needs presurgical DXA. The American Orthopedic Association has emphasized this need for expanded bone density (BMD) testing before elective orthopedic surgery through the Own the Bone initiative. This study evaluates the effectiveness of a simple screening protocol to identify TKA patients for preoperative DXA.

Methods: This prospective cohort study began on September 1, 2019, and included 100 elective TKA patients. Inclusion criteria were ≥ 50 years and primary TKA. All patients obtained clinical DXA and bone health evaluation. Existing bone health was not a recruitment factor. The screening protocol defining who should obtain DXA included meeting any of the following: female ≥ 65 , male ≥ 70 , fracture history after age 50, or FRAX major osteoporotic fracture risk without BMD-adjustments $\geq 8.4\%$. Osteoporosis was defined by World Health Organization criteria [T-score ≤ -2.5] or clinically [T-score ≤ -2.5 , elevated BMD-adjusted FRAX risk, or prior hip/spine fracture]. Sensitivity and specificity were calculated.

Results: The study included 68 females and 32 males, mean age of 67.2 ± 7.7 . T-score osteoporosis was observed in 16 patients while 43 had clinical osteoporosis. Screening criteria recommending DXA were met by 69 patients. Screening sensitivity was 1.00 (CI: 0.79-1.00) and specificity was 0.37 (CI: 0.27-0.48) for identifying patients with T-score osteoporosis. Similar sensitivity of 1.00 (CI: 0.92-1.00) and specificity of 0.54 (CI: 0.41-0.68) were found for clinical osteoporosis.

Discussion and Conclusion: A simple screening protocol identifies TKA patients at risk of T-score and clinical osteoporosis for preoperative DXA with high sensitivity in this prospective cohort study.

145) COVID-19 IMPACT ON EMERGENCY FRONT LINE RESPONDERS IN NORTHEASTERN WISCONSIN

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COVID-19 took the United States by storm in 2020, resulting in over 20 million cases and nearly 1,000,000 deaths as of May 4, 2022¹. However, even before an infectious disease pandemic, emergency medical responders were more likely than the general population to suffer from depression, anxiety, and general psychological distress². Our study set out to determine how the pandemic affected emergency medical responders in terms of their well-being. A survey with questions regarding mental health and well-being was distributed to several Northeastern Wisconsin emergency medical responder departments. Participants were asked to answer questions about three different time periods: Pre-COVID, during COVID, and following widespread availability of the vaccine. PHQ-9 and GAD-7 data showed increases in the levels of depression and anxiety, respectively, from pre-COVID to COVID time periods, and failed to normalize following the vaccine rollout. There were also increases in a number of well-being parameters, including fear for personal safety at work, fear for family well-being, and apprehensions towards going to work. The COVID-19 pandemic has had profound effects on emergency front line responders. Following widespread availability of the vaccine, many measures of well-being and mental health have yet to return to their pre-pandemic baseline. There may be many contributing factors to this trend. Investigation into the underlying reasons that COVID-19 has had a negative impact on the profession, including but not limited to the increased workplace hazard, politicization and/or increased demands on the job during the pandemic, would be helpful for departments to appropriately target approaches to restore workplace morale. Additional investigation into the overall levels of anxiety and depression amongst first responders compared to the lower levels of the general public would be important to focus on well-being of emergency first responders.

146) ADDRESSING HEALTHCARE GAPS AND DISPARITIES IN EMR MESSAGES: A QUALITY IMPROVEMENT PROJECT AMONG BREAST CANCER PATIENTS

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Introduction: Despite the evidence that utilization of EMR messaging positively impact patients living with cancer, little is known about who utilizes electronic messaging. The objective of this quality improvement project is to describe the use of EMR messaging among breast cancer patients and examine the barriers and the unmet needs.

Methods: A needs assessment was conducted to identify patterns in EMR messaging use. Patient data was collected from Epic. Study eligibility included patients who completed a visit in the past 12 months in the Froedtert Breast Care Clinic. Messaging user was defined as sending at least 1 message to a Breast Care Clinic provider in a 12-month period. Study period was May 2021-May 2022. T-tests were used to describe differences between users and non-users. Statistics were performed in R version 4.2.

Results: A total of 4598 patients met the inclusion criteria. 1817 (39.5%) were messaging users and 2781 (60.5%) were non-users. Users were more likely to be younger (58.0 vs 59.2, $p = .007$), Non-Hispanic White (86.8 vs 74.8, $P < .001$), and be commercially insured (52.6 vs 43.5, $p < .001$). Users sent an average of 5.5 (SD= 8.97) messages over the 12-month period. Of the messaging users, 87.4% sent between 1-10 messages with only 1.1% of individuals sending >41 messages. Among the non-users, 18.2% were Non-Hispanic Black compared to only 6.5% Non-Hispanic Blacks in the user group.

Conclusions: There are clear disparities in EMR messaging usage by race and ethnic minorities. EMR messaging, if used, can serve as a tool for improved patient-physician communication, self-health management, and clinical outcomes. It is crucial to identify these disparities to create effective interventions to promote health equity. Future directions include conducting interviews with minority patients who are users and non-users of EMR messaging to identify barriers and gaps in use.

147) EVALUATION OF CASE LOGS TO ASSESS TRENDS IN UROLOGY RESIDENT AUTONOMY

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Introduction: Changes in the structure and environment of training have raised concerns regarding autonomy and proficiency for graduating urology residents with regards to certain complex urological procedures. The data are lacking regarding longitudinal changes in urology resident autonomy related to these shifts in residency structure. The aim of this study is to evaluate for changes in frequency of surgeries performed by urology residents in the roles of assistant, teaching assistant, and surgeon, as a marker for graduated resident autonomy.

Methods: Data from the ACGME Urology National Resident Report between 2009-2021 was collected to calculate changes in totals and proportions of each procedure completed by residents in each surgical role over time. Regression analyses were performed to assess for significant trends.

Results: The proportion of procedures completed by residents as teaching assistants for many procedures increased after the introduction of the category in 2009, peaked in 2013 and subsequently decreased. Procedures fitting this pattern include Adult Renal Surgery, Oncology, Oncology-Pelvic, Oncology-Retroperitoneal, Percutaneous Renal, Scrotal, and Ureteroscopy ($p < .05$). The proportion of teaching assistant procedures in the categories of Additional Adult, Endourology, General Urology, Pediatric Minor has increased consistently since 2009 ($p < .05$). The proportion of cases performed as teaching assistant ranges by case category from $<1\%$ to a maximum of approximately 6%.

Conclusions: The frequencies of residents operating as autonomous 'teaching assistants' vary by surgical category but have generally decreased over the last 8 years.

148) TECHNOLOGY USE AND LONELINESS IN A SENIOR LIVING FACILITY

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Introduction: Loneliness is a common issue at Senior Living Facilities. It has been associated with increased depression and anxiety. In addressing loneliness, technology use has been found to be associated with higher subjective well-being and fewer depressive symptoms.

Objectives: This focused study aims to analyze technology use, loneliness, and their potential relationship within a senior living facility.

Methods: The study was conducted at Primrose Retirement Community of Appleton. Paper surveys evaluating loneliness and technology usage were distributed to residents with instructions and completed privately. Surveys were collected and data was analyzed.

Results: The residents at Primrose scored low on our loneliness scale with an average loneliness of 3.8 on a scale from 3 (least lonely) to 9 (most lonely). New residents (<3 months) had higher levels of loneliness than residents with longer occupancies. A significant relationship was not found between technology use and loneliness ($p=0.886$ using Spearman's Correlation). Residents ages 66-75 used technology more than ages 76 and older ($p=0.034$ using ANOVA). Email, texting, and online chatting was the most reported category with 76% of residents using these at least monthly. Video communication was the least used with 24% of residents reporting usage.

Conclusions: Overall, the residents of Primrose do not report high levels of loneliness. Loneliness was not found to be significantly correlated with technology use. Average technology usage was higher in younger residents (66-75). It would be interesting to further research how technology instruction or assistance would change the type and frequency of technology use by residents.

149) UTILITY OF ANGIOTENSIN CONVERTING ENZYME AND SERUM CALCIUM LEVELS IN CUTANEOUS SARCOIDOSIS

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Sarcoidosis is a granulomatous disease of unknown etiology but is theorized to result from immune overactivity in the setting of an environmental or genetic trigger. It most commonly affects the lungs and lymph nodes but can affect other organ systems, with cutaneous involvement in 30%. The granulomas associated with sarcoidosis lead to increased activity of angiotensin converting enzyme (ACE) and 1 α -hydroxylase resulting in uncontrolled synthesis of 1,25-dihydroxyvitamin D3 by macrophages along with elevated serum ACE and calcium levels. Serum ACE and calcium levels are sometimes ordered when a patient is diagnosed with cutaneous sarcoidosis, however, their clinical utility in this setting remains unknown.

We assessed serum ACE and calcium levels in patients with cutaneous sarcoidosis diagnosed by histopathology without preceding evidence of systemic involvement. The utility of serum ACE and calcium levels as markers in the progression from isolated cutaneous sarcoidosis to systemic sarcoidosis was also investigated. Our data (from a single institution with a small n) suggests that serum ACE and calcium levels are not reliable markers of either cutaneous sarcoidosis nor the progression to systemic sarcoidosis.

150) PERICENTRIOLAR MATERIAL-1 (PCM1) LOCALIZATION INFLUENCES CARDIOMYOCYTE PROLIFERATIVE POTENTIAL

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Background: Stimulating cardiomyocyte proliferation to promote myocardial regeneration is an attractive strategy for heart disease. Evidence suggests mononuclear diploid cardiomyocytes (MDCM) may be competent to proliferate and drive regeneration. Previous work has shown cellular localization of centrosome-associated proteins, such as pericentriolar material-1 (PCM1), can influence whether a cardiomyocyte can re-enter the cell cycle or instead maintain a post-mitotic state.

Hypothesis: We expect that MDCMs will disproportionately express a non-perinuclear phenotype. When PCM1 expression is knocked down, we expect to find reduced proliferative capacity, as measured by the positive staining frequency of EdU, Ki67, and pH3.

Methods: Utilizing single-cell suspension, MDCM were analyzed for localization of PCM1. Afterwards, PCM1 gene expression was knocked down via siRNA to assess its contribution to cardiomyocyte proliferation.

Results: We determined 8.5% of cardiomyocytes in A/J murine ventricles were MDCM (i.e. 2N). PCM1 localized to three distinct phenotypes: non-perinuclear, perinuclear, and mixed. Of the MDCM population, 32.1% adopted a non-perinuclear phenotype, significantly more than 4N ($p = 0.002$) or $\geq 8N$ ($p = 0.001$) cardiomyocytes. Polyploid cardiomyocytes significantly expressed a perinuclear phenotype. When PCM1 gene expression was knocked down, Ki67 staining frequency was significantly reduced ($p = 0.016$) compared to controls. EdU incorporation was less prevalent in the knockdown group ($p = 0.069$), while pH3 was not significantly different ($p = 0.374$).

Significance: We report an association between localization of the centrosome-associated protein PCM1 and the suspected regenerative-competent MDCM. Specifically, perinuclear localization of PCM1 was significantly associated with polyploidy, whereas MDCMs disproportionately adopted a non-perinuclear phenotype. This suggests the non-perinuclear configuration is important for cardiomyocyte proliferative potential. Further, reduced PCM1 gene expression significantly reduces Ki67 staining frequency, suggesting PCM1 has an active role in cell cycling. Together, this suggests perinuclear localization influences the transition from proliferation-capable to senescence rather than merely being a marker of the switch.

151) INSTITUTIONAL STRATEGIES TO COMBAT HOSPITALIST BURNOUT AND IMPROVE WELLNESS

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Introduction: Over 50% of practicing physicians in the United States report burnout with internal medicine displaying some of the highest rates. Our study seeks to assess wellness strategies and institutional recommendations to reduce burnout.

Methods: Academic hospitalists at Froedtert Hospital and the Medical College of Wisconsin were recruited to participate in qualitative focus groups conducted via Zoom during February 2022. We utilized a question guide developed by the research team, which covered contributors to burnout, the impact of COVID-19, and strategies to improve wellness. These sessions were audio-recorded, transcribed, and coded for emergent themes by a team of medical students using Taguette, an open-source qualitative data analysis software.

Results: We conducted four focus groups with 21 hospitalists in total and have summarized the emergent themes related to institutional suggestions for improving wellness. The most common suggestion was increasing social interactions to allow providers to share experiences, seek guidance from one another, and overall, foster a sense of community. This included a better workroom as well as increasing social gatherings outside of work. There was a desire for a workroom with windows, increased space, refreshments, and comfortable seating. It was noted that space constraints have led to new hires being scattered, further increasing isolation. Suggestions for social interactions outside of work included a retreat, activity groups for like-minded individuals, and holiday parties. Another emergent theme was providing avenues for two-way communication between leadership and providers to share concerns and illicit feedback, allowing providers to feel more empowered. Additionally, physicians desired streamlining clinical work, noting that small tasks or “asks” (i.e. 10am discharge metrics, discharge huddles) by management are burdensome and do not improve quality of care.

Conclusion: Enhancing community and fostering collaboration in decision making may alleviate stress and reduce burnout. Our results may be useful in guiding institutional programs to improve wellness.

152) EFFECTIVENESS OF URM MENTORSHIP PLATFORM IN PROMOTING SCHOLARSHIP

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Scholarship and mentorship are crucial in academic medicine. However, most URiM medical students do not feel prepared to engage in scholarly activity, especially due to lack of mentorship. The URM Mentorship Platform is a peer mentoring platform at the Medical College of Wisconsin (MCW), designed to organize collaborative networks, promote mentorship and interactions between students and faculty. The purpose of this study was to explore participant perceptions regarding effectiveness of the peer mentoring platform in increasing scholarly productivity.

A survey containing questions on perspectives on the effectiveness of the platform was emailed to URM medical students who had participated in the mentorship program at MCW (n = 22). Responses were anonymous and presented using descriptive statistics.

12 out of 22 cohort participants (9 peer mentors, 3 mentees) responded to the survey. 83.33% (10) had projects accepted at a national meeting, with 66.67% (8) eventually presenting at a national meeting.

10 out of 12 students felt supported by the peer mentor on the team. 58.33% felt supported by faculty, 3 out of 12 students did not feel supported by the faculty mentor on the team and 2 were neutral. 75% of respondents believed that the peer mentoring program met or exceeded expectations for promoting scholarship, while 25% felt that the program fell short of expectations. 91.67% of respondents felt that the program helped increase scholarly productivity. Respondents emphasized scholarly productivity, networking, and mentorship opportunities as benefits of the program. Feedback with for improvement of the program included accommodating more students, structuring additional interactions between students and faculty, and diversifying mentee-mentor parings between classes.

Our findings highlight that MCW URiM students perceive benefits of participating in a peer mentoring group and its role in promoting scholarly productivity. Results suggest there can be benefit in establishing similar mentoring groups at other institutions.

153) A QUALITATIVE STUDY OF PATIENT EXPERIENCES OF INPATIENT AND OUTPATIENT HIGH-DOSE METHOTREXATE IN LEPTOMENINGEAL METASTASES IN BREAST CANCER AND SARCOMA PATIENTS

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Introduction: Brain metastasis including leptomeningeal metastasis (LM) is a common late manifestation of breast cancer that confers dismal prognosis. Upon disease progression with standard lines of therapy, high dose intravenous methotrexate (HD IV MTX) is offered to patients given its effective CNS penetrance. HD IV MTX is commonly administered inpatient that requires lengthy hospitalization, rigorous protocol of leucovorin rescue, IV hydration, and urine alkalinization that imparts limitations on patient comfort and autonomy. Recent implementation of an outpatient HD MTX protocol that does not require hospitalization but rather daily visits to outpatient infusion centers has yielded comparable positive outcomes in breast cancer and sarcoma patients with LM.

Objective: This study aimed to explore patients' experiences of inpatient and outpatient MTX treatments for LM, seek patients' ideas for protocol improvement, and identify transferrable insights for a more patient comfort centered MTX protocol.

Methods: A prospective cohort of 10 breast cancer and sarcoma patients with LM who have completed transition to outpatient from inpatient MTX were identified. Qualitative semi-structured phone interviews were conducted with three patients within 12 months of having completed both in- and outpatient treatments. Thematic analysis was utilized.

Results: Patients consistently reported higher quality of life (QoL) associated with the outpatient MTX protocol versus inpatient. Three patients were analyzed, having a mean age of 52 years with two primary breast cancer patients and one sarcoma patient. Key themes identified were patient autonomy (100%), family time (100%), comfortability of outpatient environments (100%), ease of outpatient instructions (67%), and accessibility of resources (67%). Cost of treatment (0%) was not associated with patient preference.

Conclusions: Patient autonomy and nonobligatory hospitalization offered by outpatient MTX treatment appear to be primary factors underlying patient partiality. Clear communication and autonomous approaches are necessary to simplify patients' treatment journeys and profoundly improve perceived QoL.

154) POSACONAZOLE FOR TREATMENT OF BLASTOMYCOSIS: A RETROSPECTIVE REVIEW FROM AN ACADEMIC MEDICAL CENTER

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Introduction: Blastomycosis refers to a systemic pyogranulomatous disease caused by the thermally dimorphic fungus *Blastomyces* spp. Current IDSA guidelines from 2008 take into consideration severity of disease, the immunocompetence of the patient, and the antifungal toxicity; treatment is recommended regardless of resolution of symptoms with older triazoles such as itraconazole, voriconazole, or fluconazole. Newer azoles, such as Posaconazole, have not been well- described in the treatment of Blastomycosis. We will describe an academic medical center's experience in an endemic region of Blastomycosis treating patients with Posaconazole.

Methods: A retroactive chart review of the EMR was conducted of patients diagnosed with Blastomycosis at Froedtert and The Medical College of Wisconsin. A total of nine patients were identified as being treated with Posaconazole for blastomycosis. Information was then gathered regarding patient demographics, comorbidities, risk factors, diagnostics, treatment details, and overall outcome.

Results: There was approximately equal split between genders with an average age of 46 years old. 8 of the 9 patients had an underlying immuno-compromising condition (33% with solid organ transplants). The most common reason for switching to Posaconazole in 5/9 patients was due to adverse effects from other medications, 3 switched because of inadequate therapeutic levels, and one for insurance purposes. While on Posaconazole, two patients reported fatigue, weight gain, and memory problems however the drug was not discontinued or replaced in any of these patients. Four patients have been cured. Two patients died from unrelated causes. Total duration of treatment ranged from 1 to 60 months. 1 is still being treated with Posaconazole with improvement in urine titers.

Discussion: From our centers experience, Posaconazole acted as a potential alternative to fluconazole, voriconazole, and fluconazole for the treatment of blastomycosis. Further investigation is needed to determine the efficacy and tolerability of Posaconazole compared to other triazoles as well as an update in current guidelines.

155) CLINIC AND RADIOLOGIC DIFFERENCES BETWEEN EARLY AND LATE ONSET ADULT MULTIPLE SCLEROSIS

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Introduction: Late-onset multiple sclerosis (LOMS) is MS with onset of symptoms at 50+ years of age and has shorter time for disease progression compared to early-onset adult MS (EOMS). As such, we studied the clinical presentations and radiologic lesion distributions of LOMS compared to EOMS to aid in diagnosis.

Methods: A retrospective review of patient medical records between 8/1/2017 and 3/1/2022 in an MS clinic was conducted. Patients with relapsing or progressive MS per 2017 McDonald criteria and were 50+ y.o. (LOMS) or 18-30 y.o. (EOMS) at diagnosis were included. Diagnosis and birth date were extracted using the i2B2 tool. Clinical symptom frequency and regions of lesion involvement were manually extracted then compared using the Fisher Exact Test; significance level at $p < 0.05$. Clinical symptoms reviewed included visual, sensory, vestibulocochlear, bowel/urinary, fatigue, motor complications, and tremors. MRI regions of interest included supratentorial, infratentorial, brainstem, juxtacortical/cortical, periventricular, cerebellar, midbrain, pons, medulla, occipital, temporal, cervical spine, and thoracic spine.

Results: Search yielded 246 newly diagnosed patients. Of those, 28 were EOMS patients, mean age was 26.9 years ($SD = 2.86$), 71% were females; 32 were LOMS patients, mean age was 59 years ($SD = 7.6$), 63% were females. LOMS patients were more likely to present with motor symptoms ($p < 0.00001$) and less likely to have visual symptoms at diagnosis ($p < 0.001$). No differences were observed in sensory, vestibulocochlear, bowel/bladder, or fatigue. Lesion regions were similar in both groups, however fewer LOMS patients had contrast-enhancing lesions at their initial presentation ($p < 0.005$).

Conclusion: In our cohort, LOMS shared many similarities to EOMS, however the frequent motor presentation in LOMS may delay diagnosis as other causes are investigated. Patients may attribute symptoms to aging resulting in a delay of presentation. Therefore, we will increase the sample size in future studies and investigate treatment selection outcomes.

156) THE COMBINATION OF A CGRP MONOCLONAL ANTIBODY AND A SMALL MOLECULE CGRP ANTAGONIST FOR TREATMENT OF CHRONIC MIGRAINE IS WELL TOLERATED AND EFFECTIVE COMPARED TO STANDARD OF CARE

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Introduction: Migraine is the second leading cause of years lived with disability. Calcitonin gene-related peptide (CGRP) is a neuropeptide that has been implicated in the pathophysiology of migraine, and inhibition of CGRP is a novel mechanism of migraine pharmacotherapy. Four CGRP monoclonal antibodies (mAbs) are available for the preventive treatment of migraine headache, and two small molecule CGRP antagonists (gepants) are available for its acute treatment. There is currently minimal data on the safety and effectiveness of concurrent use of agents from these two classes. This study evaluates the relative tolerability and efficacy of the combination of a CGRP mAb for preventive treatment and a gepant for acute treatment compared to standard of care regimens for chronic migraine

Methods: Sixty patients were identified who had a diagnosis of migraine with or without aura or chronic migraine and fell into one of two treatment groups. Group 1 consisted of patients treated with a CGRP mAb for prevention and a gepant for acute treatment. Group 2 consisted of patients treated with either topiramate or onabotulinumtoxinA, both of which represent standards of care for prevention of migraine, and anything but a gepant for acute treatment. The rate of adverse events and the distribution of monthly headache day reduction were compared between the groups.

Results: No serious adverse events were reported. Treatment-related adverse events were experienced by two patients (6.7%) in Group 1 and nine patients (30%) in Group 2. With regard to efficacy, fourteen patients (46.7%) in Group 1 and sixteen patients (53.3%) in Group 2 experienced a reduction in monthly headache days of 50% or greater.

Discussion: The results suggest that the enhanced tolerability and similar efficacy of CGRP mAbs compared to standard of care preventive treatment for chronic migraine are not compromised by concurrent use of a gepant for acute treatment.

157) REMOTE MONITORING AFTER GENERAL HOSPITALIZATION

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Introduction: Avoidable readmissions are considered defects of the care process and care coordination targets this vulnerability. To reduce readmission, technology can be leveraged to efficiently support patients.

We implemented a remote patient monitoring (RPM) application, called GetWell Loop (GWL). We hypothesized GWL will reduce hospital readmissions.

Method: MCW patients in care coordination programs were stratified as low, moderate, and high risk and enrolled into appropriate loop. Low risk patients were given GWL; moderate and high risk patients were given, both, GWL and care coordination. Different operating regions were integrated monthly through a step-wedge design from 6/30/2020 - 9/23/2020.

Clinical and operational metrics were collected from the EPIC clarity database. Patient-specific application usage was recorded from GWL. Based on implementation, patients with similar demographics and risk were matched and examined. The data was analyzed through R.

Results: 9,898 patients were examined with 4,930 control and 4,969 intervention. Overall readmission was 14.5%. 2,560 patients were high risk, 4,293 medium risk, and 3,045 low risk. RPM intervention did not significantly impact readmission among low and medium risk groups ($p>0.05$). A significant difference in readmission between control and intervention groups among the high risk was found ($p<0.05$). Of patients who activated GWL in the intervention group, readmission was significantly decreased in the low and medium risk groups ($p<0.05$), while no significant difference in the high risk cohort existed ($p>0.05$).

Conclusion: RPM had a significantly negative impact on the high risk population; however this negative impact was not seen in patients who activated GWL. Using technology to target optimal application for maximal clinical benefit while understanding potential unintended consequences is necessary. Future research should focus on developing health technologies that significantly benefit and improve transitions of care.

158) AN ANALYSIS OF SUICIDAL AND SELF-INJUROUS BEHAVIOR REPORTS WITH ANTIEPILEPTIC DRUGS IN THE FDA ADVERSE EVENT DATABASE

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Introduction: Epilepsy affects approximately 50 million people worldwide and is characterized by recurrent seizures. Anti-epileptic drugs (AED) help to reduce seizures, however a 2008 FDA statement noted of potential suicidality risk following meta-analysis of 11 AEDs. We aimed to analyze twenty-five AEDs in FDA Adverse Event Reporting System (FAERS) to assess for increased reporting of suicidal and self-injurious behavior.

Methods: Twenty-five AEDs were analyzed including brivaracetam, cannabidiol, carbamazepine, clobazam, clonazepam, diazepam, eslicarbazepine, felbamate, gabapentin, lacosamide, lamotrigine, levetiracetam, oxcarbazepine, perampanel, phenobarbital, phenytoin, pregabalin, primidone, rufinamide, stiripentol, tiagabine, topiramate, valproate, vigabatrin, zonisamide. Reports of “suicidal and self-injurious behavior”, as classified by the Medical Dictionary for Regulatory Activities, were collected from 01/01/2004-12/31/2020 using OpenVigil 2.1. Statistical analyses were conducted using 95% CI including relative reporting ratio (RRR), proportional reporting ratio (PRR), and reporting odds ratio (ROR) by utilizing all other drug reports in FAERS as a controlled comparison.

Results: A total of 9,590,298 adverse events were reported, and 150,235 (1.57%) were classified under “suicidal and self-injurious behavior”. 19 AEDs were associated with a significantly increased RRR, PRR, and ROR. These AEDs were (RRR, PRR, ROR): diazepam (7.246, 7.499, 8.331), clonazepam (6.203, 6.466, 7.054), perampanel (5.694, 5.700, 6.160), tiagabine (5.678, 5.681, 6.138), lamotrigine (4.399, 4.508, 4.768), valproate (3.798, 3.817, 3.996), topiramate (3.642, 3.685, 3.847), oxcarbazepine (3.459, 3.473, 3.615), gabapentin (3.377, 3.496, 3.635), carbamazepine (3.164, 3.191, 3.305), brivaracetam (2.692, 2.693, 2.767), phenobarbital (2.554, 2.557, 2.622), primidone (2.237, 2.238, 2.283), zonisamide (2.118, 2.119, 2.158), levetiracetam (1.948, 1.958, 1.988), lacosamide (1.930, 1.932, 1.961), pregabalin (1.763, 1.783, 1.806), clobazam (1.667, 1.668, 1.686), and phenytoin (1.510, 1.512, 1.524).

Conclusions: Of the 25 AEDs that were analyzed in this study, 19 were identified with significantly increased reporting of suicidal and self-injurious behavior. As such, it is imperative to closely monitor patient comorbidities for increased risk of suicidality with the use of several AEDs.

159) TYPE B LACTIC ACIDOSIS IN SMALL CELL VAGINAL CANCER

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Case Presentation: A 33-year-old G2P2 F presented to the ER with 4 days' worth of shortness of breath, chest pain, and left rib pain. Past medical history is significant for obesity and stage small cell vaginal neuroendocrine carcinoma status post 6 cycles of chemotherapy (cisplatin/etoposide) and local radiation. Family medical history is pertinent for ovarian cancer (mother, maternal aunt) and colon cancer (maternal aunt). Rest of the medical history was unremarkable. Physical exam revealed mildly dry, mucus membranes, tachycardia, and mild left abdominal/chest/LE tenderness. ECG confirmed sinus tachycardia. Labs on admission revealed acute pancytopenia with Hb 5.9, WBC 2.3, platelets 7. CT was suggestive of newer metastatic disease and CT-guided bone marrow biopsy was consistent with infiltration of malignancy to bone marrow. Her final diagnosis was metastatic neuroendocrine tumor of primary vaginal origin.

She continued to decline with refractory metabolic acidosis. Work up for sepsis was negative. She continued to worsen and progressed to multiple organ dysfunction with lactic acidosis. She was eventually terminally extubated and transitioned to comfort measures

Discussion: We present a case of type B lactic acidosis (TBLA) in the setting of a rare, post-chemotherapy refractory small cell vaginal neuroendocrine carcinoma. We focus on the importance of TBLA as a prognostic and predictive finding for malignancy in the hospital setting. TBLA is characterized when there are no signs of tissue hypoperfusion, which has been rarely reported in the setting of malignancy (Friedenberg, 2007). Prior literature only discusses TBLA as a complication of solid and hematologic malignancies in patients with no prior history of chemotherapy, which may inappropriately exclude other malignant etiologies from differentials (Wahab, 2018). The pathogenesis is not well understood but thought to involve a state of malnutrition with enhanced glycolytic activity in cancer cells, mitochondrial dysfunction, and impaired hepatic clearance, likely involving the "Warburg Effect" (Claudino, 2015). Chemotherapy has shown to resolve acidosis if provided early in the course (de Groot R, 2011). Therefore, work-up for sepsis and malignancy should take place concurrently to provide care in a timely manner. At the same time, end-of-life care discussions should be initiated with family members and caretakers to allow for informed decision-making. Through this case, we advocate for timely management of patients who present with TBLA and have underlying systemic complications, such as malignancies, that may exacerbate their hospital course.

Conclusion: Type B lactic acidosis is characterized in the setting of adequate tissue perfusion. In addition to malignancy, common presentations for type B lactic acidosis include drug effects, seizures, and thiamine deficiency. When there is sufficient tissue hypoperfusion but a history of malignancy, clinicians should prioritize cancer workups (including oncological consultation) alongside other common causes of lactic acidosis.

160) GUIDELINE DIRECTED INTERVENTION TO REDUCE TELEMETRY UTILIZATION IN MARSHFIELD CLINIC HEALTH SYSTEM

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Telemetry usage in non-intensive hospitalized patients is frequently identified as a source of inappropriate resource utilization. Guidelines detailing appropriate use criteria for telemetry have been developed by the American Heart Association (AHA), and application of these guidelines allows for safe and effective use of telemetry.

This quality improvement study is aimed to optimize telemetry utilization within the medical floors in the Marshfield Clinic Health System (MCHS) based on the AHA guidelines for cardiac monitoring through different interventions. These interventions include prescriber education and awareness creation of AHA telemetry use guidelines, regular telemetry reviews, and incorporation of guideline based indications and duration of cardiac monitoring in Cerner (electronic health record system).

The above interventions were effective in reducing inappropriate telemetry use in the MCHS. This study demonstrated that increasing physician awareness of AHA guidelines on the appropriate use criteria for telemetry and incorporating these guidelines into the electronic medical record system, effectively reduced inappropriate telemetry use in inpatient medical floors.

161) EXPLORING IMPLICIT BIAS IN MEDICINE: AN INTERACTIVE EXPERIENCE FOR MEDICAL STUDENTS

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Many theories postulate individual bias to be a contributing factor to the persistence of healthcare disparities that exist between different patient populations. To increase medical student awareness of the impact of individual bias in medicine, this project aims to engage medical students in a dialogue that addresses how individual bias shapes interactions with others, specifically in the context of patient-provider relationships. We recruited 41 first year medical students at the Medical College of Wisconsin to participate in a series of 3 virtual small group sessions and asked them to complete surveys before and after the sessions to both quantitatively and qualitatively assess their experience. For each small group session, we developed a lecture centered on a different clinical scenario where bias has been known to commonly arise and recruited community members from the representative patient population to help provide insight and facilitate the small group discussions. The results of the pre and post surveys demonstrate a significant difference in participant belief that unconscious bias impacts healthcare outcomes. This may suggest that the small group discussions effectively increased participant awareness of the role of bias in medicine. Participant feedback after the sessions was very positive. Overall, students reported feeling inspired and challenged by the small group discussions, commenting that the current curriculum lacks a longitudinal thread and instead offers sporadic “touch points” where controversial topics such as racism and bias are addressed.

162) ICU AFTER RRT? A RETROSPECTIVE ANALYSIS OF RAPID RESPONSE TEAM INTERVENTIONS AND 90-DAY MORTALITY

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Introduction: Rapid response teams (RRTs) provide expertise in situations of sudden, unanticipated patient decline and frequently facilitate the early delivery of critical care for high acuity patients. Although RRTs have been widely adopted into practice, some have questioned whether RRTs simply “shift” care to the ICU. We hypothesized that inpatients transferred to the ICU (compared to those who remained on the ward) after RRT activation would have received fewer on ward interventions. We then explored whether a shift in deaths might be reflected in in-hospital mortality and immediate-term mortality.

Methods: We conducted a retrospective cohort study of inpatient RRT events. Clinical records were reviewed in the EHR. Our primary outcome was receipt of RRT interventions with an exploratory outcome of in-hospital and 90-day mortality. Potential explanatory variables included demographic data, severity of illness scores, and disposition after RRT.

Results: We analyzed 305 inpatients of whom 51% transferred to the ICU within 12 hours of RRT activation. Patients who went to the ICU were significantly more likely to have received medications (66% vs 54%, χ^2 test $p<0.05$) and respiratory support (62% vs 41%, χ^2 test $p<0.0001$) during RRT events than those who stayed on ward. Patients transferred to the ICU also had lower survival to discharge (76% vs 92%, χ^2 test $p<0.001$) and 90-day survival (51.2% vs 62.3%, χ^2 test $p<0.05$).

Discussion: We conclude that inpatients who have an RRT activation have high 90-day mortality, regardless of whether they receive ICU care after RRT events during index hospitalization. ICU admission after RRT does not appear to be associated with a significant reduction in 90-day mortality after accounting for severity of illness. More research is needed to determine if certain patient characteristics can be used to identify RRT patients who may not benefit from ICU admission.

163) THERE'S NO MASKING SKIN CANCER: SKIN CANCER DETECTION IN THE MASKED FACIAL REGION UNCHANGED BEFORE AND DURING THE COVID-19 PANDEMIC

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Background: The COVID-19 pandemic has increased mask usage in the United States. The effect this has had on the detection of skin cancers under the mask is unknown. This study aims to compare the detection of skin cancers in the facial mask region before and during the COVID-19 pandemic.

Methods: This retrospective cohort study included all patients diagnosed with at least one skin cancer in July 2019 and July 2020. Dermatopathology results within the electronic medical record were used to identify patients with a diagnosis of SCC, BCC, melanoma, merkel cell carcinoma, and sebaceous carcinoma during each period. Data was then collected on patient demographics, type of skin cancer, biopsy location, and date. The biopsy locations within the facial mask region were categorized as being around the nose, cheek, lip, and/or chin; all other biopsy locations were categorized as outside of the facial mask region. We calculated the ratio of skin cancers in the facial mask region to the total number of skin cancers for each year.

Results: Demographic data did not vary between periods. The total number of skin cancers detected was 1,407. There were 620 skin cancers detected in July 2019 and 787 in July 2020. 32 patients had skin cancers detected in both years. The incidence of skin cancers in the facial mask region was similar between July 2019 ($114/620 \approx 0.184$) and July 2020 ($137/787 \approx 0.174$) ($p=0.685$). When stratified by skin cancer type or by location, the incidence of skin cancers in the facial mask region did not differ by year.

Discussion: In conclusion, our study did not demonstrate a significant difference in the detection of skin cancers in the facial mask region between pre-COVID-19 and during the COVID-19 pandemic. This suggests that skin cancers in the facial mask region are still being detected as readily as prior to the pandemic.

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164) IDENTIFYING BLEMISHES IN SKIN OF COLOR EDUCATION: USING CRITICAL CARE REFLECTION TO INVESTIGATE MEDICAL STUDENT ATTITUDES TOWARD SKIN TONE IN THEIR PRE-CLINICAL YEARS

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Implicit racial bias is a persistent barrier to quality medical care for people of color (POC) in the United States. To reduce implicit bias and encourage equitable care, health professional training programs must implement culturally competent training initiatives early on in students' educational journeys. As one of these initiatives, critical reflection is an instructional approach which prompts students to investigate their own biases, including how these may lead to discrepancies in care of people across a spectrum of skin tones.

This poster describes qualitative analysis of critical reflections from pre-clinical second-year medical students in response to the prompt, "How is skin tone relevant to the care you provide as a future physician?" using inductive thematic analysis of student submissions. 248 responses were submitted in several forms including written, poetry, image, and video. Of these responses, two themes were identified: (1) Highlighting issues of racism that impact care and questioning who is responsible for addressing issues, and (2) Trivialization or denial of racism within the healthcare system. Theme 1 comprised 10 subthemes, while Theme 2 included three subthemes to describe current learner perceptions. Common reported subthemes included acknowledgement of effects of racism within the medical system, calls for undergraduate and graduate-level training programs to prepare physicians to adequately treat people of color, and personal responsibility to address internal bias.

Course directors have used information from this assignment to optimize current curricula, including addition of cultural competency workshops. Initiatives to improve cultural competence training at the reporting institution, and others, include implementation of active role play, service-learning opportunities, and more interactive implicit bias workshops for students.

165) OPERATION CONVERSATION: USING PEER-LED ROLEPLAY MODEL TO HELP PRE-CLINICAL MEDICAL STUDENTS IMPROVE INTERPERSONAL SKILLS AND NAVIGATE DIFFICULT PATIENT CONVERSATIONS

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It is well established that early communication and clinical competency training is a crucial ingredient in creating an outstanding physician. Despite this evidence, interpersonal skills training is still undervalued and underrepresented within undergraduate medical education, especially at the pre-clinical level. Once medical students reach their clinical rotations in their third year, most have not witnessed, and therefore do not possess, the skills to properly address a difficult situation. This lack of training fosters anxiety, failing to build students' self-efficacy prior to clinical encounters. Our program, Operation Conversation, allows pre-clinical students to develop critical conversation skills outside of the currently available curriculum.

In AY 21/22, two cohorts of pre-clinical MCW medical students voluntarily participated in our semester-long extracurricular program, Operation Conversation (OC). Each OC participant attended 3 once-monthly virtual workshops. Students were assigned in pairs and grouped with a MCW faculty/resident facilitator who observed the student role-plays, providing immediate feedback. Participants completed a validated assessment tool to evaluate student performance. Following each workshop, students completed a self-reflection. After the final workshop, participants completed a program evaluation survey.

28 students and 14 facilitators attended the Fall 2021 program. 36 students and 18 facilitators attended the Spring 2022 program, including some repeat participants. Preliminary analysis of the program evaluation elicited three distinct findings. First, nearly all participants said they would recommend OC to future students. Second, participants noted the best parts of OC to be skill development and sense of community within their groups. Finally, participants offered insightful critiques on all aspects of OC: scripts, learning materials, workshop format, and small group cohesion. Further analysis of the communication assessment tool and student self-reflections will determine OC's efficacy in building communication skills. Addressing interpersonal skills training using active role-play, spaced learning and reflection has applicability for MCW curriculum improvement and to medical curricula elsewhere.

166) WHY DOCTORS DON'T HAVE TO HATE THEIR COMPUTERS: USING STANDARDIZED AUTOMATIC NOTE TEMPLATES TO IMPROVE DOCUMENTATION AND EFFICIENCY

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With the broad implementation of electronic health records, clinical documentation integrity is under ever-increasing scrutiny. In this setting, the proportion of time doctors are spending in the medical record has continued to grow. Physicians now spend 35% of their time documenting patient data. In light of this increased burden, we have seen provider stress and burnout continue to rise associated with the increasing time pressure of documentation. Rather than allowing the strain of documentation to overwhelm providers, we leveraged standardized, automated note templates to allow for more efficient, accurate, and uniform documentation.

We developed a standardized, automated note template for the General Medicine teaching services to replace the previously used individualized SmartPhrase based notes. This intervention allowed for uniform documentation amongst residents with the goal of improving efficiency, ease of documentation, and readability of admission History and Physicals as well as daily Progress Notes. While primarily designed to improve resident efficiency, increase participation in educational opportunities, and promote work-life balance through timely signout, this intervention also improved clinical usability of documentation with more comprehensive and accurate notes. This was accomplished with integrated “Help Text” to assist users in comprehensively charting all aspects of a patient’s care.

This note template has led to a significant improvement in Clinical Documentation Integrity, which has been demonstrated with a decrease in clinical documentation queries and an increase in average diagnosis codes, complication or comorbidity/major complication or comorbidity (CC/MCC) capture rates, and Elixhauser Comorbidities documented.

167) PERCEPTION OF BURNOUT AND ITS IMPACT ON ACADEMIC HOSPITALISTS DURING COVID-19

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Introduction: Physician burnout has been alarmingly high, with studies documenting the rate of burnout to be twice that of the general working population of the US. The root cause of physician burnout varies between specialties, yet an overarching theme is work-related stress. In recent years, the COVID-19 pandemic further exacerbated this issue. A PubMed search of “burnout” yielded 3,595 articles from 2020 to 2021. Although there are global studies of physician burnout during COVID-19, few studies highlight its impact on physicians in the US. Our study seeks to contribute to this gap.

Methods: Academic hospitalists at Froedtert Hospital & the Medical College of Wisconsin (MCW) were recruited to participate in a series of qualitative, semi-structured interviews and focus groups. The questions focused on contributors and perceptions of burnout during COVID-19. Transcripts from each focus group were pasted into Taguette, a free and open-source qualitative data tool. Each transcript was analyzed line by line and tags were assigned to specific quotes corresponding to common themes across all transcripts. A summary of all the themes and corresponding quotes was downloaded and used to analyze the data.

Results: We conducted four focus groups with a total of 21 hospitalists, and documented emerging themes linked to their perception and impact of burnout during the COVID-19 pandemic. Common themes related to the hospitalists perception of burnout include physician workload, bureaucratic hurdles, documentation, & lack of control and support. COVID-19 specific themes emerged on how the pandemic impacted perception of burnout which included the fear of exposing family, emotional stress & social isolation, and patient skepticism. Additional burnout themes included increasingly difficult work-life balance and protected time off for self-care.

Conclusion: The COVID-19 pandemic increased physician burnout while both maintaining traditional views of physician burnout and creating unique perceptions of physician burnout.

168) FAMILY PHYSICIAN AND HOSPITAL ADMINISTRATOR PERSPECTIVE ON TELEHEALTH USAGE AND BARRIERS DURING COVID-19 AND BEYOND

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Introduction: Telehealth dramatically increased in use with the SARS-CoV-2 Pandemic. This technology presents benefits including increased healthcare access and cost reduction; however, barriers to usage remain. This study investigates telehealth usage by visit type and barriers to usage over the pandemic by Wisconsin family physicians and hospital administrators, respectively.

Methods: Surveys were distributed to family physicians and hospital administrators by the Wisconsin Academy of Family Physicians and Rural Wisconsin Health Cooperative. Family physicians shared their frequency of telehealth usage by visit type during (11/2020-04/2021) and after the pandemic relative to before the pandemic. Administrators ranked potential barriers to telehealth by importance before, during, and after the pandemic.

Results: For all visit types, family physicians reported pandemic-driven increases in telehealth usage. Increased post-pandemic usage was favored relative to pre-pandemic usage only for acute and chronic illness visit types. No differences in responses were found by physician location of practice or age (Chi Square Goodness of Fit, $p < 0.05$).

Difference between barriers was found in barrier rankings by hospital administrators within each time period (Kruskal-Wallis, $p < 0.05$). Clinical and confidentiality barriers were ranked most and least important, respectively, regardless of time-period. During the pandemic, reimbursement declined in importance (Mann-Whitney-U, $p < 0.05$).

Conclusions: The usefulness of telehealth for family physicians is visit-type specific, with acute and chronic illness visit types being especially conducive to telehealth use. Per hospital administrators, clinical and reimbursement barriers are most burdensome on telehealth. The burden of reimbursement was reduced during the pandemic.

169) IDENTIFYING INVESTIGATOR REPORTED BARRIERS TO CANCER CLINICAL TRIALS ENROLLMENT

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Clinical trials are essential for advancing cancer care, yet only a fraction of eligible cancer patients engage in clinical trial research. Minimal research has been done to identify barriers from the investigator's perspective and how their attitudes towards clinical trials might impact enrollment. The purpose of our study is to identify what traits and factors allow an investigator to be notably successful with clinical trial engagement. A survey was distributed to cancer clinical trial investigators within the CROWN Consortium in Wisconsin and a total of 31 responses were collected. Respondents were grouped into high and low enrollers based on enrollment data from the previous year. According to 93% of all respondents, clinical trials are important to improving cancer treatments. However, 27% of low enroller investigators proactively identify clinical trials for patients compared to 80% of investigators from the high enroller group. Low enrollers reported being more unfamiliar with the study requirements and protocol compared to high enrollers, 27% vs. 0% respectively. The majority of all respondents reported that their willingness to take part in clinical trials was greatly impacted by a lack of administrative assistance and research coordinator support. Overall, our study demonstrated investigators who regularly participate in clinical trials are more knowledgeable about the clinical trials open at their site and which patients may be eligible. Defining the investigator's attitudes toward clinical trials can help improve communication and decision-making with the site's administration and such maximize investigator involvement.

170) REAL WORLD APPLICATION OF THROMBOPROPHYLAXIS IN PATIENTS WITH MALIGNANCY

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Patients with cancer are at an increased risk of Venous thromboembolism (VTE). Prophylactic anticoagulation (PPX) has been shown to reduce the rates of VTEs, however it has also shown to increase major bleeding rates. The Khorana Risk Score (KRS) is a validated scoring system that calculates a cancer patient's risk of VTE by accounting for multiple metrics. The goal of this project was to determine the rates of VTE and bleeding events in cancer patients starting chemotherapy at Gundersen Health System (GHS) and to compare VTE rates, bleeding rates, and Khorana risk scores from our real-world population to that of the AVERT clinical trial.

This was a retrospective review of patients with a new cancer diagnosis (excluding multiple myeloma) who initiated a new course of chemotherapy at GHS between January, 2016 and December, 2018 (n=969). VTE and bleeding events were recorded from start of chemotherapy through 180 days

Our results showed our population was similar to that of the AVERT study control groups in most categories. We found 341 (35%) patients with a KRS of ≥ 2 , which would have made them eligible for PPX based on the AVERT study criteria. The odds of getting a VTE were 2.3 times higher in patients with KRS intermediate-high compared to those in the low risk group ($p < 0.01$). In patients with $KRS \geq 2$, the rate of VTE in our population was 11.1% and the rate of bleeding was 3.2% which were similar to the AVERT trial control arm of 10.2% and 1.8% respectively

In conclusion, our population closely matched the placebo arm of the AVERT trial. Stratifying our patients by KRS found that patients in intermediate-high risk category were 2.3 times more likely to experience VTE. This suggests that our population would benefit from use of the Khorana score to select candidates for prophylactic anticoagulation.

171) IMPROVING RESIDENT AND NURSING COMMUNICATION: A HOSPITAL-WIDE INTERVENTION

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Intro: Patient satisfaction surveys showed low scores related to communication between team members and nursing surveys also identified dissatisfaction with resident team communication. The physical size of Froedtert hospital and the strain of the COVID-19 pandemic made it even more difficult to localize resident teams to designated areas, creating additional communication barriers between residents and nursing staff.

Methods: A workgroup including nurse case managers and residents identified areas with potential for improvement to facilitate care team collaboration. The interdisciplinary note template project was selected as a high yield intervention. Hospital staff received an electronic survey to assess attitudes about the current template and to prioritize the most valuable components, and a new template was created. A follow up survey was sent two months after the rollout of the new template to assess provider and nursing opinions regarding the change.

Results: 58 participants (20 charge nurses, 6 attendings, 25 residents, and 7 advanced practice providers) completed the initial survey. Providers (physicians and APPs) were divided: 14 agreed that the original note was easy to complete, 14 disagreed. 16 providers agreed the note captured valuable information, 14 disagreed. 20 providers agreed that the notes assisted in communication between providers and staff, 10 disagreed. Among charge nurses, 16 agreed that the template captured valuable information and assisted in communication. The most important component for most charge nurses (11) was the estimated discharge date and for providers was medical stability for discharge (9) and estimated discharge date (6). Average weekly completion increased from 389 uses per week (old template) to 490 uses per week (new template).

Conclusions: The new format of the interdisciplinary rounds note is well-received by providers who are completing the standard format with more frequency than the previous template. Post-intervention results are currently being analyzed to understand the impact of the new note template.

172) DIFFERING INSTITUTIONAL DEFINITIONS OF AHRQ PATIENT SAFETY INDICATORS AND THEIR USEFULNESS AS MEASURES OF QUALITY HEALTHCARE

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In healthcare, quality of care metrics such as Patient Safety Indicators (PSI) have been widely incorporated. PSIs were developed by the Agency for Healthcare Research and Quality (AHRQ) to assess for potentially avoidable safety events to identify opportunities for care delivery improvement.. However, based on experience with concurrent PSI reviews and published data on PSI 12 indicating that it rarely identifies quality of care concerns in perioperative venous thromboembolism, we hypothesize that other PSIs may not correlate with lapses in care. Furthermore, comparison of PSI rates between like institutions shows wide variability questioning whether these differences are due to the way hospitals classify their procedures, rather than in the quality of care provided. Certain PSIs only trigger after elective procedures (rather than urgent or emergent). However, the definitions for elective are determined by individual institutions. We analyzed PSI 11, post-operative respiratory failure, and PSI 13, postoperative sepsis. PSI 11 and 13 rates were identified for 100 US academic medical centers for fiscal years 2019 and 2020 utilizing AHRQ software version 5. For PSI 11, the percent of cases considered elective ranged from 2.21% to 53.3% with an average of 31.52%. For PSI 13, the percent of elective cases ranged from 2.29% to 60.67% with an average of 38.93%. How hospitals classify procedures greatly influences the number of PSIs a hospital has. While PSIs may be useful to show changes in an individual hospital's events over time, they are often not effective at evaluating a hospital's quality of care and are difficult to compare across the country.

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