

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #1

Category: Research

School: Central Michigan University School of Medicine

Clerkship Director: Nicolas Haddad, MD, FACP

Presenter: Rebecca Falzon

Additional Authors: Brittini Eller, Jyotsna Pandey

### **Physical activity reduces fall risk in a population of independently living rural-community based older adults**

**Objective:** Falls are the leading cause of injury among elderly individuals in the United States and can cost up to \$50 billion a year (1). Higher physical activity levels along with appropriate gait, strength, and balance training has been found to prevent falls in this population (2). Additional up-to-date evidence in the rural community is essential given the major long-term consequences associated with falls and fall-related injuries.

**Methods:** Annual fall risk assessment was conducted for 101 older adults ( $\geq 60$  years), living independently in three rural, dispersed, underserved counties in Michigan by assessing gait, strength and balance. Fall risk scores were calculated using the STEADI Algorithm. Participants then answered the question inquiring if they exercise for about 20 minutes three or more days a week. Responses were categorized as: yes most of the time, yes some of the time, or no exercise.

**Results:** Participants (79%) that reported “yes most of the time” or “yes some of the time” to regular exercise had an average fall risk score of 4.23 and 4.27 respectively and reported an average of 0.62 and 1 fall within the last year respectively. Participants who reported “no” to regular exercise (20%) had a much higher average fall risk score of 6.37 and an average of 2 falls within the last year. Individuals that tested positive for gait, strength, or balance problems (44%) had an associated average fall risk score of 7.02 and an average of 1.73 falls within the last year as opposed to those who tested negative for gait, strength, or balance problems (56%) with an average fall risk score of 2.72 and an average of 0.42 falls within the last year.

**Take home message:** Including even light physical strength regimens in daily life reduces fall risk and improves outcomes and wellbeing for older adults.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #2

Category: Research

School: Central Michigan University School of Medicine

Clerkship Director: Nicolas Haddad, MD, FACP

Presenter: Katherine Grayden

Additional Authors: Ayush Mohan, Joshua M. Atherton, Lauren L. Payne, Anh M. Pham, Zain V. Waheed, Jyotsna Pandey

### **Implementing “Students at PACE” Manual to Enhance Geriatric Healthcare and Student Experiences Working with Geriatric Patients**

Program of All-Inclusive Care for the Elderly (PACE) is a network of alternative healthcare facilities that provide comprehensive health and wellbeing care to economically disadvantaged older adults living in the community and/or in assisted living facilities. PACE provides comprehensive interdisciplinary care that includes primary care, home care, physical therapy, dentistry, emergency services, pharmacological needs, social work, transportation, and nutritional counseling. Due to the limited geriatric exposure in the health profession and medical education, we want to create the “Students at PACE” manual to provide opportunities for students to work with older adult populations.

For the manual, we created objectives and ideas that serve as a foundation for students to develop their own mini projects without the need to start from scratch. An overarching goal is to apply this manual as a toolkit to establish geriatric volunteer opportunities.

In order to develop project guidelines, we interviewed Central Michigan University faculty from recreation therapy, audiology, speech and language pathology, neurosciences, public health, social work, medicine, nursing human development and exercise science. Guideline development was constructed using semi-structured interviews to elicit relevance of geriatric exposure, general goals for geriatric training, feasibility for inclusion of projects related to older adults, aspects of value of such as training, and unique ideas for students in each specialty. The transcripts were then analyzed to create a chapter of training opportunities for each specialty in the manual.

The major areas of training identified by the CMU faculty include internships at PACE, small semester credit-based projects, weekly, longer or longitudinal volunteer opportunities, care support and educational programs including creating recreational opportunities for the elderly.

Our findings indicate that providing geriatric exposure to healthcare professionals-in-training will enhance the care of the elderly while helping develop geriatric skills of students-in-training.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #3

Category: Clinical Vignette

School: Central Michigan University School of Medicine

Clerkship Director: Nicolas Haddad, MD, FACP

Presenter: Shannon Manz

Additional Authors: Joseph Haddad MD, Palaniandy Kogulan MD

### **A case of *Aspergillus fumigatus* discitis/osteomyelitis in an immunocompetent patient**

**Introduction:** Skeletal mycosis is a rare infection that most frequently presents as osteomyelitis of the spine. *Aspergillus* osteomyelitis and discitis often develop in immunocompromised patients through hematogenous spread of infection and less frequently in immunocompetent patients after surgery or trauma. Here, we present a case of *Aspergillus* osteomyelitis and discitis in a 62-year-old immunocompetent male with a previous lumbar laminectomy.

**Case Description:** A 62-year-old male with a medical history of COPD, hypertension, past IV drug use, and chronic lower back pain s/p lumbar laminectomy three years prior, presents to his neurosurgeon's office with worsening back pain. Physical exam was positive for pain to palpation in the lower thoracic spine without weakness or sensory changes in the lower extremities. WBC and ESR levels were elevated, but other signs of infection were absent. Both CT scan and MRI of the lumbar spine revealed potential osteomyelitis/discitis at the T10-T11 level. The patient was admitted for surgical debridement and culture of the infected site, which grew rare *Aspergillus fumigatus*. Infectious diseases team was consulted, and treatment course included IV and oral voriconazole. Upon improvement, the patient was safely discharged within two weeks of debridement. Despite four months of treatment, a repeat MRI showed destructive changes of T10-11 secondary to discitis osteomyelitis progression, and the patient was referred to another facility for higher level of care.

**Discussion:** This case exemplifies the rare event of *Aspergillus* osteomyelitis in an immunocompetent male with previous lumbar surgery. The indolent presentation of symptoms should prompt physicians to keep *Aspergillus* osteomyelitis on the differential diagnoses of chronic back pain with pertinent history and positive exam findings. Debridement and antifungal therapy are the top modality of treatment.

**Conclusion:** Awareness of *Aspergillus* osteomyelitis and discitis is imperative to reduce morbidity and mortality in both immunocompetent and immunocompromised patients.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #4

Category: Research

School: Central Michigan University School of Medicine

Clerkship Director: Nicolas Haddad, MD, FACP

Presenter: Kush Pandya

Additional Authors: Nathan Shen, Jyotsna Pandey

### **SMAST-G Scores negatively correlate with STEADI Scores in rural older adults**

Risk of falling continues to be a major risk factor among the older adult population in terms of quality of life and life expectancy. However, the relationship between fall risk and alcohol consumption in the rural dispersed, financially disadvantaged, underserved older adult population has not been as comprehensively reviewed. The goal of this study was to examine the correlation between alcohol consumption and fall risk scores using Short Michigan Alcoholism Screening Instrument – Geriatric Version (SMAST-G) and Stopping Elderly Accidents, Deaths, and Injuries (STEADI) scores in the Central Michigan counties of Gratiot, Isabella, Clare, and Kent Counties. A SMAST-G score of 2+ suggests an issue with alcohol. A STEADI score <4 is low risk, >4 is moderate risk, and >4 + symptoms or signs (such as dizziness or inability to walk without support) is high risk. In this case study, 98 older adults in rural dispersed, financially disadvantaged, underserved areas were assessed for their fall risk and alcohol consumption and the two categories were compared.

Individual SMAST-G scores of 0, 1, and 2 had an average STEADI score of 3.72, 2.75, and 1.33 respectively. No individuals had a SMAST-G score greater than 3. Contrary to our hypothesis, it was found that as alcohol consumption increases in our population, the average fall risk decreases. One possibility that the researchers proposed is that those individuals are drinking more, are moving less, and therefore have a lower fall risk.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #5

Category: Research

School: Central Michigan University School of Medicine

Clerkship Director: Nicolas Haddad, MD, FACP

Presenter: Emily Reitzel

Additional Authors: Jyotsna Pandey, MD, PhD

### **Prevalence of Toenail Onychomycosis and Onychocryptosis Among Rural Older Adults with Diabetes Mellitus**

Over 25% of individuals age 65 years or older live with diabetes mellitus (DM) in the United States. Previous studies have suggested that DM patients have a higher prevalence of onychomycosis and onychocryptosis, affecting approximately one-third of patients. Both conditions have been associated with an increased risk of developing diabetic foot ulcers. Studies have shown that rural older adults with a diabetic foot ulcer are at an increased risk of undergoing amputation than their urban counterparts. Due to the potential devastating complications of diabetic foot ulcers in the rural population, regular monitoring of these patients for toenail health will help prevent foot ulcers. We examined the prevalence of onychomycosis and onychocryptosis in older adults with diagnosed DM living independently in rural, underserved counties in central Michigan.

194 participants self-enrolled in the Healthy Aging Initiative of the Central Michigan University College of Medicine. The recruitment criterion included age 60 years or older, independently living in their own household, reasonably mobile and cognitively intact. Presence of comorbidities were recorded for all participants. A detailed foot exam was done and the presence of foot deformities, sensation, and toenail deformities such as long, thick, or ingrown toenails were recorded. We correlated the presence of diabetes mellitus and toenail abnormalities using Microsoft Excel Pivot Tables, on data collected during home visits in 2019 and 2020.

Of the fifteen patients that reported a diagnosis of DM during the 2019 surveys, 20.0% (3/15) reported the presence of long, thick, or ingrown toenails. In 2020, twenty-one patients reported a diagnosis of DM, with 23.8% (5/21) reporting the presence of long, thick, or ingrown toenails. The patients were advised to follow-up with a podiatrist. No foot ulcers were reported.

Detailed foot exams in the underserved, rural, independently living, diabetic older adult population can help prevent future foot ulcers.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #6

Category: Research

School: Central Michigan University School of Medicine

Clerkship Director: Nicolas Haddad, MD, FACP

Presenter: Nathan Shen

Additional Authors: Pandya K, Pandey J, Ramanathan S

### **PHQ-2 scores accurately predict PHQ-9 determined depression severity in older adults living in rural Michigan**

The Patient Health Questionnaire (PHQ-9) is a 9 item, self-administered tool to screen for depression and assess depression severity. The PHQ-2 is an abridged version of the PHQ-9 composed of the first two items alone. The aim of this study is to examine the predictive value of the PHQ-2 on PHQ-9 scores in older adults residing in rural dispersed, financially disadvantaged, underserved areas in Central Michigan. This qualitative study includes three years of data between 2018 to 2020 from 285 PHQ-9 scores of older adults within the rural Michigan counties of Gratiot, Isabella, Clare, and Kent.

Using a linear regression model, the predicted relationship between the PHQ-2 and PHQ-9 is as follows:  $PHQ-9_i = 1.2 + 2.7(PHQ-2)_i + \epsilon_i$ . Our model predicts that an older adult in rural Michigan would have a baseline PHQ-9 score of 1.2 on average, and that each additional point on the PHQ-2 score would correlate to an average increase of 2.7-points in the predicted PHQ-9 score. Our regression coefficient was statistically significant at the  $\alpha = 0.05$  significance level ( $p=0.000$ ).

The regression predicts that PHQ-2 scores of 0-1, 2-3, or 4-5 correlate to screening results of no depression (PHQ-9 between 0-4), mild depression (PHQ-9 between 5-9), and moderate depression (PHQ-9 between 10-14), respectively. These predictions of depression severity hold true in our sample data. Our sample data show that patients with PHQ-2 scores of 0-1, 2-3, or 4-5 had an average PHQ-9 screening result of 1.2-3.6, 7.5-9 or 12-13.5 respectively, placing them in the categories predicted by the regression model.

Our findings support the predictive validity of the PHQ-2 questionnaire on the PHQ-9 screening questionnaire in older adults residing in rural, underserved counties in Michigan. This study shows that the PHQ-2 may serve as an appropriate, expeditious screening tool for clinicians screening for depression.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #7

Category: Research

School: Michigan State University College of Human Medicine

Clerkship Director: Churlson Han, MD

Presenter: Zachary Jodoin

Additional Authors: Dr. Christopher Chuinard

### **Total Elbow Arthroplasty Utilizing Distal Collateral Ligament Detachment: A Novel Triceps Sparing Technique**

**Introduction:** Total Elbow Arthroplasty (TEA) has become a useful tool in combatting elbow pathology. Unfortunately, complication rates approach 29%. A devastating complication is extensor insufficiency. In an attempt to mitigate this risk, various TEA techniques have been described. We describe a triceps sparing approach to TEA that limits the risk of extensor insufficiency and provides increased intraoperative exposure by detaching the collateral ligaments distally from their radial and ulnar components. We hypothesize that this technique will result in less extensor complications, while providing excellent surgical exposure and outcomes.

**Methods:** A retrospective review was completed at a single surgeon community-based institution. 17 patients were included in the study. Elbow functionality was recorded using range of motion criteria. Post-operative implant loosening was determined using both clinical and radiographic data. All surgical and postoperative complications were recorded. Outcomes were measured pre- and post-operatively at the most recent follow-up appointment.

**Results:** One patient (5.9%) suffered from implant loosening requiring revision, versus the average rate of 10-25%. A statistical increase across all ROM categories was recorded. Overall complication rate was consistent with the literature value of 29%. One patient experienced significant hardware failure, periprosthetic fracture, and triceps pathology. This was due to a post-operative fall leading to an olecranon fracture. When excluding this individual, our complication rates for revision, infection, and triceps insufficiency were all well below the rate of similar studies. We did experience higher ulnar neuropathy complications than most studies (11.8%), but the small sample size likely skews this value.

**Conclusions:** TEA has developed into a suitable solution to both traumatic and chronic elbow pathology. TEA utilizing the distal collateral ligament detachment technique allows great intraoperative exposure, improved post-operative patient-oriented and radiographic values, and limits the complications associated with TEA. This technique could serve as an asset to any orthopedic surgeon performing TEA.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #8

Category: Research

School: Michigan State University College of Human Medicine

Clerkship Director: Churlson Han, MD

Presenter: Yvonne Nong

Additional Authors: Alexander R. Mikhail, MD, MS, Andrew B. Shreiner, MD, PhD

### **Evaluating Satisfaction with Care in Patients with Eosinophilic Esophagitis at a Large Regional Medical Center**

Eosinophilic esophagitis (EoE) is a chronic allergic disease characterized by esophageal dysfunction and  $>15$  eosinophils/hpf on mucosal biopsies not explained by another condition. It is increasing in prevalence, and guidelines for diagnosis and management were recently updated. We conducted a multiple-methods study to evaluate factors that determine EoE patients' satisfaction with care (SWC). Methods: 5,819 adult patients were identified by CPT code 43239 for EGD with biopsy; 217 met inclusion criteria, 43 subjects consented to participate; and 9 were subsequently excluded when another cause for eosinophilia was identified. Pertinent medical history was extracted retrospectively. Subjects participated in a telephone survey regarding their EoE history, symptoms, management, and SWC, and they were asked to complete the Dysphagia Symptom Questionnaire for 14 consecutive days. Results: All patients were advised to use PPI, 53% were recommended to use topical steroid, and only 15% were counselled on allergy avoidance diet. 41% had Gastroenterology and 29% had Allergy office follow-up. 24% had a follow-up EGD and 29% had improved eosinophilia demonstrated on pathology. 65% were treated with esophageal dilation. The mean dysphagia score was 0.05 (0.02, 0.14). 71% reported having food impaction. 71% of respondents were moderately, mostly, or completely SWC. An analysis of dysphagia score by SWC demonstrated a trend towards higher satisfaction with lower dysphagia scores ( $R^2=0.2843$ ). Interestingly, SWC did not seem to be predicated on food impaction, gastroenterology and/or allergy office follow-up, prescription of topical steroid, or receiving esophageal dilation. There were no significant trends between SWC and gender. Discussion: Although SWC was quite high, including many with active symptoms and a history of complications, this was also true among dissatisfied patients. Additional studies with larger numbers of patients are needed to identify factors that increase patient satisfaction to focus care where needed most and improve overall care for this emerging disease.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #9

Category: Clinical Vignette

School: Michigan State University College of Osteopathic Medicine

Clerkship Director: Susan Enright, DO FACOI

Presenter: Danielle Ross

Additional Authors: Parth Patel, MD; Devin Malik, MD; Vivek Kak, MD

### **Port-A-Cath Fracture and Embolization**

#### Introduction:

An indwelling port is a common mechanism utilized in those undergoing cancer chemotherapy treatment in which venous access will need to be frequently obtained. We present a case in which tubing from a port fractured and embolized to the lung.

#### Case Description:

A 64-year-old male with a past medical history of follicular lymphoma and acute left lower extremity deep vein thrombosis (DVT) being treated with warfarin presented with worsening left leg pain along with new-onset chest pain and shortness of breath. The patient was at the time 10 weeks of status-post chemotherapy (Bendamustine + Rituximab) received via right-sided Port-A-Cath. Our patient is currently incarcerated which resulted in delay of removal of his port. A CT PE was obtained due to suspicion of a pulmonary embolism from his DVT; however, images revealed embolization of a broken port fragment to the left pulmonary posterior segmental artery. Interventional radiology was able to remove the fractured port tubing the next day without complication.

#### Discussion:

Our patient's surprising finding of an embolic port fragment highlights the importance of prompt port removal after the cessation of treatment. Despite the rarity of this complication, it has a great risk for morbidity if left untreated. In addition to preventing embolic fragments, timely removal of indwelling ports is essential to prevent infection.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #10

Category: Quality Improvement

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Lynda Misra, DO, MSc, FACP

Presenter: Hassan Akram

Additional Authors: Paul Johnson, MD; Trini Mathew, MD

### **Human Papilloma Virus (HPV) Vaccination uptake in HIV patients: challenges during COVID19 pandemic in Michigan, USA**

HPV is strongly associated with cervical cancer and cancers of vagina, vulva, penis, anus, rectum. In 2019, WHO identified vaccine hesitancy as top 10 global threats and planned to increase the HPV vaccine coverage. In June 2019 Advisory Committee on Immunization Practices (ACIP) in US recommended shared clinical decision-making regarding HPV vaccinations in adults aged 26 through 45 years. The goal of this project is to evaluate the uptake of HPV vaccination and challenges, in the HIV patients at Beaumont Hospital. HIV+ patients (ages 18-45) who received care in the Infectious Disease Clinic at Beaumont Hospital were provided a questionnaire on HPV vaccine as part of routine care. Anecdotally patients in this clinic were not routinely offered the HPV vaccine prior to implementation of this student-led Quality Improvement project. The results of 9 items questionnaire, demographic data and HPV vaccination uptake, were analyzed from August 2019 to December 2020. Thirty-two participants completed the questionnaire of which 12 participants confirmed interest in receiving vaccination and 9 subsequently received the HPV vaccination at the time of analysis (Figure 1). Of note, two other participants had received vaccination previously. 78% of the participants were males and the mean age of the participants was 33.6 years (SD: 5.6) (Table1). The study was limited by transition to tele-medicine clinic during COVID19 pandemic surge. However, it highlighted need for patient-provider discussions to improve HPV vaccination uptake, understand insurance coverage and patient's perception of the vaccine cost to optimize HPV vaccine uptake.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #11

Category: Clinical Vignette

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Lynda Misra, DO, MSc, FACP

Presenter: Faris Alkhouri

Additional Authors: Samaa Alkhouri; Omar Afify; Geoffrey Potts MD, FAAD

### **Prurigo Pigmentosa Following Keto Diet and Bariatric Surgery**

Prurigo Pigmentosa of Nagashima (PP) is a rare pruritic condition typically of adolescent girls and young women with idiopathic etiology. It presents as symmetric, reticulated red papules or vesicles on the neck and trunk with frequent recurrence. Over time, post-inflammatory hyperpigmentation lasting months is common. We report the occurrence of PP in a young woman on two separate occasions. Her first episode was following a ketogenic diet and second after undergoing a laparoscopic gastric sleeve surgery. The patient is a 25-year-old female of middle eastern descent with rash in the intermammary cleft following a two-week ketogenic diet. In three weeks, the eruption had spread over the chest and progressed from small red papules to become coalescent plaques with occasional crusted vesicles. The rash resolved within a month of discontinuing the ketogenic diet. A year later, the patient underwent a gastric sleeve surgery. Over the next month, a similar eruption developed on neck and upper trunk. Following this occurrence, the inflammatory papules improved after oral minocycline and increased carbohydrate diet. This presents as a unique case because PP has only been reported in a small number of cases in the Western world. Most of the cases are either due to ketogenic diet or due to gastric surgeries alone. This case shows the occurrence of PP following both of these conditions in the same individual which could be suggestive of stronger relationship between PP and the metabolic state of the body.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #12

Category: Research

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Lynda Misra, DO, MSc, FACP

Presenter: Ryan Ko

Additional Authors: Brandon Prentice BS, Mallory Evans BS, Jean Szura PhD, Nelia Afonso MD

### **Feasibility of a medical-student-led COVID-19 education campaign to improve vaccine acceptance in low-income communities**

#### Purpose:

As the COVID-19 pandemic continues in its second year, communities hit hardest still face barriers despite the widespread availability of vaccines. We describe the feasibility of a medical-student-led campaign to promote vaccine confidence by tailoring and relaying accurate information to address concerns in low-income communities.

#### Methods and Materials:

Using references from the Center for Disease Control (CDC), Michigan Department of Health and Human Services (MDHHS), and William Beaumont Hospitals, students developed training modules and a quiz to educate their peers about the available vaccines and frequently-asked questions. One-page flyers were created in English and Spanish with information from these resources and directions to vaccine clinics. These flyers were distributed by volunteers who answered questions and presented vaccine information at education stations set up in various community sites. Volunteers completed a post-volunteering survey to record number of distributed flyers, number of individuals they conversed with, and the individuals' intent to be vaccinated if explicitly stated.

#### Results:

29 students registered as volunteers from February to June 2021. Volunteers were stationed at 10 community sites which included places of worship, homeless shelters and student-run free clinics. Volunteers distributed 287 English and 70 Spanish flyers through July 2021 and conversed with 112 individuals about COVID-19 vaccines (112/29; 3.86 avg. per volunteer). Beginning in May 2021, 7 individuals explicitly agreed to a same-day vaccination and 13 individuals stated they might get vaccinated later after conversing with a volunteer.

#### Conclusions:

A medical-student-led campaign to relay accurate COVID-19 vaccine information and reduce vaccine hesitancy in low-income areas is feasible and easily replicated. This program was also effective in developing community partnerships and helping individuals navigate the vaccine sign-up process. Outreach and collection of campaign data is ongoing to further measure effectiveness.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #13

Category: Clinical Vignette

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Lynda Misra, DO, MSc, FACP

Presenter: Tiffany Loh

Additional Authors: Arati Kelekar, MD

### **Granulomatous Polyangiitis Presenting With Minimal Physical Symptoms**

Granulomatosis polyangiitis (GPA) is a rare (12.8 cases/million adults) small-vessel vasculitis with inflammatory reactions primarily in the upper respiratory tract (URT), lower respiratory tract (LRT), and kidneys. Diagnosis is based on clinical symptoms, positive c-ANCA serology, and histological evidence of necrotizing.

A 59-year-old male with past medical history of coronary artery disease, uncontrolled type 2 diabetes, stage 4 chronic kidney disease, presented to the Emergency Department for kidney biopsy by his nephrologist because his kidney function decreased over 50% in the past year. He was also recommended a lung biopsy as one month ago, he had hemoptysis in the mornings for one week. CT chest scan showed a lung nodule. He denied any other history of URT or LRT symptoms common to GPA, such as epistaxis, ear infections, sinus pain, saddle-nose deformity, hearing loss, or cough. Patient denied any pain or physical complaints at admission. Lab testing showed microhematuria and proteinuria along with positive ANCA, ANA and PR3. Kidney biopsy found pauci-immune ANCA associated crescentic glomerulonephritis. Patient discharged and instructed to follow-up with nephrology concerning most likely diagnosis of granulomatosis polyangiitis.

While the upper respiratory tract is the most common site of lesions in GPA (70-100% of cases), the patient did not present with any signs of URT lesions. The only LRT symptom was hemoptysis, which led the nephrologist to request a chest CT. The CT showed a right upper lung pulmonary nodule and right lung ground-glass opacities, consistent with GPA. Renal involvement was indicated by the glomerulonephritis.

Given the patient's complex medical history, it was difficult to distinguish if a patient's clinical manifestation was due to a previously diagnosed condition or GPA. For example, the patient had lower leg skin lesions that were previously attributed to his uncontrolled diabetes, but rheumatology considered past leukocytoclastic vasculitis.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #14

Category: Clinical Vignette

School: Ross University School of Medicine

Clerkship Director: Dr. Geetha Krishnamoorthy

Presenter: Sofiah Ali

Additional Authors: Nahel Haji, Priyanjali Pulipati, MD., Emad Wahashi, MD., Kalyana Ramamurthi, MD

### **Occurrence of Post-Transplant Lymphoproliferative Disease in Renal Transplant Recipient**

#### Introduction

Post-transplant lymphoproliferative diseases (PTLD) are a group of lymphoid disorders that occur in the setting of solid organ or hematopoietic transplantation. Risk factors for the development of PTLD include type of organ transplanted, degree/duration of T-cell immunosuppression, and Epstein-Barr Virus (EBV) status, with data suggesting that EBV-seronegative recipients are 24 times more likely to develop PTLD than their EBV-seropositive counterparts [4]. In an environment of chronic T-cell immunosuppression, EBV infection remains uncontrolled, resulting in malignant B-cell lymphoproliferations that cause PTLD.

The cumulative incidence of PTLD in renal transplant patients is 1 – 3% with more than 80% of cases occurring in the first year after transplantation [1, 2, 3]. While PTLD is the most common malignancy associated with solid organ transplants, they are a serious complication and require a low threshold of suspicion for diagnosis.

#### Case Presentation

A 30-year-old Asian American female, recipient of an allograft renal transplant for end stage renal and IgA Nephropathy disease, presented to the hospital complaining of abdominal pain and distention. Computed tomography of the abdomen showed peritoneal nodularity, stranding, and omental thickening, concerning for lymphoproliferative disease in the setting of Tacrolimus. After attaining EBV titer levels, performing multiple paracentesis, and a repeat ascitic fluid cytology, a final diagnosis of B-cell Non-Hodgkin's Lymphoma (NHL) was made. To diagnose this condition, transplant rejection as well as other primary malignancies, such as gynecological malignancy, were ruled out.

#### Discussion

This case highlights the importance of maintaining a high index of suspicion for PTLD in organ transplant patients. While the clinical presentation of PTLD is highly variable, certain findings such as lymphadenopathy, presence of "B symptoms," elevated LDH levels, and an EBV viral load in the thousands, can help narrow down a differential diagnosis. An excisional tissue biopsy, however, is required to make the final diagnosis.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #15

Category: Clinical Vignette

School: Ross University School of Medicine

Clerkship Director: Dr. Geetha Krishnamoorthy

Presenter: Nahel Haji

Additional Authors: Sofiah Ali, Emad Wahashi, MD, Mahrukh Khalid, MD, Dr. Kalyana Ramamurthi, MD

### **Johnson and Johnson COVID Vaccine Triggering Pheochromocytoma Multisystem Crisis**

#### Introduction

Pheochromocytomas are rare catecholamine-secreting tumors arising from the adrenal medulla that may have variable presentations. Many of these tumors are asymptomatic and found incidentally but some can be triggered after being previously dormant [1]. Rarely, pheochromocytomas can present with multisystem organ failure and in this report, we describe the first case of pheochromocytoma triggered by the Johnson and Johnson(J&J) COVID vaccine.

#### Case Presentation

A 63-year-old Caucasian male presented to the hospital with intractable nausea, vomiting, dyspnea, watery diarrhea, chills, sweats, and heavy chest pain starting one day status post J&J COVID-19 vaccination. He had no symptoms prior to this and no significant past medical history besides daily marijuana use. During his hospital stay, he had persistent high fevers, respiratory failure, cardiogenic shock, and rapid cyclical fluctuations of hypertension and hypotension. He was worked up for infectious causes and all were negative. He was found to have a 7cm mass in the right adrenal gland with elevated chromogranin A, urine VMAs, and urinary 24-hour metanephrines to confirm the diagnosis of a pheochromocytoma.

#### Discussion

Common symptoms for pheochromocytomas include episodic headache, sweating, tachycardia, and paroxysmal hypertension [1]. A review of the literature revealed that 47 cases of pheochromocytoma presenting clinically as shock have been identified from 1966–2003 [2]. The mechanism of shock caused by pheochromocytomas is not fully understood but is thought to be due to hypovolemia from increased capillary permeability or from myocardial injury leading to decreased cardiac output [2]. In the absence of the classical symptoms of pheochromocytoma, it is still prudent to remain suspicious when patients present with sudden symptoms of multiorgan dysfunction, labile blood pressures, and hyperthermia. Diagnosis can be confirmed with significant elevations in biochemical tests and abdominal imaging to localize the tumor for eventual resection.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #16

Category: Clinical Vignette

School: Ross University School of Medicine

Clerkship Director: Mohamad Hatahet, MD, FACP

Presenter: Jacqueline Gri

Additional Authors: Dr. Mohamad Hatahet, MD, Dr. Siddharth Chopra, MD

### **Xanthogranulomatous Pyelonephritis, A Rare Case report of a 54 year old female.**

Xanthogranulomatous pyelonephritis a.k.a XPGN is a rare pathology of the kidneys occurring in 0.6 to 1% of all cases of renal infections. It is characterized by severe inflammation of the renal parenchyma leading to formation of granulomatous tissue containing lipid-laden macrophages. Here we present a case of a 54 year old Caucasian female who presented with five days of left flank pain, hematuria, chills, nausea and vomiting. Imaging and biopsy results showed that the patient had XPGN. The purpose of our case report is to understand how patients with this condition present and how early diagnosis and treatment can help prevent mortality and morbidity from the disease.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #17

Category: Clinical Vignette

School: St George's University School of Medicine

Clerkship Director: Raymond Hilu, MD, FACP

Presenter: Mani Movaseghigargari

Additional Authors: Goutham Kondapi, DO; Krishna Mahat, MD; Shyam S Moudgil, MD

### **“It opened my eyes”: A patient’s tribute to tPA in a case of Top-of-the-Basilar-Artery-Syndrome**

#### Introduction:

Top-of-the-Basilar-Artery-Syndrome (TBAS) occurs due rostral basilar artery occlusion. If left untreated, it may cause devastating neurological outcomes including locked in state. Here we present a case of acute onset bilateral ptosis due to TBAS effectively treated with tPA.

#### Case:

A 48-year-old man with no significant past medical history was brought to the ER with sudden blurry vision, inability to keep his eyes open, and slurred speech. He reported simultaneous onset of these symptoms after turning his head back to midline as he was driving on the freeway. At the hospital, a code stroke was called; CT of the head, CTA head/neck, and perfusion study were unremarkable. The patient demonstrated complete bilateral ptosis; manual elevation of eyelids revealed bilateral 7mm mydriasis, and bilateral INO. Speech was dysarthric, and he demonstrated dysmetria in finger to nose and heel to shin maneuver. He was treated with tPA and his deficits subsequently improved. One hour post tPA, he had mild left INO and a slight dysmetria. Brain MRI the following morning showed early subacute infarction of the left thalamus. The sole residual deficit was occasional diplopia. Echocardiography with bubble study showed 11mm atrial septal defect (ASD) with large right to left shunt during Valsalva.

#### Discussion:

The combination of symptoms in this patient suggests bilateral paramedian midbrain involvement likely in the rostral basilar artery distribution, resulting in TBAS. The patient’s bilateral ptosis, mydriasis, and INO likely occurred following involvement respectively of the central caudal nucleus, Edinger–Westphal nuclei, and medial longitudinal fasciculi. His dysarthria and dysmetria were likely a result of descending motor and cerebellar pathway involvement. Symptom improvement with tPA and subsequent downstream thalamic infarction on MRI further support effective treatment. Presence of an ASD provides a mechanism for systemic embolization causing TBAS in this case.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #18

Category: Research

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Rohan Achar

Additional Authors: Alyssa Clearwood, Talha Anwar, Brian Parkin

### **A Novel Risk Stratification Model for Veterans with Chronic Myelomonocytic Leukemia**

#### Introduction

Chronic myelomonocytic leukemia (CMML) is a myeloid malignancy that shares features of both myeloproliferative neoplasms and myelodysplastic syndromes. Little is known about outcomes of patients with CMML among the Veteran population in the United States. In this study, we identify factors that impact survival in a large cohort of Veterans with CMML and build a novel CMML prognostic model that incorporates comorbidity burden.

#### Methods

We conducted a retrospective study of 1,061 Veteran patients receiving care throughout the nationwide VA Healthcare system with a verified diagnosis of CMML. After determining univariate determinants of overall survival in the overall cohort through log-rank testing, the cohort was partitioned into training and validation cohorts. Multivariate Cox regression was performed in the training cohort to determine which factors independently impact overall survival. These risk factors were used to build a novel CMML prognostication model. The discriminative power of this model was compared to that of the Mayo and CPSS risk models in the training and validation cohorts via Harrell's Concordance Index (C-Index).

#### Results

Based on univariate analysis and multivariate Cox regression, the following patient and disease characteristics were included in the CMML risk model: Charlson Comorbidity Index, hemoglobin level, platelet level, white blood cell count, absolute monocyte count, WHO stage, and cytogenetic risk. The novel risk model had a higher C-index than the CPSS and Mayo models in both training and validation cohorts.

#### Conclusion

Among CMML risk models that do not incorporate mutational data, our Veteran-specific model has the greatest discriminatory power in determining survival risk for Veterans with CMML. Our model is also the first CMML risk model to integrate comorbidity burden, a characteristic that disproportionately impacts outcomes among Veterans. This tool, available at [rachar.shinyapps.io/VAMP\\_CMML](https://rachar.shinyapps.io/VAMP_CMML), can be used to predict survival and guide clinical decision-making for Veterans and other patients with CMML.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #19

Category: Clinical Vignette

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Serena Bidwell

Additional Authors: Bhushan Deshpande, MD; Michael Dias, MD; Tristan Feierabend, MD

### **Pleural effusion after percutaneous nephrostomy: how to know when you're in trouble**

A 55-year-old male with a history of invasive bladder cancer s/p cystoprostatectomy with ileal conduit and right renal aneurysm s/p embolization and upper pole atrophy was admitted with fever and acute dyspnea. Four days prior to admission, the patient had undergone right percutaneous nephrostomy (PCN) tube placement for an infected staghorn calculus, during which the patient experienced severe right-sided chest pain. Upon admission, a CT chest showed a loculated right pleural effusion and, upon further review, demonstrated the PCN tube traversing the right hemidiaphragm at the costophrenic recess prior to entering the right kidney. A chest tube was placed. Purulent fluid was drained, which had a pleural-to-serum creatinine ratio of 0.77. We concluded that the patient had an infected urinothorax as a complication of PCN tube placement. He was started on antibiotics and received three days of tPA/DNAse instillation, with significant improvement in his effusion. The chest and PCN tubes were removed and a urinary drainage catheter was placed. He was discharged home with four weeks of ertapenem.

Urinothorax is an uncommon cause of pleural effusion that may be challenging to diagnose, and typically occur following obstructive uropathy, blunt abdominal trauma, or iatrogenic injury including percutaneous and ureteral procedures. Pleural fluid is typically transudative with a pleural fluid to serum creatinine ratio greater than 1.0, though this number lacks sensitivity and is based on studies with small sample size. Treatment relies on removal of urine from the pleural space and management of the underlying genitourinary pathology. This case was particularly unique as the infected urine confounded the usual biochemical analysis and resulted in formation of an empyema. While urinothorax is a rare condition, it should be included in the differential diagnosis of patients with a new pleural effusion and concurrent renal disease, especially following percutaneous or genitourinary procedures.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #20

Category: Research

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Tiffany Hu

Additional Authors: Iman Ali, BA; Jeffrey T. Kullgren, MD, MS, MPH

### **Helping Patients with Chronic Conditions Overcome the Challenges of High Deductible Health Plans**

**Background:** With a growing number of Americans enrolled in high-deductible health plans (HDHP), patients, especially those with chronic conditions, face increasing cost-sharing burden. We aim to develop a novel behavioral intervention to help patients use consumer strategies to better manage their health care spending.

**Methods:** This mixed methods study first conducted semi-structured telephone interviews of 20 adults with one or more chronic conditions who were enrolled in an HDHP. Themes from these interviews were used to inform the design of a national internet panel survey of 432 HDHP enrollees. Collectively, the interviews and survey assess experiences of HDHP enrollees and their preferences for the content, design, format, and mode of an intervention to help them engage in cost-conscious health care behaviors. These findings will be used to develop a novel behavioral intervention that will subsequently be pilot tested for acceptability, feasibility, and preliminary efficacy.

**Results:** Preliminary interview data demonstrated that HDHP enrollees with low confidence in engaging in consumer behaviors could better utilize cost-conscious strategies in health care if provided the information to do so. Several participants indicated interest in an intervention to learn more about how to engage in cost-conscious strategies, such as putting aside money for anticipated health care expenses, comparing cost and quality for services at different places, and talking to providers about health care costs. Most interview and survey participants preferred an easily accessible website intervention. Among survey participants, comparing cost and quality of care at different locations garnered the most interest.

**Conclusion:** HDHP enrollees with chronic conditions could benefit from an intervention that helps them manage their high cost-sharing. Based on the results of the interviews and national survey, we will develop and pilot test a novel behavioral intervention to promote use of cost-conscious health care behaviors.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #21

Category: Quality Improvement

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Siddarth Madapoosi

Additional Authors: Kevin Karlic, Hari Conjeevaram

### **Improving Documentation of United States Preventive Services Task Force Cancer Screening Recommendations at a Safety Net Clinic**

#### Introduction:

Per the Centers for Disease Control and Prevention (CDC), cancer is the second-leading cause of death among Americans. Cancer screening aims to detect cancer at an early stage, enabling early intervention and improved patient outcomes. We sought to improve documentation rates for cervical, breast, colon, and lung cancer screening at a safety net clinic. "Appropriate documentation" was defined as documentation of all patient-appropriate cancer screenings, per United States Preventative Task Force (USPSTF) recommendations, in the most recent SOAP note.

#### Methods:

Demographic data and documentation rates were obtained via retrospective review of patient encounters at the University of Michigan Student Run Free Clinic (UMSRFC). All interventions herein described were implemented at the UMSRFC. Our study cohort included patients who qualified for one or more cancer screenings per USPSTF recommendations at the time of clinic visit and were seen by "medicine-teams" at UMSRFC.

#### Results:

Our baseline cohort (n=19) demonstrated appropriate documentation in 21% of encounters. Our first intervention required intake volunteers to complete a cancer screening questionnaire and communicate pertinent results to clinical volunteers, who then followed up and completed appropriate documentation. Our first-intervention cohort (n=24, 11/7/20-1/9/21) demonstrated significant improvements with appropriate documentation occurring in 75% of encounters ( $p<0.05$ ). Individually, colon cancer screening documentation increased significantly from 27% of eligible patients pre-intervention to 86% post-intervention ( $p<0.05$ ). Trends toward improvement were also observed for cervical, breast, and lung cancer documentation (not significant,  $p>0.05$ ).

#### Conclusion:

Implementing an intake questionnaire was effective at improving patient-appropriate cancer screening documentation rates at a safety net free clinic. A second intervention, in which visual reminders are posted for volunteers to complete the intake questionnaire and appropriate documentation, is currently underway. Future investigation is required to determine how documentation rates correlate with cancer screening referral and completion.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #22

Category: Clinical Vignette

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Netana H. Markovitz

Additional Authors: Stephen L. Chiang, MD

### **Calciophylaxis: A Diagnostic Challenge**

**Introduction:** Calciophylaxis represents a formidable diagnostic challenge given its potential to closely mimic other more common diagnoses. Given end-stage renal disease (ESRD) often goes hand in hand with other diseases like diabetes and predisposes to cerebrovascular disease in it of itself, it may be diagnosed late in the course. This may lead to significant morbidity and mortality.

#### **Case Description:**

A 63 year-old male with a history of left-sided below knee amputation (BKA), ESRD, diabetes, hypertension, and 25 pack-year smoking history presented with a non-healing wound on his right distal lower extremity. The patient reported that he had a similar ulcer on his left foot which led to a diagnosis of presumed osteomyelitis and his BKA previously. He did report intermittent edema of the right leg. He had a mild ESR/CRP elevation and X-ray was obtained without clear concerns for osteomyelitis. Vascular surgery was consulted given concern for venous stasis ulcer versus arterial disease necessitating possible surgical intervention. However, ankle brachial indices and DVU venous reflux duplex study were normal. Dermatology was ultimately consulted and biopsied the wound. Biopsy was consistent with calciophylaxis. The patient was ultimately treated with sodium thiosulfate and was considering hospice at the time of writing.

#### **Discussion:**

This case illustrates the necessity of having a high index of suspicion for calciophylaxis in a patient with lower extremity (LE) wounds, ESRD, and a negative vascular workup. It is easy to mistake calciophylaxis for more common causes of LE wounds such as venous and arterial ulcers, particularly in a patient with diabetes and hypertension in addition to ESRD. It is possible that more prompt recognition could have saved this patient significant distress and testing, and possibly his left lower extremity. Earlier recognition of calciophylaxis is necessary to help get patients the appropriate care and guide goals-of-care discussions.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #23

Category: Quality Improvement

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Erin Santos

Additional Authors: Krishna Rao, MD

### **Assessing Provider Knowledge in Treating Recurrent Clostridium difficile Infection in Adults During the COVID-19 Pandemic**

#### Background

During the COVID-19 pandemic, the Fecal Microbiota Transplant Program at the University of Michigan Health was suspended due to concerns over possible transmission of SARS-CoV-2 via stool. Without this treatment option, alternative treatments for recurrent Clostridium difficile infection (rCDI) gained importance. This study assessed provider knowledge of alternate approaches to treating rCDI.

#### Methods

We designed an online module consisting of a pre-test, educational materials, and a post-test, to evaluate the knowledge and practice of providers in treating rCDI. Using email recruitment, we invited Gastroenterology (GI) and Infectious Diseases (ID) physicians and physician assistants to review the module, as they treat the most difficult rCDI cases. We also invited Internal Medicine (IM) residents as they treat inpatients who frequently experience rCDI. An initial and reminder email was sent to eligible participants. Participants were eligible to receive a gift card.

#### Results

In total, 95 providers reviewed the module. In the pre-test, providers did worst in correctly identifying an appropriate vancomycin taper for rCDI: only 22% of providers chose the correct taper. 56% of providers chose an incorrect answer with a more frequent dosing and shorter duration. After reviewing the educational materials, 47% of providers selected the correct taper. In the pre-test, the item that was missed the second most was identifying situations where probiotics should be avoided (e.g. bacteremia). 25% of the participants chose the correct scenarios, which increased to 43% after review of the educational materials. On self-assessment, 95% of the participants reported the module improved their knowledge in rCDI management.

#### Conclusions

There was poor knowledge among providers around vancomycin tapers for treating rCDI. Overall, the educational module resulted in  $\geq 20\%$  improvements in knowledge across providers. Knowledge around best practices in the management of rCDI is suboptimal, even among expert providers. A short, online educational module could improve outcomes.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #24

Category: Quality Improvement

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Ryan Townshend

Additional Authors: Chris Grondin, MD; Jawad Al-Khafaji, MD

### Assessing Patient Knowledge of Care Information

**Purpose:** Despite targeted efforts to improve hospital-to-patient communication of care information at Michigan Medicine, it remains unclear how well patients understand such knowledge. This research seeks to delineate the current state of patient retention of care information after hospital discharge and to set the groundwork for future steps aimed at improving patient retention of medical knowledge.

**Methods:** We conducted 53 semi-structured patient interviews 1-2 days after discharge from our resident general medicine services. Questions were designed to assess understanding of key aspects of care (e.g., diagnoses, treatment, and medication changes). Patients' answers were compared to charted data and results were analyzed using descriptive statistics, independent rater categorization, Mann-Whitney U-test, and thematic content analysis.

**Results:** Categorization of response correctness unveiled that most patients responded correctly (58%, 58%, 45%) to questions regarding admission related diagnoses, treatment plan, and medication changes (respectively). However, a significant portion of patients reported partially correct (36%, 35%, 32%) or incorrect (6%, 7%, 23%) responses. 91% and 98% of patients were confident in their knowledge of their diagnosis and treatment plan, respectively. "Talking with a medical provider" was the most referenced key aspect to helping patients understand their care, followed by discharge paperwork (89%), and the patient portal (74%). Patients infrequently reported seeing diagnostic (4%) or therapeutic (21%) information on the room whiteboards, which also scored significant lower (median 3 on Likert Scale, U-test p-value <0.0001) in assisting patients' understanding of care information. Patient suggestions for improvement included better readability of discharge instructions, increasing information on whiteboards, and having a pen and paper by their bed.

**Conclusions:** A substantial portion of patients discharged from the resident general medicine services are either partially correct or incorrect regarding key medical care details despite patient confidence to the contrary. We highlight several potential targets for further patient education efforts.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #25

Category: Quality Improvement

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Vy Tran

Additional Authors: Dr. Erin McKean, Charlotte O'Connor

### **How May a Student-Driven Support System Address Barriers That Racially, Ethnically, and Socially Underrepresented Minority (RES-URM) Medical Students Face and Enhance Learning Environment for All?**

#### Purpose:

This is a medical education research project evaluating Teach Empower Advocate Mentor (TEAM), an innovative medical education initiative combining the power of in-person and online platform network and tutoring system. We seek to explore: How may a student-driven support system address barriers that racially, ethnically, and socially underrepresented minority (RES-URM) medical students face and enhance the learning environment for all?

#### Methods:

This study's participant population is drawn from a top-ranking medical school in the Midwest whose 2020 class profile is 26.2% underrepresented in medicine, 8.3% first-generation, and 56% Non-Traditional (>2-years gap after undergrad, e.g., career changers). The main metrics for evaluation are connectivity, resilience, dialogue, satisfaction, and cohesion. Data collection will draw heavily from the validated Connor-Davidson resilience scale and integrate appropriate aspects of validated social network scales to create a 20-item Likert scale and optional free responses questionnaire that requires a minimum of 5-10 minutes from students. To capture additional information that may otherwise be missed by the Likert scale and questionnaire, the study consists of focus groups to further evaluate TEAM's impact.

#### Results:

Broadly, we hypothesized that a student-driven support system that facilitates one-on-one connections will empower learners to succeed better academically, professionally, and personally, with demonstrable improvement in self-reported domains of connectivity, resilience, dialogue, satisfaction, and cohesion. Particularly, we see the greatest impact among racially, ethnically, and socially underrepresented minority (RES-URM) students.

#### Conclusions:

Not only are mentorship and tutoring skills important in a successful tutoring relationship, but the mentors' background and unique ability to navigate medical school are also critical for developing effective strategies that help learners succeed. The outcomes of this study could provide a guiding framework for programs supporting and fostering a more connected, resilient, and cohesive medical community, advancing equity in medical education—and, consequently, a stronger, more diverse workforce in medicine.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #26

Category: Clinical Vignette

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Kinsey Vear

Additional Authors: Melissa Ross, MD; Blair Lenhan, MD; Virginia Scheffield, MD

### **Finding Answers in Uncertainty: a Case of Immune-Mediated Necrotizing Myopathy**

#### Background:

Usually, rhabdomyolysis has a classical presentation and clear etiology. However, without an inciting event, clear diagnostic serologies, or diagnostic finding on biopsy, patients are diagnosed with idiopathic seronegative immune-mediated necrotizing myopathy (IMNM), essentially a diagnosis of exclusion. About 20% of IMNMs are ultimately seronegative. This diagnosis requires both a muscle biopsy without significant inflammation and negative anti-SRP and anti-HMGCR serologies. Despite clear diagnostic criteria, this remains a poorly understood pathology without clear management guidelines.

#### Case Presentation:

Mrs. B presented with progressive proximal muscle weakness accompanied by progressive rhabdomyolysis (CPK >14,000 which was our limit of detection), acute kidney injury, and acute liver injury with significant transaminitis and direct hyperbilirubinemia (peak TBili 5.9). After a thorough serological and radiographic workup was unrevealing, muscle biopsy was pursued. However, her progressive myopathy and organ injuries ultimately required pulse dose steroids before biopsy was able to be performed, as antiplatelet washout was required prior to biopsy. The steroids led to resolution of her rhabdomyolysis. The biopsy showed IMNM, and she was diagnosed with idiopathic seronegative IMNM.

#### Conclusion:

Seronegative IMNM is a relatively new and poorly understood diagnosis. As in the case of our patient, diagnosis and management can be complicated by the possible necessity of administering pulse-dose steroids prior to biopsy. However, this case is important for its uncertainty; it highlights how much there is still to learn about this disease. While the source of her myonecrosis and the possible effect of steroids on our diagnosis remains unknown, we have been able to follow Mrs. B for over 6 months since discharge and she has not had disease recurrence. The question remains: did delay in muscle biopsy impact our diagnostic certainty and, if so, what are the implications of this in the long-term management of this disease.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #27

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Hassan Al-Fanharwi

Additional Authors: Manar Edriss, Jacob Rube

### **An Unusual Presentation of Immune-Mediated Necrotizing Myopathy**

Immune-mediated necrotizing myopathy is a rare diagnosis, presenting in 9-14 cases per 100,000 people. When an autoimmune workup is negative, the diagnosis of immune-mediated necrotizing myopathy can be made when muscle biopsy features reveal necrotic fibers, different stages of necrosis and healing, or a paucilymphocytic infiltrate. It often presents with statin use or as a post-infectious insult. Here, we present a case where a healthy, young male was diagnosed with necrotizing myopathy with no statin use or recent illness.

A 35-year-old man with a history of multiple gunshot wounds in the lower extremity, anus, and abdomen presented to the emergency department with an acute loss of lower extremity strength bilaterally, as well as urinary and bowel incontinence. He was unable to ambulate on admission. He also experienced burning and tingling sensations diffusely throughout his lower extremity which stopped at the beltline. He had no upper extremity weakness or pain, and had no dermatologic manifestations. The patient was not taking any medications, and had no recent illnesses. His symptoms were concerning for transverse myelitis and 25 mg of Decadron was given emergently, which only mildly improved symptoms. A CT scan did not show signs of compression; an MRI showed evidence of myonecrosis. The patient's CPK was elevated at 7600. An immunologic workup was negative for anti-Jo1, anti-PM/scl, Anti-SS-A, anti-U1-RNP antibodies. A muscle biopsy revealed "basophilic regenerating and acutely necrotic fibers without associated inflammation," confirming the diagnosis of necrotizing myopathy.

The patient received corticosteroids and his symptoms slowly improved, though he was still having moderate pain and weakness. He was eventually able to ambulate with a cane and was discharged. At the one month follow-up, he continued to have residual lower extremity weakness, but was ambulatory.

This case demonstrates an unusual presentation of immune-mediated necrotizing myopathy, its workup, and the patient outcome.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #28

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Naomi Cret

Additional Authors: Diana Joma MD Stephanie Tancer MD Abigail Entz MD

### **Edema, Proteinuria, and Thrombosis in a pregnant woman**

A 30-year-old-female 9 weeks pregnant with a PMH of anemia presented with two weeks of left flank pain nausea and vomiting. Prior to admission she noticed bilateral leg edema. She was admitted to an outside hospital where she was diagnosed with proteinuria and advised to get a renal biopsy. Due to her pregnancy, renal biopsy was not possible. Due to reoccurrence, she presented to the ED where she was admitted. Her labs showed Hb 8.2, D-dimer >10, UA significant for proteinuria +4 and WBC 40-60. Patient had hypoalbuminemia at 2.3 and an albumin/creatinine ratio of 3408.6. Abdominal ultrasound, chest x-ray, and CT chest showed no acute process. The diagnosis of nephrotic syndrome was made, and a renal biopsy was suggested. The patient's hemoglobin dropped to 6.4 from her baseline of 7.0-7.5 therefore renal biopsy was postponed. Repeat renal ultrasound showed a non-occlusive thrombus in the proximal main right renal vein with extension into the IVC. Anticoagulation was recommended and patient was started on Lovenox that will continue until 4-6 weeks postpartum. Because the need for anticoagulation outweighed the benefits of renal biopsy, she was started on high dose steroids for nephrotic syndrome without the renal biopsy.

While nephrotic syndrome is rare in pregnancy, 0.012-0.025% of the time it has serious complications such as acute renal failure and thrombotic events. During pregnancy however, it may be difficult to recognize common symptoms like edema and proteinuria that may occur with normally. A high degree of clinical suspicion must also be had for a thrombus due to the non-specific symptoms such as flank pain, nausea, and fever. Few case reports that describe renal vein thrombus development due to nephrotic syndrome in early pregnancy. A low-molecular-weight heparin is preferred for the treatment of thrombosis in pregnancy due to its safety profile and efficacy.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #29

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Manar Edriss

Additional Authors: Hassan Al-fanharwi, Arif Musa, Samia Jaffar, Dr. Bryan Anker, M.D., Dr. Geoffrey Potts, MD. Dr. Anil Aranha, Ph.D.

### **Roles of Demographics in Stress-Induced Hair Loss: An Assessment in Medical Students**

**Background/Purpose:** There is a paucity of literature identifying contributors to stress-induced hair loss. Over half of medical students meet criteria for medical students in distress. This study sets out to identify demographic factors associated with stress induced hair loss in a cohort of medical students.

**Methods:** A cross-sectional study of medical students at a diverse, metropolitan university was performed. A questionnaire was developed to assess potential sociodemographic indicators of hair loss, quantify perceived stress using the Perceived Stress Scale, and record experiences of the most common causes of stress-induced hair loss (telogen effluvium, trichotillomania, and alopecia areata). A total of 316 responses were recorded.

**Results:** Of the initial 303 responses, 20 students reported diagnosed hair loss by a medical professional, 167 students were not diagnosed but reported having features of hair loss, and the remaining 116 reported no features of hair loss. Average stress scores for each group were 22 +/- 7, 21 +/- 5.7, and 18 +/- 5.8, respectively, which were significantly different ( $P < 0.001$ ). Average age for these groups were 25.4 +/- 2.9, 25.4 +/- 2.5 and 25.4 +/- 3.2, which were not significantly different ( $p = 0.963$ ). Five ethnicities were compared for all 316 responses (White/Caucasian, Arab-American, Black/African-American, Asian, and Latino/Chicano/Hispanic). There was a statistically significant difference in the average stress score between ethnicities (ANOVA,  $F = 3.1$ ,  $P < 0.05$ ), and a difference in the average number of hair loss symptoms between ethnicities (ANOVA,  $F = 7.91$ ,  $P < 0.01$ ).

**Conclusions:** Based on our results, there is an association between hair loss and stress. Age does not contribute to average stress. Ethnicity contributes to the number of hair loss characteristics experienced by medical students, as well as their stress level. Further analysis is required to assess whether a relationship exists between the most common causes of stress-induced hair loss and these demographic characteristics.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #30

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Geoffrey Ginter

Additional Authors: Marina Haque, Zaynab Al-Sagri, Tyler Mumm, Jarrett Weinberger

### **Gastrointestinal Bleeding Masked by Sequelae of Alcohol Use Disorder**

Gastrointestinal bleeding can be a fatal complication of chronic alcohol use disorder (AUD). We present a case of precipitous upper GI bleeding masked by a complicated presentation in an individual with AUD.

A 64-year-old man with history of subacute left cerebellar infarction last year managed with daily aspirin, gastroesophageal reflux disorder, and multiple emergency department visits for alcohol use disorder presented with a three-day history of transient dizziness, blurry vision, and bilateral lower extremity weakness. Physical examination revealed positive orthostatics, bilateral horizontal nystagmus, bilateral finger-to-nose dysmetria, dysdiadochokinesia on pronation/supination test of the right hand, positive Romberg sign, and unsteady gait.

Initial labs revealed normal hemoglobin with macrocytosis and low folate. CT of the brain revealed only encephalomalacia in the left cerebellar hemisphere from his previous stroke. MRI was refused by the patient due to claustrophobia; he was deemed to have full capacity. Over the next week, a steady decrease in hemoglobin levels raised concern for occult bleeding. However, the patient denied any associated signs or symptoms including melena or hematemesis. An iron panel was ordered and found to be within normal limits.

Overnight on hospital day 7, he was found down surrounded by coffee ground emesis and melena, after which massive transfusion protocol was initiated, and he was transferred to the MICU. Endoscopy revealed an actively-bleeding 1 cm x 4 mm ulcer with a visible vessel; hemostasis was achieved using hemoclips. He was stabilized and discharged to subacute rehabilitation on MICU day 33.

This case highlights the potential difficulty of identifying upper gastrointestinal bleeding in individuals with AUD. Macrocytic anemia, dehydration, and neurologic symptoms can mask the presence of an occult GI bleed. It is therefore imperative to carefully evaluate patients with AUD who may be at risk for upper gastrointestinal bleeding.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #31

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Brian Gutermuth

Additional Authors: Kartik Gupta, Omar Shamaa, Nicholas J. Daering, Patrick Bradley

### **Elevated D-dimer and Acute Kidney Injury: A Diagnosis in Serendipity**

A 45-year-old woman, with history of liver transplant for primary biliary cirrhosis in 2007 was evaluated for an increase in serum creatine from 1.0 mg/dL to 1.6 mg/dL in 6 months detected during her annual physical examination. She was on prednisone and mycophenolate mofetil. She was asymptomatic.

On physical examination, there was mild pitting edema. Her labs showed normal liver function tests, elevated serum creatine with extremely elevated D-dimer ( $>20$  mg/L). There was macro-albuminuria. The elevated D-dimer was concerning for an ongoing deep vein thrombosis. A CT scan of the chest and doppler of the lower limbs were negative for pulmonary embolism and deep vein thrombosis of the legs, respectively. An ultrasound doppler of liver showed slow flow in the middle hepatic vein. A CT-abdomen was done to rule out hepatic vein thrombosis and showed extensive inferior vena cava (IVC) thrombosis extending from the bilateral common iliac vein up to the right atrium, with thrombosis in the bilateral renal veins, as well. The patient underwent catheter-directed thrombolysis with thrombectomy and placement of IVC stent. The patient had stenosis at the IVC-right atrium junction which led to IVC thrombosis. The renal function returned to baseline within 2 days of thrombolysis.

Our case has two learning points. First, our literature review suggests that extremely elevated D-dimer which is above linearity by currently available assays ( $> 20$ mg/L) has a strong association with diagnosis such as deep vein thrombosis and malignancy. Second, renal vein thrombosis is a rare cause of AKI. There are only a few case reports where renal vein thrombosis is associated with IVC thrombosis as well. Acute renal vein thrombosis may present as flank pain and hematuria, but chronic renal vein thrombosis is usually asymptomatic. Kidney injury due to renal vein thrombosis is usually reversible after thrombolysis.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #32

Category: Quality Improvement

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Andrew Kao

Additional Authors: Andrew S. Kao, Ruchi Rachmale MD, Ruba Barakat MD

### **To Err is Human: An Inpatient Near Miss Event**

Patient safety is an inter-professional effort to optimize disease management and minimize patient risk during the hospital course. However, to err is human. At the inpatient setting where multiple provider teams are consulted, care management is often complicated with medical errors that can be categorized into action, decision, or communication based. Near miss events are errors committed by care providers, but no patient harm resulted. The following instance demonstrated a near miss event that could have prolonged patient's length of hospital stay or worsen the admitted condition.

A patient was admitted to the internal medicine team in Detroit Medical Center Sinai Grace Hospital with acute kidney injury likely secondary to dehydration. The patient was started on IV D5W initially to replete her hydration. Once her condition stabilized, an order was placed to start on maintenance fluids of IV D5 0.45% NS on the same day. Next morning when the patient was assessed during pre-rounds, the patient was not placed on any IV fluids. I immediately located the nurse who was caring for the patient. The nurse was under the impression the internal medicine team wanted to discontinue all IV fluids. I reviewed the oversight with the nurse, and he immediately placed her on IV D5 0.45% NS. The patient's morning labs were unremarkable and no harm resulted from this incidence.

This near miss event demonstrated the importance of an effective inter-professional communication. A solution is to conduct daily inter-professional rounds by involving provider from different disciplines such as doctors, medical students, nurses, pharmacists to ensure patient is receiving appropriate care. Near miss events are a frequent occurrence in healthcare, as to err is human, but it is important to take each incidence as a need to develop ways for quick recognition of any oversight and prevent potential adverse events.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #33

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Aisha Kazeem

Additional Authors: Elizabeth Kupser, Kartik Gupta MD, Vinay Shah MD

### **Case Report of a Reversible Left Bundle Branch Block in the Setting of COVID19**

**Case Summary:** A 53-year-old woman presented to the ED complaining of cough, fatigue, and general weakness for several days, as well as dyspnea on exertion, decreased appetite, and bilateral lower extremity pain. The patient tested positive for COVID-19 two weeks prior but subsequently tested negative via rapid testing three days prior to presentation. In the ED she was tachypneic, tachycardia, hypertensive, and saturating 94% on room air. CT-PE was negative. Lungs showed bilateral ground-glass opacities consistent with COVID pneumonia. Laboratory studies were notable for elevated D-dimer, hypokalemia, normocytic anemia, leukopenia, and thrombocytosis. ECG from the ED showed sinus tachycardia and left bundle branch blockage. In the ED, she required 2 L O<sub>2</sub>.

On admission, the patient was tachypneic and continued to endorse dyspnea on exertion and productive cough. She was given Remdesivir and Solumedrol and her O<sub>2</sub> requirement increased to 3 L. She was weaned to room air over 2 days but remained tachycardic at rest and on ambulation. ECG was repeated after the patient began to improve and showed normal sinus rhythm with prolonged QT, nonspecific ST changes with the resolution of left bundle branch blockage.

**Discussion:** COVID19 may present with respiratory or nonspecific symptoms but may also have underlying cardiac manifestations. The virus's effect on the heart is not well understood and warrants further investigation. Similar cardiac manifestations were described in a case study by Malekrah and Fatahian's (2020) suggesting "inflammatory response in the myocardium, electrolyte disturbances, and hypoxia" may be to blame. While they suggest that cardiac changes are irreversible, our patient had a similar presentation but demonstrated synchronous resolution of her LBBB with her respiratory symptoms. Our patient presentation is consistent with Malekrah and Fatahian's assertion that changes may be due to inflammation, electrolyte changes, and hypoxia, but it suggests that cardiac changes may instead be reversible.

School: Wayne State University School of Medicine

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Presenter: Mindy Kim

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**Prevalence of STK11 mutation and its association with prognosis of solid tumor malignancies**

**INTRODUCTION:** Serine threonine kinase 11 (STK11) gene mutation has emerged as one of the key predictors of resistance to immune checkpoint inhibitor (ICI) therapy in non-small cell lung cancer (NSCLC). However, the data on the prognostic value of STK11 mutation in NSCLC other solid tumor malignancies are very limited. In this study, we aim to investigate the prognostic value of STK11 genomic aberration in both lung and non-lung cancer patients as well as explore possible regulators involved.

**METHODS:** The cancer genome atlas (TCGA) database was queried to extract data including STK11 genomic aberration frequency and survival outcomes. The data was sorted into two groups: lung cancer and non-lung cancer which consisted of 30 solid tumor malignancies. The STK11 genomic aberration was further classified as mutation, deletion, and wild type (WT). A Kaplan-Meier estimate was used to evaluate overall survival, and differences in survival were evaluated by log-rank test.

**RESULTS:** 9377 patients with cancer (lung: 899, non-lung: 8,478) were profiled. Lung adenocarcinoma had the highest prevalence of STK11 genomic aberration (13.6%), followed by cervical cancer(4.5%) and uterine cancer(2.9%). Among lung cancer patients, 49% had STK11 deletion and 9% had STK11 mutation. Among non-lung cancer patients, 27% had deletion and 1% had mutation. Lung cancer patients with STK11 mutation exhibited worse survival than those with STK11 deletion or WT ( $p=.0438$ ). Non-lung cancer patients with STK11 deletion demonstrated worse survival than those with mutation or WT ( $p<.0001$ ).

**CONCLUSION:** Patients with STK11 genomic aberration had worse survival in both lung and non-lung cancer. Interestingly, the type of genomic aberration that was associated with worse survival outcome was different for lung and non-lung cancer. Further research is warranted to investigate the different mechanisms by which STK11 may influence survival outcome.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #35

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Vivian Liu

Additional Authors: Nathaniel Messenger, Dr. Ali Moiin

### **New-onset and exacerbation of cutaneous lupus after the COVID-19 vaccine**

**Introduction:** Vaccine development for COVID-19 has progressed expeditiously. To date, the Food and Drug Administration (FDA) has authorized the Moderna/mRNA-1273, Pfizer-BioNTech (BNT162b2), and Johnson & Johnson's Janssen (JNJ-78436735) vaccines for use in the United States. As far as cutaneous adverse events, delayed large local reactions, injection site reactions, urticarial eruptions, and morbilliform eruptions have been the most common.

**Results:** We discuss two cases of new-onset cutaneous lupus and one case of a discoid lupus exacerbation that occurred three weeks after administration of the Pfizer-BioNTech (BNT162b2) vaccine. New-onset cutaneous lupus manifested as subacute cutaneous lupus erythematosus and livedo reticularis, while the lupus flare presented as ulceration and fissuring at the fingertips.

**Discussion:** The role of an infectious agent or vaccine in triggering an immune-mediated disease (IMD) is well recognized. However, few vaccines have been reported to lead to cutaneous lupus. One study showed that the SARS-CoV-2 spike protein antibody was also reactive against nuclear antigen and other tissue proteins. However, whether molecular mimicry exists between the COVID-19 vaccine and nuclear antigens is unknown. The COVID-19 vaccine has been shown to stimulate the innate immune system through nucleic acid receptors like Toll-like receptors (TLRs) just as immune-mediated diseases stimulate TLR-7 and -9 in humans. Stimulation of TLRs is associated with increased type-I interferon responses, which may play a role in the cutaneous side effects of the COVID-19 vaccine.

**Conclusion:** Many studies have elucidated the similarities in pathophysiology between COVID-19 infection and immune-mediated diseases, and it has been demonstrated that the vaccine may unmask an immune-mediated disease in a previously susceptible individual. However, few studies have uncovered a similar relationship between the COVID-19 vaccine and an IMD. Further research may be able to identify shared features between the spike protein and nuclear antigen that will explain the cutaneous manifestations seen in our patients.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #36

Category: Clinical Vignette

School: Wayne State University School of Medicine

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Presenter: Tessa M LeWitt

Additional Authors: Tessa LeWitt BS, Anam Ansari DO, Alexandra Manolis MD, Sajith Matthews MD

### **Rare cause of hip pain in an immunosuppressed male**

A 45-year-old male with a longstanding history of granulomatosis with polyangiitis (GPA) presented to the emergency department (ED) with one week of progressive hip pain. His GPA was complicated by end-stage renal disease necessitating transplantation one year prior to this admission. His anti-rejection regimen included tacrolimus, mycophenolate mofetil, and prednisone.

Upon arrival to the ED, the patient was afebrile and hemodynamically stable. Review of systems was positive only for hip pain, vomiting, and diarrhea. Bloodwork, including complete metabolic panel and complete blood count, was within normal limits. Blood and urine cultures were drawn. Chest X-ray was normal.

Between hospital days 1 and 3, the patient spiked intermittent fevers, reaching Tmax 39.4°C. He was placed on an empiric broad-spectrum antibiotic regimen of vancomycin and cefepime. Ultrasound and computed tomography (CT) of the hip were negative for fluid collection, mass, and abscess. Due to low suspicion for injection, antibiotics were discontinued at this time.

On hospital day 4, blood cultures revealed partially acid-fast branching gram-positive bacilli concerning for *Nocardia* bacteremia. Subsequent CT thorax revealed innumerable pulmonary nodules, one of which demonstrated cavitation. Brain imaging was unremarkable. Magnetic Resonance Imaging (MRI) of the hip revealed a large area of profound T1 hypointensity and heterogeneous but mostly hypointense T2-weighted signal in the left iliac bone and sacrum surrounding the sacroiliac joint, concerning for sacroiliitis. These findings were associated with myositis involving the left piriformis and gluteus medius and minimus, as well as sciatic neuritis. A possible intramuscular abscess was noted in the piriformis. Long-term imipenem-linezolid antibiotic therapy was initiated, and his mycophenolate mofetil dose was reduced. On hospital day 6, the patient was discharged in stable condition.

We highlight an unusual case of disseminated nocardiosis presenting with solitary hip pain and asymptomatic pulmonary involvement. We emphasize the importance of MRI in this clinical scenario.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #37

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Krishna Majmundar

Additional Authors: David Gelovani, Sean Drake

### **Nonalcoholic steatohepatitis presenting as hemorrhagic ascites**

The most common cause of ascites in the United States is portal hypertension due to cirrhosis, accounting for approximately 85% of cases, with hemorrhagic ascites occurring in up to 19% of these patients. Undifferentiated ascites require a thorough evaluation to determine the source and prevent fluid reaccumulation. We present a 71 year-old GPO female with a history of Sjögren's syndrome, interstitial lung disease, hypertension, hypothyroidism and gout status post hysterectomy and bilateral salpingo-oophorectomy six years prior, who presented with recurrent abdominal distension due to undifferentiated ascites. The patient's previous surgery was performed for postmenopausal uterine bleeding, but the pathology report did not identify malignancy. She had no history of alcohol, tobacco or recreational drug use and her hemoglobin A1C was 4.8. Diagnostic paracentesis revealed 5.1 L of hemorrhagic ascites with a SAAG ratio less than 1.1, indicating malignancy was likely present as tuberculosis had been ruled out with a negative test. CT chest/abdomen found signs of hepatocellular disease. Diagnostic laparoscopy was performed given patient's history of postmenopausal bleeding and hysterectomy with concern for malignancy. Surgery revealed multiple 1 cm friable lesions in the pelvis and a cirrhotic-appearing liver. Biopsies of the friable lesions demonstrated acute inflammatory exudate, while liver biopsy revealed steatohepatitis and fibrosis. Common causes of hemorrhagic ascites include "traumatic tap" with transient leakage of subcutaneous blood, cirrhosis, hepatocellular carcinoma and other malignancies. A history of hypothyroidism may be a risk factor for developing nonalcoholic steatohepatitis (NASH) due to dysregulation of lipid metabolism but the evidence supporting this association is conflicting. This case illustrates the unique presentation of NASH with possible cirrhosis in a patient without obvious risk factors. It is critical to recognize the potential for hemorrhagic ascites secondary to NASH to be present in a patient with no findings of malignancy.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #38

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Joshi Mugdha

Additional Authors: Dr. Janaki Patel, Dr. Maysaa Basha

### **Self-Resolved EBV Encephalitis**

Epstein-Barr virus (EBV) is most known for causing infectious mononucleosis; however, it has been shown to have caused severe neurological conditions. Examples of such conditions include, but are not limited to, encephalitis, Guillain-Barre syndrome, etc. and do not necessarily occur along with symptoms of mononucleosis. We saw a 27-year-old afebrile woman who presented with hemiparesis and aphasia with unremarkable physical exam or imaging results. Lab results and imaging were indicative of an EBV encephalitis, but the patient was able to recover without intervention and returned to baseline a few days after her initial presentation.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #39

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Syed Nabi

Additional Authors: Hailey Olds MD, Megan Scott MD, MPH

### Atypical Presentation of Drug Induced Liver Injury

#### Case Description:

Our patient is 22-year-old male who presented with a 4-week history of progressive jaundice, abdominal pain, nausea, and vomiting. Past medical history is significant for cholelithiasis 16 weeks prior to admission and use of various herbal supplements (Choline, beet root/leaf, vitamin E, selenium, vitamin C, manganese, vitamin B12, Iron, Copper, Zinc, and thymus PMG) between 12 to 8 weeks prior to admission. Physical exam was significant for extensive jaundice, including scleral icterus, RUQ tenderness, and a positive RUQ Murphy's sign. Laboratory studies were significant for an elevated bilirubin of 38.6, AST of 63, ALT of 34, and leukocytosis. Initial workup aimed at ruling out viral, autoimmune, and obstructive etiologies. Viral serologies, autoimmune panels, hepatitis panels, ceruloplasmin, ANCA, Alpha A-1 antitrypsin studies, and antimitochondrial antibody tests were all negative. CT scans and MRCP were negative for any signs of biliary dilation or choledocholithiasis. Liver biopsy was also obtained shortly after admission. Over the following week the patient endorsed subjective improvement regarding his jaundice, however his bilirubin levels remained elevated in the low 30s with no changes in the Liver Function Tests (LFT). Liver biopsy showed centrilobular cholestasis consistent with Drug Induced Liver Injury (DILI). The patient was discharged with strict outpatient follow up at GI clinic and weekly LFT lab values to trend for improvement of liver function and bilirubin.

#### Discussion:

This case demonstrates the diversity of how DILI can present. Generally, DILI quickly resolves after discontinuation of the offending agents. Although it was unlikely that mostly benign supplements discontinued 8 weeks prior to presentation could have caused a delayed DILI, it appears to be the case in this situation. This illustrates just how vital it is to complete a thorough medication reconciliation and history for new patient admissions.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #40

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

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### **Synthroid-induced liver toxicity: a case report.**

The treatment of choice for primary hypothyroidism is synthetic thyroxine (T4), or levothyroxine, a prohormone with minimal activity and stable plasma levels after administration. Thyroxine acts as a reservoir for the more active hormone triiodothyronine and is peripherally de-iodinated in the liver and kidneys. The effects of thyroid hormone on the liver are not completely understood, but there are some reports of acute liver damage characterized by elevated aminotransferases following administration of synthetic thyroxine. Liver injury is monitored noninvasively by the leakage of enzymes, aspartate and alanine aminotransferases, with the latter being more liver-specific and elevated in drug-related damage. We present a 37-year-old female who was admitted for recurrent pyelonephritis and was started on Synthroid for the management of chronic hypothyroidism. The rare adverse effect of drug-induced liver injury by Synthroid was suspected after her liver function tests increased and cessation of the offending drug led to down-trending liver enzyme levels. Non-drug causes were explored and resulted in negative viral hepatitis serologies, absent risk factors for alcoholic hepatitis, or concomitant treatment and illicit drug use.

Our case should serve to remind providers that levothyroxine-induced liver injury is a rare and self-limiting side effect and should be kept on the differential in the setting of hypothyroidism. Similar case reports have found that levothyroxine itself may not be the target of the immune system. Additionally, administration of the structurally similar triiodothyronine hormone, or liothyronine, does not result in acute liver damage. This indicates the need for more research behind the mechanism of how levothyroxine induces liver injury and consideration for alternative treatment options like synthetic triiodothyronine in patients with hypothyroidism.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #41

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Ala Addin Sid Ahmed

Additional Authors: Dr. Eduardo Gomez-Pineiro, MD

### **Treatment Gone Awry: The Importance of Medication Reconciliation**

A 74-year-old man with PMH of hypertension, peripheral neuropathy, peripheral arterial disease, benign prostatic hyperplasia, and stroke who presented with a complaint of hypertensive urgency for two days along with a slight headache. BMP analysis found that the patient was also experiencing severe hyponatremia. Upon medication reconciliation, it was found that the patient was taking fludrocortisone, midodrine, lisinopril, and hydrochlorothiazide. The patient reported that they have been taking fludrocortisone to correct what they described as being a salt and water balance. Through speaking to the PCP, it was determined that the patient had suffered from a fall secondary to orthostatic hypotension a few years ago and was then started on fludrocortisone and midodrine. A few years after the fall, the patient suffered from a stroke as well as hypertension and began treatment with lisinopril and hydrochlorothiazide. Upon discharge, he was discontinued from midodrine and remained on fludrocortisone but was advised to make an appointment with his PCP to have an adequate medication reconciliation.

This case demonstrates the importance of medication reconciliation. Medication reconciliation involves asking patients what medications they are taking in terms of dosage and frequency, and ensuring they are taking the medications as prescribed. Another aspect of medication reconciliation is investigating whether a patient is taking multiple medications for the same condition when clinical guidelines only recommend a single medication. Medication reconciliation should also ensure that patients are not experiencing unnecessary side effects from medications. In this patient's case he should have been tapered off the fludrocortisone and discontinued from the midodrine following their stroke and the beginning of their hypertension. Both fludrocortisone and midodrine have the effect of elevating BP and so in this case, it is important to ensure they are not consuming medication that elevates their BP unless the medication is vital for the patient.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #42

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Shabber Syed

Additional Authors: David Gelovani, MD; Zachery Bauer, MD; Georgi Fram, MD

### Preventing Shock in NSAID-induced BRASH Syndrome

#### Case Presentation

A 63-year-old male with hypertension presented to the ED with epigastric pain, vomiting and severe bradycardia of 35 bpm with blood pressure 133/61. He was taking amlodipine and metoprolol along with aspirin, meloxicam, and naproxen for shoulder pain. He denied shortness of breath, chest pain, dizziness, or lightheadedness. Creatinine was 3.77 mg/dL with potassium of 7.9 mmol/L. ECG showed sinus bradycardia with heart rate of 35 bpm without peaked T-waves. He reported adherence without missing daily doses or increasing usage of any medication. Holding his medications resolved the gastrointestinal symptoms and heart rate improved to 71 with repeat potassium 5.2. He was discharged on pantoprazole with metoprolol and NSAIDs discontinued.

#### Discussion

BRASH Syndrome is an increasingly recognized constellation of synergistic symptoms consisting of Bradycardia, Renal failure, AV Node blockers, Shock, and Hyperkalemia. Acute renal failure (AKI) decreases excretion of potassium, contributing to bradycardia through disturbed cardiac pacemaker action potentials. AV node blockers decrease heart rate and contractility, with bradycardia as a common side effect. Metoprolol is renally excreted but accumulates during AKI. These effects combine to cause severe bradycardia and shock, worsening renal failure to continue the vicious cycle. In our case, multiple NSAID usage caused gastritis with vomiting leading to prerenal AKI. Decreased prostaglandins from NSAIDs also contribute to decreased renal perfusion via vasoconstriction of afferent arterioles. Treating BRASH Syndrome includes recognizing underlying causes early to prevent shock alongside withholding AV nodal blockers and symptomatic treatment. In our case, holding the patient's Metoprolol and NSAIDs led to improvement. Rechecks of heart rate, potassium, and creatinine were within normal limits and warranted monitoring rather than intervention.

#### Conclusion

BRASH Syndrome is an increasingly recognized syndrome of interconnected factors that increase patient harm. Early recognition and understanding triggers can prevent development of shock and lead to better patient outcomes.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #43

Category: Clinical Vignette

School: Wayne State University School of Medicine

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Presenter: Amer Tamr

Additional Authors: Dana Kabbani, Prakash Nallani, Housam Sarakbi, Ilyes Benchaala

### **A Rare Presentation of CNS Polyarteritis Nodosa in a patient with Cutaneous PAN**

A 31 year old man with a past medical history of cutaneous polyarteritis nodosa (CPAN) presented to the hospital with a one day history of nausea, vomiting, confusion, left leg numbness, tingling, and receptive aphasia. Per family, the patient endorsed mild neck pain one week prior to presentation. Patient had no other known medical history at presentation. He was diagnosed with CPAN nine years prior via skin biopsy. The initial biopsy report was reviewed, with evidence of features consistent with PAN. At diagnosis, he was experiencing multiple cutaneous sores over his extremities. He was subsequently started on systemic steroids and methotrexate that was discontinued upon symptom resolution. On physical examination, the patient was found to be sedated and intubated. His skin was dry, warm, and showed no evidence of palpable purpura, ulcers, necrotic lesions, or livedo reticularis on gross examination. Laboratory findings were non-contributory, and there was no evidence of systemic vasculitis besides the neurologic symptoms. CT head on admission was significant for extensive subarachnoid hemorrhage (SAH) and early obstructive hydrocephalus. Transradial diagnostic cerebral angiography (DCA) at admission showed a blister aneurysm of the right PICA and dissecting aneurysm of the left vertebral artery. A repeat DCA performed days later showed persistent narrowing in the cranial vessels with new narrowing compared to the initial DCA; persistent aneurysm and stenoses were attributed to PAN. CT angiography revealed no abnormal findings. Because of the potential risk of stroke, no endovascular intervention was done, although he received one dose of methylprednisolone due to high suspicion of neurological manifestation of PAN. The patient received high dose systemic steroid treatments throughout his hospitalization, with plans to start cyclophosphamide due to persistent aneurysm and thus suspected vasculitis. At the time of submission, the patient had not yet reached a point of medical stability to initiate cyclophosphamide.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #44

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Krishna Vemulapalli

Additional Authors: Ali Alsaif MD, Ivan Columbus Morales MD, Christopher Giles DO

### **Recognition of Hepatopulmonary Syndrome in a Young Alcoholic Cirrhosis Patient**

Hepatopulmonary syndrome (HPS) is a result of chronic liver disease characterized by pulmonary capillary dilation with resultant blood shunting, causing ventilation and perfusion (V/Q) mismatch leading to hypoxemia. Occurring in approximately 24% of cirrhotic patients, HPS portends a negative prognostic value and has ramifications for liver transplant prioritization.

A 26-year-old female with alcoholic cirrhosis and chronic pancreatitis initially presented for sepsis secondary to pneumonia. She required intubation for hypoxic respiratory failure and low-efficiency dialysis for worsening kidney function. After adequate fluid removal, she was successfully extubated but remained tachycardic and tachypneic, requiring up to 10 liters of supplemental oxygen. Pulmonary imaging showed improving diffuse ground glass opacities due to fluid overload but was negative for chronic parenchymal lung disease or significant anatomical shunting. Transthoracic echocardiogram revealed normal cardiac function but an agitated saline contrast bubble study was positive for late appearance of bubbles in the left atrium, suggesting pulmonary arterio-venous malformation with underlying right-to-left shunting. The presence of intrapulmonary vascular shunting along with clinical evidence of chronic liver disease and hypoxemia met criteria for diagnosis of hepatopulmonary syndrome. Ultimately our patient will be further evaluated for liver transplant after completion of an alcohol relapse prevention program and 6 months of sobriety.

This case illustrates the noteworthy hypoxemic and cardiovascular effects of hepatopulmonary syndrome in a young patient with alcoholic liver cirrhosis. Associated with significantly reduced median survival time and overall 5-year survival rate, the diagnosis of HPS indicates a worse prognosis than quantified by the current criteria for transplant prioritization, the Model for End-stage Liver Disease (MELD) score. Based on geographic area HPS patients are thus awarded compensatory MELD points to better reflect medical urgency for transplant. Awareness of the syndrome is vital as prompt liver transplant results in reversal and mortality like that of transplant patients without HPS.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #45

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Rahul Vyas

Additional Authors: Nourelhuda Abbas Hamed, MD, Ruaa Elteriefi, MD FACP

### **A Case of Sensory Guillain-Barre Syndrome in the context of recent COVID-19 Infection**

#### Introduction

Neurodegenerative complications of the SARS-CoV-2 virus are an under studied area of medicine. Here we describe a case of Acute inflammatory demyelinating polyneuropathy form of Guillain Barre Syndrome (GBS) that manifested two months after a mild SARS-CoV2 infection.

#### Case Description

A 54-year-old female presented to emergency department two months after SARS-CoV-2 infection, complaining of bilateral progressive ascending paresthesia and numbness of bilateral lower extremities from feet up to hips accompanied by prickling and burning sensation, urinary incontinence, fatigue, and malaise for several weeks. On examination, bilateral upper and lower extremities strength 5/5. Biceps and triceps DTRs 1/4. Patellar and achilles reflexes 0/4 bilaterally. Sensation to pinprick was intact in upper and lower extremities. No bulbar dysfunction or respiratory difficulties noted, patient was admitted for suspected GBS.

Lumbar puncture revealed albuminocytologic dissociation (protein counts 194mg/dL, white cell counts 2 cu/mm). IgG levels elevated at 4.3 mg/dL. Work up for west nile virus, lyme disease, cytomegalovirus, enterovirus, HSV 1&2, HIV and syphilis were negative. Folate and B12 levels normal, MRI brain unremarkable. Therefore, patient was started on treatment of GBS with intravenous immunoglobulin for five days. Improvement in symptoms noted, and patient was discharged with medications for neuropathic pain and recommendations of physical therapy with neurology and PCP follow-up. Mild neuropathic pain persisted up to 3 months after discharge.

#### Discussion

GBS secondary to infectious etiology is thought to be autoimmune response in which antibodies cross-react with nerve-membrane gangliosides. Studies have shown that GBS following SARS-CoV2 present in symptoms ranging from asymptotic/mild to severe. It commonly occurs in males and in a wide range of ages with mean age of 55. As the pandemic continues, it is important to document cases for healthcare providers to be cognizant of the viruses' possible complications and to be aware of the management of such cases.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #46

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Ho Jun Yun

Additional Authors: Yuchuan Ding, MD, PhD, Hangil Lee

### **Central Cord Syndrome: Where It Went Wrong When to Decide Treatment Options**

Central cord syndrome (CCS) is an incomplete spinal cord injury. CCS most commonly occurs after an acute hyperextension injury with disc herniation, spinal injuries without an apparent radiographic abnormality, and even non-traumatic causes, such as spinal epidural abscess. Patients with CCS present with various types of neurological weakness and paresthesia. Conventionally, CCS has been diagnosed clinically. Radiographic studies have provided valuable clinical findings to support the diagnosis. Unfortunately, there has not been a clear consensus in treating CCS. Medical treatment includes external cervical orthosis, blood pressure support, steroid administration, and GM-1 ganglioside; the efficacy of these therapies is unclear. Surgical treatment was first attempted in the 1950s but fell out of favor due to poor outcomes when compared to the conservative treatments. This was in part due to lack of present-day surgical techniques, imaging studies, and comorbidity optimization surgical skills. The current guidelines published by American Association of Neurological Surgeons (AANS), Congress of Neurosurgical Surgeons (CNS), and Joint Guideline Committee do not definitively answer the efficacy of surgical intervention. Nevertheless, recent case studies and reports have shown some promising results after surgical decompression though there still are some uncertainties in determining the ideal timeframe for surgery. Underlying diseases and injuries of CCS can now be assessed easily with advanced imaging studies. The mixed results from surgical treatment denote that there could be subtypes of CCS which may require different treatment plans based on the underlying pathology of CCS. This means warranting imaging studies once CCS is considered as a differential diagnosis to determine the most appropriate treatment for patients with CCS.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #47

Category: Clinical Vignette

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, FACP

Presenter: Hayley Barker

Additional Authors: Maya Giaquinta; Matthew Kennedy, DO; Melissa Olken, MD, PhD

### **CMML-2 with Syncopal Episodes as Initial Presentation: A Case Report and Review of the Literature**

Chronic myelomonocytic leukemia 2 (CMML-2) has features of both myelodysplastic and myeloproliferative disorders and results from the abnormal production of monocytic cells. CMML-2 is partially distinguished from CMML-0 and CMML-1 based on the number of blasts seen on bone marrow biopsy. This is a 67-year-old woman who presented to the ED after two syncopal episodes and was subsequently diagnosed with CMML-2 with transformation to acute myeloid leukemia (AML). Initially, her presentation was thought to be due to a GI bleed from antral erosive gastritis with mild ulcerations noted on EGD. However, due to increasing need for pRBC and platelet transfusions, Heme/Onc was consulted and a bone marrow biopsy obtained. She was treated with five days of Dacogen with no clinical improvement. Her hospital course was prolonged due to transfusion dependency before being discharged to Hospice. To our knowledge, this is the first case report showing CMML-2 initially presenting with syncopal episodes; when considering the underlying cause of syncope, it is important to keep differentials broad and consider all systems.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #48

Category: Clinical Vignette

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, FACP

Presenter: Apoorva Dharmadhikari

Additional Authors: Melissa Olken MD, PhD; Kori Mecklenburg

### **Delayed diagnosis of a septic deep venous thrombosis (DVT) and septic pulmonary emboli in an IV drug user (IVDU)**

In Michigan, advanced practice providers (APPs) may independently evaluate and treat patients under physician supervision. An optimal physician-APP partnership requires that APPs recognize knowledge limitations in order to seek out physician involvement when necessary. We present the case of a 29-year-old male with history of longstanding intravenous heroin use, who presented to an urgent care facility with a right inguinal abscess at his heroin injection site. The abscess was incised and drained, and he was prescribed a 10-day course of clindamycin. Upon completing the antibiotics, his pain continued to worsen and was accompanied by fevers and medial thigh and calf swelling. He returned to the same urgent care and was evaluated by an APP who performed no additional workup. He was sent home with additional clindamycin; however, he gradually became immobilized by pain. Upon presentation to the ED, his right leg was diffusely edematous and firm, with the purulent abscess still present. Sepsis protocol was initiated, and the patient received empiric antibiotics. Imaging studies revealed extensive DVT in the calf, popliteal, iliac, and femoral veins leading all the way up to the IVC, along with septic emboli in the lungs. Echocardiography was negative for endocarditis. Blood cultures were positive for *Streptococcus intermedius*, resistant to clindamycin. A thrombectomy was performed, and the patient was continued on anticoagulation and a 4-week course of intravenous cefazolin post-operatively. His condition improved dramatically, and the patient could ambulate independently upon discharge. Although urgent care centers employing APPs may be a cost-effective option to manage common minor illnesses, care should be taken to utilize interdisciplinary collaboration when there are signs of sepsis and unilateral leg swelling. Blood cultures and lower extremity imaging should be considered mandatory in every IVDU presenting with fevers and signs of DVT, to prevent life-threatening sequelae, including pulmonary emboli and infective endocarditis.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #49

Category: Clinical Vignette

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, FACP

Presenter: Dashmeet Maharaj

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### **Thrombus in Transit Associated with Recent COVID infection, a Sticky Situation**

A thrombus in transit (TT) is a thrombus that has dislodged within the right heart and can traverse through the vasculature and cause a pulmonary embolism (PE). The incidence of TT is between 4-20%. It is associated with hypercoagulable states, which predisposes critically ill individuals to thrombus formation and can rapidly become fatal. Moreover, given the suggested association between the SARS-CoV-2 (COVID-19) virus and hypercoagulability, individuals with new-onset heart failure and recent COVID-19 infection should be evaluated and monitored for thrombus formation.

A 63-year-old woman with a history of hypertension, not controlled with medication, presented with two weeks of bilateral lower extremity edema and dyspnea on exertion. She was afebrile, hypertensive at 201/128mmHg, and tachycardic to 100 beats/min. Examination revealed a chronic 4/6 ejection systolic murmur at the right sternal border and 2+ bilateral pitting edema. Notable labs included a BNP of 3807 and troponin-T of 32 (reference <14). EKG revealed left atrial enlargement and ventricular arrhythmia. An echocardiogram revealed LVEF <20%, moderate-severe LV hypokinesis, and septal wall motion abnormalities. During her admission, she was admitted to the ICU for cardiogenic shock. A repeat echocardiogram upon discharge from the ICU demonstrated improved LVEF (25%) and revealed new TT extending from the IVC into the right atrium. The COVID-19 PCR came back positive on Day 3. She also developed worsening dyspnea and hypoxemia, and was evaluated by V/Q scan, which demonstrated acute findings consistent with PE. A follow-up echocardiogram done 4 months later had demonstrated a complete return of function with an LVEF of 55%.

As we learn more about the association of COVID-19 and hypercoagulability, physicians must maintain a high level of suspicion for TT, especially in new-onset heart failure in the setting of COVID-19 infection and continue monitoring for signs of decompensation due to TT.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #50

Category: Clinical Vignette

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, FACP

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### **Every Weakness Matters: An Unfortunate Case of Idiopathic Inflammatory Myopathy**

#### Introduction

Inflammatory myopathies are rare, typically autoimmune conditions, that can affect both children and adults, but typically present at 50-59 years of age. Due to their protean symptoms, there is often a delay in diagnosis or misdiagnosis. Rapidly recognizing characteristics of inflammatory myopathies, specifically the disease activity, assessment of damage, and patient perception of their condition, can lead to early initiation of treatment and prevent disabling sequelae. Our case demonstrates the diagnostic difficulty and the subsequent extensive workup which resulted in a delay of diagnosis on a patient with anti-Ku antibody positive idiopathic inflammatory myopathy.

#### Case Presentation

An 82-year-old female presented to the hospital with a several month history of fatigue, significant unexpected weight loss and worsening dysphagia. She appeared cachectic with a body mass index of 17.74 kg/m<sup>2</sup>. Physical exam was rather unremarkable with no focal neurologic deficits and motor strength 4/5 in her extremities. She had undergone extensive workup in the months prior with no meaningful diagnosis and treatment refractory disease. Upon this admission, myopathy was considered given her progressive dysphagia to both solids and liquids. Electromyography (EMG) was consistent with a myopathy, which prompted a skeletal muscle biopsy of her left bicep. Her pathology revealed inflammatory myopathy, with her serum testing for autoantibodies returning positive for anti-Ku antibody. She was unable to make meaningful recovery due to her severe protein-calorie malnutrition, and ultimately passed away.

#### Discussion

Idiopathic inflammatory myopathies are difficult to diagnose given their multifactorial presentation with generalized symptoms. In our patient, the presence of anti-Ku antibodies is unique as currently there is no single diagnostic entity. In these patients, the most common presenting complaint are either arthralgias or Raynaud's phenomenon. This case highlights the importance of an extensive workup for treatment-refractory disease and how an early EMG may prevent morbidity and mortality, particularly in the elderly.

## ACP Michigan Chapter Scientific Meeting 2021

Medical Student Poster #51

Category: Clinical Vignette

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, FACP

Presenter: Drew Moss

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### **The Hidden Traveler: A Rare Case of Atrial Myxoma causing an Atypical Stroke in a Young Patient**

#### Introduction:

Atrial myxomas are the most common primary tumor of the heart. Patients with left atrial myxomas may be asymptomatic or present with symptoms related to mitral valve obstruction, embolization, or constitutional symptoms. We report a case of a young patient with recent COVID-19 infection who presented with ischemic stroke secondary to embolism from a left atrial myxoma.

#### Case:

A 42-year-old-male with history of uncontrolled diabetes mellitus and hypertension presented to the emergency department with acute left arm weakness and paresthesia. His recent history included an uncomplicated COVID-19 infection, 2 months prior to admission. His vital signs were remarkable for a blood pressure of 176/110. His exam was significant for left upper extremity weakness and decreased sensation but was otherwise unremarkable. MRI brain without contrast was significant for an acute infarct in the right middle cerebral artery territory, infarcts in the left cerebral hemisphere, and signs of past hemorrhagic infarct in the left posterior cerebral artery territory. Transesophageal echocardiogram revealed a left atrial mass suspicious for myxoma. The patient was started on heparin, and the mass was excised via robotic thoracoscopy. He has experienced no strokes since tumor removal.

#### Discussion:

Although cardiovascular risk factors commonly result in ischemic strokes in older patients, our case demonstrates the importance of considering rare diagnoses, including embolism from cardiac tumors, when evaluating stroke in a young patient. When large enough, embolic stroke affecting multiple vascular territories may be the first sign of an atrial myxoma. Per Nalbandian et al., our case also highlights the diagnostic consideration of post-acute COVID-19 syndrome, which has been associated with increased risk of arterial and venous thrombosis and ischemic stroke in young patients beyond the initial infection. In the case of large atrial myxomas, prompt diagnosis can lead to expedited tumor removal and prevention of further disability from embolism.