

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 1

Category: Clinical Vignette

School: American University of Integrative Sciences School of Medicine

Clerkship Director: Renu Agnihotri, MD

Presenter: Ayman Salem

Additional Authors: Dana Kabbani, Delair Gardi

Stent Thrombosis Secondary to Antiplatelet Drug Resistance in a Patient with Recent PCI

Stent thrombosis is an uncommon but serious complication that is associated with significant mortality and morbidity. The introduction of drug-eluting stents (DES) is thought to be superior to bare metal stents (BMS) in reducing restenosis rates. Stent thrombosis is a serious complication of PCI occurring in 1% of patients within 30 days. We present a case of a 65 year old male with medical history significant for obstructive coronary artery disease with DES placement to obtuse marginal artery (OM1) two days prior to admission. On presentation, he reported worsening jaw pain radiating to his chest. He reported compliance to his dual-antiplatelet therapy (DAPT) (clopidogrel and aspirin). Labs revealed progressive rise in troponin levels. Emergent left heart catheterization (LHC) demonstrated 100% occlusion of OM1 and patient underwent balloon dilation to 0%. Stent thrombosis was attributed to clopidogrel resistance, and patient was subsequently started on ticagrelor. The significance of this is evident in: 1) the recognition of possible stent thrombosis in a patient with recent PCI, 2) understanding the possibility of DES placement failure secondary to antiplatelet drug resistance and 3) subsequent management of the patient on alternate DAPT therapy.

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Medical Student Poster # 2

Category: Research

School: American University of the Caribbean, School of Medicine

Clerkship Director: Robert Bloom, MD, FACP

Presenter: Carolina Fonseca

Additional Authors: Peter Ali, MD; Alicia Heidenreich, MS; Rebecca Ruthberg, MS; and Amir Damadi, MD

Colon Cancer is More Deadly in the Young; A Shifting Paradigm

Introduction: There has been an increased incidence in colorectal cancer (CRC) in adults < 50. However, the USPTF has not changed their screening recommendation. This might be due to the fact that the differences in presentation and risk factors associated with early onset CRC are not fully understood. We were interested in seeing if there are differences in cancer staging, or any factors associated with early onset of CRC.

Methods: A retrospective chart review was conducted. Data including tumor stage, gender, ethnicity, BMI, comorbidities and nicotine use was collected from patients who required surgery due to CRC in the last 10 years (Ascension Southfield and Novi). Excel is being used for descriptive statistics, and chi square analysis.

Results: In our population, n = 933, 89% of patients were ≥ 50 and 56% white. 51% of the tumors were in the ascending colon and this pattern did not differ in patients < and ≥ 50 . 78% of patients were nonsmokers and 83% had ≤ 1 comorbidities. 72.5% of patients were overweight or obese. A higher proportion of the younger population had stage 3 and 4 tumors (chi square = 11.27, p-value = 0.01).

Conclusions: A higher proportion of patients < 50 had more advanced stages of CRC at diagnosis. This highlights the importance of furthering the understanding of this disease process in order to appropriately protect and care for the susceptible population. Further studies and a possible revision of current screening recommendations are recommended.

School: American University of the Caribbean, School of Medicine

Clerkship Director: Robert Bloom, MD, FACP

Presenter: Madhura Mahapatra

Additional Authors: Omar Saeed, BS; Ahmed Abdou, MD; Ala Shuker, MD

Stones, Bones and Groans: A Case of Nephrolithiasis in an Osteogenesis Imperfecta Patient

Osteogenesis imperfecta (OI), colloquially termed “brittle bone” disease, is a rare disease with less than 50,000 cases recorded in the United States. There are numerous documented types with type I through IV being the most common. Type I has mild developmental consequences while types III and IV are considered moderate and may affect development. Type II is considered the most fatal with most deaths occurring in-utero. Commonly reported renal complications of OI include nephrolithiasis and nephrocalcinosis. However, there is limited literature on treatment. We present a case of Type III OI complicated by nephrolithiasis treated with lithotripsy and basketing. A 56 year-old female patient with Type III OI presented to the hospital with nausea, vomiting, hematuria and flank pain radiating to her left groin. Physical exam was pertinent for costovertebral angle tenderness. CT scan revealed left hydronephrosis and hydroureter secondary to a 5x6 mm nephrolith proximal to the ureterovesical junction. Urology and Internal Medicine jointly decided to proceed with shockwave lithotripsy with basketing. Patient had an uneventful postoperative period, but suffered a distal tibial fracture during her hospital stay.

OI is a rare disease with only 10% of OI type III patients living past 50 years old. Despite documented renal complications, there is limited data on treatment especially in the case of nephrolithiasis. Due to the nature of the disease and how commonplace fractures are, judicious care is required when electing to conduct lithotripsy and basketing for nephrolithiasis. Our patient had a successful procedure and an uneventful hospital course.

School: American University of the Caribbean, School of Medicine

Clerkship Director: Robert Bloom, MD, FACP

Presenter: Martin Richard

Additional Authors: Neeran Bajouka, MD

Intractable Hiccups: Possibly Thalamic Stroke Etiology with Atypical Lateral Medullary Syndrome

Our patient is a 68-year-old male who presented to the ED with acute onset hiccups, nausea, vomiting, dysphagia, and difficulty breathing. He has a significant past medical history of chronic alcohol use and hypertension. He was assessed with possible achalasia or esophageal stricture and was scheduled for an EGD. During his work up, a moderate size hiatal hernia was noted along with findings suggestive of early onset presbyesophagus. As a result, robotic paraesophageal hernia repair and nissen fundoplication and intraoperative EGD were performed. Patient was discharged, but came back two days later with increased difficulty swallowing and swelling in his throat. A CT scan revealed postoperative changes with some pneumomediastinum sequelae. After that had resolved, patient had multiple episodes of aspiration pneumonia and continued dysphagia with nausea, vomiting, and hiccups. Over the course of 3 years, multiple swallow evaluations were performed and the patient was seen by numerous physicians including a gastroenterologist, neurologist, ENT, and surgeon. He was treated with medications such as tetrabenazine and thiorazine without any benefit. Further examination by a neurologist brought some clarity and revealed decreased reflexes, ataxic gait, impaired cerebellar functions, and decreased sensation. A brain MRI revealed evidence of a chronic cerebral artery occlusion, which was most likely the cause of his symptoms, presenting as Lateral medullary syndrome (LMS). LMS due to an infarct in the Posterior Inferior Cerebellar artery can present with ataxia, nausea/vomiting, dysphagia, hiccups, impaired sensation, and a collection of other symptoms. Our patient is currently undergoing therapy to alleviate symptoms.

School: American University of the Caribbean, School of Medicine

Clerkship Director: Robert Bloom, MD, FACP

Presenter: Omar Saeed

Additional Authors: Madhura Mahapatra BS, Maxim Zlatopolsky MD

CoVid-19, Co-infection, and Coagulopathy: A Deadly Alliteration

A 51-year-old female with a past medical history of obesity presented for evaluation of worsening dyspnea. She initially felt ill two weeks prior to arrival and developed a dry cough with subjective fevers. Physical exam was unremarkable apart from partially diminished air entry bilaterally and tachycardia. After initial trial of nasal cannula and non-rebreather, the patient was promptly intubated and transferred to the intensive care unit. Initial CoVid-19 testing was negative, but a subsequent CT thorax with IV contrast revealed peripheral ground-glass opacities consistent with CoVid-19 infection and bilateral pulmonary emboli. Repeat testing was positive for CoVid-19 and Influenza B at which point the patient was initiated on oseltamivir. Prior to the results of the CT thorax, the patient was administered therapeutic fondaparinux and methylprednisolone 40 mg for presumed pulmonary embolism given her worsening dyspnea, tachycardia, hypoxemia, and elevated inflammatory markers. Her hospital course was protracted due to persistent hypoxemia, and serially elevated inflammatory markers including CRP, ESR, ferritin, and d-dimer.

In the early stages of the pandemic, the phenotypic variants of this novel CoVid-19 pneumonia were not clearly elucidated. Coagulopathy was an under-recognized high morbidity complication of severe CoVid-19 infection. Our clinical gestalt dictated the initiation of therapeutic anticoagulation prior to CT results to alleviate hemodynamic compromise and progression of clot burden. This patient was not a candidate for catheter-directed thrombolysis due to our institution's policy on avoiding "elective" procedures. This unique presentation including Influenza co-infection and submassive pulmonary embolism highlights the extensive possible disease burden of CoVid-19.

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Medical Student Poster # 6

Category: Research

School: Central Michigan University School of Medicine

Clerkship Director: Nicholas Haddad, MD, FACP

Presenter: Madelyn Aittama

Additional Authors: Olivia Samoray; Natalie Hamilton; Lauren Stull; Laura Fritsch

Healthcare Barriers for People with Disabilities: The Physician's Perspective

Context: Patients with intellectual disabilities (ID) face multiple barriers when obtaining healthcare. However, there is a lack of research regarding barriers physicians face when treating this population. Objective: To identify the communicative and attitudinal factors that create physician barriers when treating patients with ID in communities throughout Michigan. Methods: A validated survey from Werner et al. (2017) was used to assess physician barriers. By utilizing Qualtrics, surveys were distributed to Michigan physicians practicing in both rural and urban communities as well as primary care and specialty fields. The data was analyzed using Spearman's correlations and independent sample t-tests. Results: Information gathered from 64 physician survey responses found that 1) physicians have a slightly more negative attitude toward treating their patients with ID, particularly feeling more stress and having more difficulty while performing a medical exam and administering treatment; 2) physicians that express higher rates of negativity towards treating patients with ID have a lower likelihood of giving patients with ID the information to make informed medical decisions; 3) physicians who felt that treating patients with ID was within their role as a physician were more likely to prepare those patients for treatment and simplify medical information. Conclusion: Physician attitudes toward patients with ID are directly related to physician behavior when treating patients with ID. Future solutions should work to identify ways to increase the number of ID patient-based encounters physicians receive into medical practice and education in order to minimize barriers that people with ID face in healthcare.

School: Central Michigan University School of Medicine

Clerkship Director: Nicholas Haddad, MD, FACP

Presenter: Batoul Harissa

Additional Authors: Sindhura Ananthaneni MD, Mohammad Ali Tahboub MS4,
Palaniandy Kogulan MD

Staphylococcus aureus Bacteremia: A Symptom of Muscle Weakness Resulting from Multiple Pathologies

A 53-year-old male presented with generalized weakness and an inability to walk or stand without assistance. He recalled a glass shard in his left index finger around the same time he developed the symptoms. Upon admission, he was febrile and tachycardic with diminished motor strength of 2/5 in all extremities. His skin revealed painless, erythematous, non-blanchable lesions measuring approximately 0.2-0.4 cm were present on the hands, arms, and lower legs bilaterally, suggestive of Janeway lesions.

Labs demonstrated elevated creatine kinase of 5241, and urinalysis was suggestive of rhabdomyolysis. 2D echo showed a mobile echodensity with significant aortic valve regurgitation. MRI was obtained which demonstrated acute microvascular ischemic changes. Blood cultures were positive for methicillin susceptible *Staphylococcus aureus*. Antibiotics were switched to IV cefazolin and oxacillin from vancomycin given the *S. aureus* bacteremia and endocarditis, with possible embolism to the brain. He subsequently underwent AV replacement with a 25 mm Edwards Inspiris bioprosthetic valve. Post-operative course was complicated by persistently positive blood cultures of MSSA and elevated CPK. Due to these complications and kidney injury, oxacillin was changed to daptomycin along with cefazolin once kidney function normalized. Shortly thereafter, blood cultures showed no growth and the patient's labs stabilized. Patient was discharged to physical rehabilitation, with continued treatment of cefazolin alone for a total of 6 weeks, and his weakness gradually improved with antibiotics.

A high index of suspicion for polymyositis with *S. aureus* bacteremia is crucial, as it can cause fatal complications if missed, but is treatable with antibiotics.

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Medical Student Poster # 8

Category: Research

School: Central Michigan University School of Medicine

Clerkship Director: Nicholas Haddad, MD, FACP

Presenter: Jyotsna Pandey

Additional Authors: Ehsen Abdul Kabir, Michael Huber, Erin Kokoszka, Zachary Nine

Assessing Attitudes of Older and Younger Adults Towards the Other

The purpose of this project is to explore the attitudinal relationships between older adults (with an annual income of less than \$25,000) and university students training to become health professionals. This will be accomplished using standardized and validated surveys that investigate the attitudes of younger and older adults towards each other. The anonymous surveys will use an adaptable version of Pittinsky et al.'s measure of allophilia (liking for another group) to assess the attitudes between these groups. The older adult version of the survey has 8 questions while the young adult version includes a more detailed, healthcare focused exploration using the Geriatrics Attitude Scale. This survey has 14 questions and the instrument is validated for use across health professionals. These results will help in formulating future projects that students will participate in for the "Students at PACE (Program of All-Inclusive Care for the Elderly)" program that is currently in development.

In addition to the survey, we will conduct interviews with Central Michigan University faculty to develop the "Students at PACE" curriculum. This program will provide students in health professions an opportunity to work with older populations by volunteering at PACE centers. Insight from faculty will aid in developing a manual based on student interests and goals. The manual can then be used by other universities throughout Michigan to establish similar "Students at PACE" programs.

School: Central Michigan University School of Medicine

Clerkship Director: Nicholas Haddad, MD, FACP

Presenter: Rachel Swanson

Additional Authors: Jake Quarles; Jyotsna Pandey M.D., PhD

Examination of Depression Screening and Access to Psychiatric Resources to Promote Wellbeing in the Rural Geriatric Population

Background: Despite hardships associated with aging, such as loss of independence, social isolation and widowhood, depression is not a normal part of aging. Yet, 15-20% of adults over age 65 in the United States have experienced depression, outlining the need for depression screenings and access to psychiatric resources, especially in rural, isolated, geriatric populations(1). Common practice utilizes the PHQ-9 for depression screening. However, recent findings state that the administration of PHQ-2 followed by PHQ-9 can increase screening specificity(2). This study examines the use of PHQ-9 and subsequent matching of participants to community resources.

Methods: 94 participants aged ≥ 60 years old were recruited from rural Michigan to participate in an interprofessional education (IPE) program through Central Michigan University. Student teams consisting of various disciplines used instruments, including the PHQ-9, to gather wellbeing data. If screening suggested or a participant reported depression, they were referred to a community psychiatrist or connected with the Commission on Aging for further support.

Results: 22 participants with varying depression severity (15 mild, 6 moderate, and 1 moderately severe) were connected to available resources. However, to improve the specificity of screening, the IPE program is implementing the combination of PHQ-2 followed by PHQ-9 for future participants(2).

Conclusion: This program teaches healthcare students the value of depression screening and encourages connecting those in need with community-based organizations for psychiatric assistance. With the addition of PHQ-2 followed by PHQ-9, the IPE program hopes to promote better depression screening, enhancing community-based help for future participants.

References:

1. https://www.cdc.gov/aging/pdf/cib_mental_health.pdf
2. Levis, B., et al. (2020). Accuracy of the PHQ-2 Alone and in Combination With the PHQ-9 for Screening to Detect Major Depression. *JAMA*, 323(22), 2290–2300. doi:10.1001/jama.2020.6504.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 10

Category: Clinical Vignette

School: Central Michigan University School of Medicine

Clerkship Director: Nicholas Haddad, MD, FACP

Presenter: Caleb VanDyke

Additional Authors: Christian Sikorski, MD

Intradural, Extramedullary Spinal Sarcoidosis: Report of a Rare Case and Literature Review

Central nervous system sarcoidosis is a rare manifestation of the systemic inflammatory disease. Spinal involvement is less common than intracranial lesions, but when present, tends to involve the intramedullary rather than extramedullary portions of the spine. When lesions are extramedullary and intradural, they may mimic other mass lesions such as meningiomas, nerve sheath tumors, or metastatic tumors.

A 56 year old female presented with a 4 year history of progressive decline in hand function with bilateral hand paresthesias and balance difficulties. Her symptoms progressed to include difficulty walking and occasional bowel and bladder incontinence. Cervical spine MRI showed an intradural extramedullary enhancing mass lesion from the foramen magnum through to the level of C7-T1 causing severe circumferential spinal cord compression and signal change within the cord. The patient underwent multilevel cervical laminoplasty with extensive decompression from the occiput to C7 to remove accessible dorsal and lateral tumor tissue. Pathology of the surgical specimen revealed non-necrotizing granulomatous inflammation consistent with sarcoidosis. The patient had gradual improvement in her arm and leg weakness with rehabilitation and corticosteroid therapy.

This case demonstrates a severe example of extramedullary intradural sarcoidosis in a patient without previous diagnosis of sarcoidosis causing severe cervical cord compression requiring surgery. Although exceedingly rare, the extramedullary location of the lesion is amenable to surgical resection. It has been hypothesized that extramedullary sarcoidosis may represent an early stage of spinal sarcoidosis, which may progress to an intramedullary lesion. Therapy includes surgical decompression, when necessary, and corticosteroids.

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Cynthia Davila

Additional Authors: Divya Jarugula MD, Joshua Christy MD, Kavitha Kesari MD, Arvind Kunadi MD

Rare Cause of Angioedema Secondary to Psyllium Use: A Case Report

Background/Case Presentation:

The bulk laxative Psyllium fiber has been implicated as a cause of allergic reactions over the years; however, cases of psyllium-induced anaphylaxis and psyllium-induced angioedema are extremely rare. With the widespread use of psyllium as a bulk-forming laxative and the availability as over-the-counter (OTC) medication, it is important to highlight the increased risks of severe allergic reaction.

We report a 62-year-old female patient presenting with anaphylactic symptoms including shortness of breath, generalized itching, urticaria and bilateral periorbital edema. The symptoms had temporal relation to psyllium use.

Discussion

Psyllium (obtained from *Plantago ovata*) is used as treatment in conditions such as constipation, irritable bowel syndrome, colon cancer, hypercholesterolemia, and diabetes. Healthcare professionals, who work with psyllium-based products, may have a higher risk of allergic reaction to psyllium due to sensitization. Sensitized individuals (with a positive skin prick test or IgE specific reaction to *Plantago ovata*) are at risk of developing hypersensitivity reactions upon use of psyllium-based laxatives. Symptoms may include rhinitis, urticaria, angioedema, and laryngeal edema. Elevated IgE level and radioallergosorbent test (RAST) positive for psyllium-specific IgE antibodies may support the diagnosis.

Conclusion

Although not common, those with underlying allergic conditions such as asthma or atopic dermatitis can potentially experience a life-threatening systemic reaction to this plant-based laxative. As in our patient, psyllium can induce a systemic anaphylactic reaction. Furthermore, because chronic constipation is a common medical condition and laxatives form part of the standard treatment, a detailed allergy history should be obtained prior to recommending a psyllium-based laxative.

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Mohsen Dourra

Additional Authors: Shiab Mussad; Robert Singer MD

Cutaneous Manifestations in a Patient with Reactive Hemophagocytic Lymphohistocytosis

Hemophagocytic lymphohistocytosis (HLH) is a rare hematologic disorder caused by excessive immune stimulation that leads to widespread tissue inflammation and injury. Defects in macrophages, natural killer cells, and cytotoxic T-cells underlies this process. A 35-year-old African American female with a history of hidradenitis suppurativa and morbid obesity came to the emergency department with five days of abdominal pain, generalized weakness, and left lower extremity pain with peculiar and tender skin lesions. She was hypotensive and tachycardic but afebrile on arrival. Physical exam was notable for splenomegaly and blistering cutaneous lesions over her extremities. She was admitted to the intensive care unit due to her critical condition. She developed multiorgan failure requiring intubation for 13 days. Over that period, she developed worsening and diffuse cutaneous lesions with tense fluid-filled bullous lesions and superficial ulcerated patches on her medial thighs, sacrum, and lips. There were ecchymotic and ulcerated lesions over her bilateral upper and lower extremities.

Reactive HLH was ultimately diagnosed based on the presence of 5 of 8 required criteria. The patient had splenomegaly, ferritin elevated at 2053 ng/mL, triglycerides elevated at 1,658 mg/dL, bicytopenia with platelets severely low at 20 K/mcL and hemoglobin low at 7.3 gm/dL, and soluble CD25 elevated at 12,000 U/mL. Adults often develop HLH in the background of serious illness making diagnosis a challenging endeavor, especially when the clinical picture appears similar to sepsis. Cutaneous lesions are an underrecognized feature and can help alert to the presence of HLH or its recurrence after treatment.

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Shannon Heffernan

Additional Authors: Rakesh, Gami MD (Senior Resident), Kemnic, Tyler DO (Senior Resident), Elshafie, Ahmed MD (Senior Resident)

Anorexia Nervosa Complicating Crohn's Disease into ARDS That Resolves After Bowel Resection

Introduction

Crohn's disease (CD) and anorexia nervosa share common clinical features. The presence of both disorders leads to severe complications that can be a clinical challenge which is quite rare.

Case Description

31-year-old female with a history of CD, anorexia nervosa with BMI of 17 and depression presented with a 3 day history of generalized weakness, cramping abdominal pain, and constipation. Laboratory studies showed WBCs of 9.3, C-reactive protein of 26.5, albumin <1.5, and lactic acid of 1.5. Initial CT abdomen revealed severe Crohn's with partial small bowel obstruction. Seven days after starting mesalamine, IV methylprednisolone, and parenteral nutrition, her abdominal pain worsened, developed dyspnea, tachypnea, and tachycardia with further decompensation into acute hypoxic respiratory failure with PaO₂/FiO₂ ratio <100 and septic shock. Subsequent imaging revealed small bowel perforation, and bilateral pulmonary infiltrates. Patient was intubated, transferred to the ICU, and subsequently for small bowel resection with washout, and ileostomy. The following day post operatively, she was extubated, and off vasopressors. She was slowly transitioned back to oral intake, with increased ostomy output.

Discussion

CD can cause a variety of extraintestinal manifestations including the pulmonary system. In the setting of anorexia, CD presentation can be clinically challenging and life threatening. Severe malnutrition due to underlying eating disorder may be a potential risk factor for increased morbidity and mortality in acute CD.

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Aleta Luesse

Additional Authors: Ahmed Elshafie MD, Resident, MSU and Robert C Smith MD, Attending and Distinguished Professor MSU CHM

Case of Acute Myopericarditis with Community Acquired Left Upper Lobe Pneumonia

Myopericarditis is pericarditis with inflammation of the myocardium. Because myopericarditis is relatively uncommon, treatment guidelines aren't entirely clear. A 32-year-old man presented to ED after 4 days pleuritic chest pain, fever 102F, chills, malaise, headache, anorexia, cough with green sputum, and sick contact exposure. He denied shortness of breath and leg swelling. EKG showed T wave inversions in inferior leads. Labs showed troponins with peak 2670 and CRP at 8.6. Chest x-ray revealed left upper pneumonic infiltrates. No organism was isolated. Echocardiogram showed no wall motion abnormalities or reduced LV function. Based on clinical presentation, troponin elevation, and echocardiogram results he was diagnosed with myopericarditis. No lisinopril prescribed since LVEF was 60-75%. After resolution of symptoms, troponins trending down and 1-day observation, he was discharged home on colchicine for 90 days to prevent myopericarditis recurrence. He was advised to avoid all NSAIDs including aspirin. He was given instructions to follow up with outpatient cardiologist and given antibiotics for pneumonia.

It is important to distinguish myopericarditis from pericarditis or myocarditis because it is treated differently than either clinically. Potential complications of myopericarditis can be severe without appropriate recommendations, treatment and follow up. Myopericarditis treatment is not as clear in literature as treatment of pericarditis or myocarditis individually. For example, NSAIDs were found to be harmful in animal studies of myocarditis, while NSAID's including aspirin are main treatment modalities for pericarditis. More clear recommendations and guidelines need to be studied to most effectively and safely treat future patients with myopericarditis.

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Temitope Olasehinde

Additional Authors: Karla E. Mulzac (B.S) ; Alison Y. Cheng (B.S); Judith Brady (Ph.D)

The Psychosocial Impact of the COVID-19 Pandemic on Medical Students

The COVID-19 pandemic has had a significant impact on the educational experiences of medical students in the United States (U.S.). During this period, worry of being a potential vector, isolation from the medical community, and uncertainty about their professional trajectory compound the psychological sequelae already experienced by the rest of the population during a pandemic. The current study aims to investigate the psychosocial effects the COVID-19 pandemic has had on medical students. An online questionnaire was distributed to U.S.-based medical students that surveyed the psychological and behavioral effects of social isolation, their risk perceptions of contracting and spreading COVID-19, and the effects COVID-19 has had on participant's professional career. The psychological effects subcategory was measured using the Perceived Stress Scale (PSS-10). 83.4% of medical students reported a moderate to severe level of perceived stress on the PSS-10 (score ≥ 14). Female gender and presence of a preexisting mental health disorder were significantly associated with higher PSS-10 scores ($p < 0.05$). Preclinical students had a higher PSS-10 and effect on work score than their clinical counterparts. Multiple linear regression analysis showed the effect on participant's work (46%) and preexisting mental health conditions (18.1%) had the greatest influence on PSS-10 scores. The COVID-19 pandemic has raised the level of stress and anxiety already expressed in medical students. Numerous studies suggest that this increased stress can lead to the development of mental disorders long after the event. This could have long-term implications on our country's incoming physicians, and therefore on our healthcare system.

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Ramanpreet Bajwa

Additional Authors: Melissa Bucheli, OMS4, Lovepreet Singh, MD, Deepak Venkat, MD

Drug Induced Liver Injury Secondary to Apixaban

Drug induced liver injury (DILI) can be caused by medications of various classes. Most cases are benign and resolve upon immediate discontinuation of the medication. While there are no risk factors for DILI, patients can be predisposed due to genetic factors or pre-existing liver damage. Treatment includes rapid discontinuation of the medication and supportive care to prevent progression to acute liver failure or chronic liver disease (1). This case report highlights the unique case of a 41 year old male who presented to the emergency department with shortness of breath. He was diagnosed with bilateral provoked pulmonary emboli secondary to recent cervical decompression surgery. The patient was started on apixaban BID for 6 months and was discharged home. However, he returned 15 days later with complaints of abdominal pain. Significant lab findings included AST 717, ALT 1725, GTT 372, total bilirubin 3.3, direct bilirubin 1.9, and alkaline phosphate 251. MELD score was 18. The patient was admitted for acute liver failure and transferred to a tertiary care centre for hepatology consult and possible liver transplant if needed. Liver ultrasound with doppler, CT of abdomen and pelvis, MRCP, HSV-1 antibodies, viral hepatitis panel, CMV/EBV, and autoimmune hepatitis panel was negative. It was determined the patient was experiencing DILI secondary to apixaban. The medication was discontinued immediately and a heparin drip was initiated. Liver enzymes trended downwards and the patient was discharged home with instructions to follow up with the PCP in 1 week to recheck liver enzymes.

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Yasmeen Basal

Additional Authors: Jerry Oommen, Arsalan Abbasi, Prashant Patel, Rami Abumasmah

COVID Catastrophes: Clotting Crisis

Catastrophic antiphospholipid syndrome (CAPS) is a rare but life-threatening complication of classic antiphospholipid syndrome consisting of multi-organ thromboses, microthrombosis, and hematologic manifestations. A high index of clinical suspicion is crucial for the timely initiation of treatment and reduction in mortality. Here we present an interesting case of a 62-year-old male with a history of antiphospholipid syndrome on anticoagulation, and a prior CVA presenting with shortness of breath and fever for one week following a known COVID-19 contact exposure. Physical examination was significant for tachypnea and diminished breath sounds. Imaging revealed multifocal pneumonia. Treatment for community acquired pneumonia was initiated. Later in the day following admission, patient began to experience hemoptysis along with black stools. Patient was transferred to ICU for hemodynamic monitoring. Concerns for abdominal bleeding prompted repeat blood work which revealed newly elevated coagulation studies with normal platelet count. Given the patient's known history, anticoagulation was held. Despite this, patient continued to have episodes of bleeding throughout the hospitalization. Of note, the patient was found to be COVID positive. Hematology was consulted and recommended initiating plasmapheresis. Patient also received IVIG and was stabilized over the next several days. Because CAPS was on the differential early on, an appropriate treatment plan was promptly initiated, likely preventing any major complications. It was concluded that the COVID-19 viral pneumonia was the trigger of this patient's dormant disease. Literature review shows that CAPS is a highly fatal, and often a difficult to diagnose condition given its overlapping features with other thrombotic microangiopathies.

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Melissa Patricia Bucheli

Additional Authors: Ramanpreet Bajwa OMS-IV; Isaac Turner MD

Myelin Oligodendrocyte Glycoprotein Antibody Disease: A Rare Inflammatory Demyelinating Disease

Myelin oligodendrocyte glycoprotein antibody disease is an autoimmune inflammatory demyelinating disease caused by myelin oligodendrocyte glycoprotein (MOG) antibodies. The autoantibodies mainly targets the optic nerve, causing a clinical manifestation of optic neuritis (ON). MOG antibody testing has recently become available and has aided the diagnosis of autoimmune demyelinating diseases. MOG antibody disease has been associated to Neuromyelitis Optica Spectrum Disorder (NMOSD) due to a subset of patients having the aquaporin-4 antibody (AQP4) seronegative- MOG antibody seropositive NMOSD phenotype. However, recent research has classified MOG antibody disease as a separate disease, despite the similarities and overlap it shares with NMOSD. This case report centers on a 44 year old male presenting to the emergency department with bilateral blurry vision. The patient presented with similar symptoms of unilateral vision loss in 2011 and was diagnosed with Multiple Sclerosis (MS). During the current admission, MRI of the brain showed stable subcortical white matter hyperintensities and MRI of the orbit showed possible right optic nerve enlargement without enhancement. The patient was suspected to have ON secondary to MS and was started on a three day course of intravenous steroids. Patient reported minimal improvement and ophthalmology was consulted. Due to the recurrent ON with minimal improvement upon steroid therapy and atypical MS presentation, AQP4 and MOG antibodies were ordered. The patient was positive for MOG antibody, indicating MOG antibody disease as a more likely diagnosis instead of MS. Immunosuppressive therapy was initiated. The patient's vision gradually improved over the course of the next few months.

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Nadine Elhage

Additional Authors: Vito Agrusa OMS-IV, Jonathon Lovy D.O

Heyde's Syndrome: A Case Report

Angiodysplasia consists of arteriovenous malformations that can cause chronic bleeding in the gastrointestinal tract and skin. Angiodysplasia in relation to aortic stenosis is coined Heyde's Syndrome, which can manifest in Acquired Von Willebrand Syndrome (AVWS). The resulting Acquired Von Willebrand Syndrome may lead to the findings of chronic anemia.

An 89-year-old female with a history of asthma and severe aortic stenosis presented to the outpatient clinic complaining of intermittent bright red blood in her stools and frequent diarrhea for the past 3 years. She has a family history of lung and stomach cancer in her son. She is a former smoker with a 30 pack-year history. She denies any weight loss. The patient underwent a colonoscopy 3 years ago at an outside facility. States she was told to have them yearly, however, she was unsure of the results at that time and has not followed up with repeat colonoscopies. Labs were drawn and showed evidence of an iron-deficiency anemia. Physical exam revealed a systolic ejection murmur, but was otherwise unremarkable. An echocardiogram was undertaken which confirmed severe aortic stenosis.

This case illustrates the need to consider Heyde's syndrome in the differential with an elderly patient with established aortic stenosis who develops iron deficiency anemia. Patients should first undergo testing for potential underlying malignancy, celiac disease, or other nutritional deficiencies. If initial testing yields no site of bleeding, angiodysplasia of the gastrointestinal system should be considered as a cause of anemia, especially in adults over the age of 60.

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Ariel Niederhauser

Additional Authors: Connor Kerndt, D.O., Hayk Papukhyan, M.D.

Autoimmune Vasculitis Presenting as Diffuse Alveolar Hemorrhage

Introduction:

Diffuse alveolar hemorrhage (DAH) is a life-threatening condition with hemoptysis, acute blood loss, and acute respiratory failure. DAH is associated with systemic autoimmune diseases, coagulation disorders, and drugs. We present a case of newly diagnosed autoimmune-mediated vasculitis after DAH.

Case Presentation:

A 27-year-old female with a history of hypothyroidism presented with complaints of progressive dyspnea and fever after recent hospitalization for multilobar pneumonia. Physical exam revealed distressed and febrile patient with tachycardia, tachypnea with accessory muscle usage, diminished breath sounds, and diffuse rhonchi. Patient was subsequently intubated in response to respiratory distress.

Lab results revealed leukocytosis and anemia. Chest x-ray revealed worsening diffuse lung infiltrates. ARDS protocol was initiated including high-PEEP, low tidal volume, prone positioning without improvement in oxygenation. Further work-up revealed presence of cytoplasmic antineutrophil cytoplasmic antibodies (c-ANCA), anti-proteinase 3 antibodies, and rheumatoid factor. The patient subsequently developed bloody secretions in the endotracheal tube, severe sepsis, and acute kidney injury. In anticipation of worsening status, she was transferred to a tertiary center for possible extracorporeal membrane oxygenation and further work-up. She was diagnosed with ANCA-associated vasculitis and DAH; treated with IV solumedrol, plasmapheresis, dialysis, and immunosuppressants.

Discussion:

This case demonstrates the importance of evaluating autoimmune disorders in young female patients. The previous health of the patient made further investigation of her DAH imperative. Identifying the underlying ANCA-associated vasculitis allowed the patient to receive the proper treatment, consisting of steroids, plasmapheresis, dialysis, and immunosuppressants. Without early identification, she could have been left with long-term disability or even death.

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Jerry Oommen

Additional Authors: Yasmeen Basal, Arsalan Abbasi, Jayanthi Chandrasekaran

Clots on Clots on Clots: Recurrent Thrombosis in Occult Pancreatic Cancer

Trousseau Syndrome is characterized by migratory episodes of thrombosis in the setting of occult malignancy. These events represent a significant cause of morbidity and mortality in these patients. Here we present a 76-year-old female with a history of hypertension, hyperlipidemia, and tobacco use who developed right lower extremity tenderness and erythema. Doppler studies revealed a femoral DVT, prompting a stable discharge on rivaroxaban. Patient returned one week later with new left-sided facial droop and LLE weakness and numbness. MRI revealed acute embolic infarcts, and the patient was admitted with anticoagulation modified to Warfarin with Lovenox bridge. Cardiac workup revealed new onset paroxysmal atrial fibrillation with no intra cardiac abnormalities on imaging studies. Rehabilitation for residual stroke weakness was made a priority and the patient was admitted to inpatient rehabilitation. Ten days later, the rapid response team was called for worsening left sided weakness and deteriorating mental status. MRI revealed new multifocal acute infarctions. Due to three thrombotic events unresponsive to anticoagulation, Hematology was consulted and work-up, including CTA abdomen/pelvis, revealed stage IV pancreatic adenocarcinoma. In the setting of recurrent thrombosis despite adequate anticoagulation, a high index of suspicion for occult malignancy must be considered. Literature review has shown that for many malignancies, in particular exocrine pancreatic cancer, prognosis is dependent on surgical resectability. Therefore, additional research, in conjunction with early recognition of this phenomenon is crucial to improving outcomes in these patients.

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Jacob Ross

Additional Authors: Robert Knight PhD, Jeffery Stanley PhD, Guangling Ding PhD, James Ewing PhD, Esmail Davoodi-Bojd PhD, Pamela Harding PhD

Assessment of Murine Cardiac Function and ATP Metabolism with MRI/MRS and Metabolomics

Introduction: We previously demonstrated that mice lacking the prostaglandin E2 receptor subtype 4 (EP4 KO) in cardiomyocytes develop dilated cardiomyopathy with age. We investigated whether EP4 KO mice display impaired cardiac energetics by utilizing magnetic resonance imaging and spectroscopy (MRI/MRS) and metabolomics to assess the cardiac phosphocreatine-to-adenosine triphosphate (PCr/ATP) ratio, a measure of the PCr-ATP buffering system.

Methods: Anesthetized mice were placed on a 1H,31P-MRI/MRS coil and inserted into a 7-Tesla magnet system. Cardiac 31P spectra were acquired. MRI cine imaging was performed to assess ejection fraction (EF). Metabolomics on isolated cardiomyocytes was performed by the University of Michigan metabolomics core. Spectral data were processed with in-house software. Cine data were analyzed with Segment.

Metabolomics: Cardiomyocytes from EP4 KO mice displayed a 51% reduction in ATP levels compared to myocytes from control animals ($25.6 \times 10^3 \pm 3.9 \times 10^3$ a.u. vs $52.3 \times 10^3 \pm 5.7 \times 10^3$ a.u., $p=0.018$). PCr levels and the PCr/ATP ratio were attenuated in EP4 KO cardiomyocytes ($2.5 \times 10^3 \pm 0.9 \times 10^3$ a.u. vs $15.2 \times 10^3 \pm 4.8 \times 10^3$ a.u., $p=0.061$ and 0.098 ± 0.04 vs 0.28 ± 0.07 , $p=0.078$), though significance was not achieved.

MRI/MRS: EP4 KO mice had a significantly reduced EF ($57.5 \pm 3.9\%$ vs $68.7 \pm 2.7\%$, $p=0.039$). Additionally, EP4 KO mice trended towards a diminished cardiac PCr/ATP ratio (2.31 ± 0.09 vs 2.56 ± 0.11 , $p=0.092$).

Conclusion: EP4 KO mice display impaired ATP production and cardiac function which may be related to PCr-ATP buffering system dysfunction. Prostaglandin E2 via its EP4 receptor may play an important role in regulating cardiac energetics.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 23

Category: Research

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Kimberly Anyadike

Additional Authors: Camilla Cascardo, Mallory Hoevet, Mohamed Mohamed Idris, Hazem Alakhras, Malli Barremkala

Complete Absence of Oblique Fissure in the Left Lung: A Case Report on Anatomic Variation

Classically, development of respiratory tissues in humans displays segmentation which produces a left lung with two lobes, separated by the oblique fissure. The bilobar left lung is smaller than the right lung as a standard, allowing space for the heart. However, absence of oblique fissure in the left lung, as is discussed in this abstract, is anomalous. 24 pairs of lungs obtained from routine dissection of adult formalin fixed cadavers used for first-year regional anatomy course at Oakland University William Beaumont School of Medicine were used in this study. There was a total of 13 female and 11 male and cadavers with an average age of 80 years. The lungs were observed for presence or absence of fissures and lobes. We report a case of absent oblique fissure in the left lung in a 56-year-old female cadaver. While hypoplasia of the left lung is apparent, her right lung displayed standard trilobar development. Although no other cadavers within this cohort displayed similar lobar hypoplasia of the lung, our team did find that the left lung from a 74-year-old female cadaver was notably small. Developmental lung anomalies in adults are rare, and our findings contribute to prevalence reports of left lung hypoplasia. Recognition of variation in bronchopulmonary fissures may be useful in clinical settings, i.e., in localization of pulmonary lesions, surgical planning, planning for other invasive respiratory procedures, and interpretation of radiographs or computed tomography scans.

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Oluwatoyin Ibrinke

Additional Authors: Scott Pickett, Daniel J. Gildner, Travis N. Ray, Michele R. Parkhill, & Amanda K. Burgess-Proctor

Tonic Immobility and Post Traumatic Stress Symptom Severity in Relation to Potentially Traumatic Police Interactions

Police brutality returned to the spotlight around 2015 due to highly publicized police shootings of unarmed Black civilians. Tonic immobility, which is an evolved defense response, is characterized by physical immobility and can be experienced during perceived traumatic events. Examining the potentially traumatic nature of police interactions could help limit police brutality, but also provide information about potential psychological health outcomes, such as posttraumatic stress disorder (PTSD). It was hypothesized that greater tonic immobility would be associated with increased PTSD symptom severity and there would be racial differences in reports of tonic immobility and PTSD symptoms.

Participants (N = 609, 29.4% Black/African-American) were recruited through Amazon Mechanical Turk (MTurk), and the Psychology Department subject pool at a large, Midwestern university.

The results suggest that greater tonic immobility is related to greater PTSD symptom severity ($r = 0.718$, $p < .001$). Further, in relation to police interactions, Black/African-American participants reported great tonic immobility, $t(265.455) = -3.642$, $p < .001$, and greater PTSD symptom severity, $t(264.154) = -3.245$, $p < .001$, compared to White/Caucasian participants.

The results support the hypothesis that tonic immobility and PTSD symptoms may result from traumatic police interactions. The results may be important for police officers to understand that citizens may have a traumatic response when interacting with the police. More specifically, people may experience a physiological “freeze” response, which should not be interpreted by police as noncompliance. This understanding could allow police officers approach civilians differently, and possibly decrease the rates of excessive force and mortality.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 25

Category: Research

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Kristin LeMarbe

Additional Authors: Bhavinkumar Dalal, M.D.

Is Compliance with Positive Airway Pressure Therapy Associated with Weight Change?

Background: Obesity is the strongest risk factor for obstructive sleep apnea (OSA), with weight loss considered one of the best long-term solutions for reducing OSA severity. However, the reverse may not be true; that is, treating OSA with PAP has not been consistently associated with weight loss and may actually be associated with weight gain. This retrospective study investigated the association between various factors and PAP compliance, including whether adequate compliance (using CPAP ≤ 4 hours/night or $\leq 70\%$ of nights) was associated with a change in BMI.

Methods: Patients diagnosed with OSA and prescribed PAP during a set time period, who also followed up with compliance data at least twice after the initiation of PAP were included in the study. Data was measured at three timepoints (before PAP and the first two visits after PAP) and analyzed by two-sample independent t-tests.

Results: There was no significant association between compliance with PAP and change in BMI. Younger age at first visit was the only variable associated with a decrease in BMI, with an average age of 55.7 years in those who lost weight and 64.5 years in those who gained weight ($p < 0.05$).

Conclusion: These findings support those of recent studies showing that patients treated with PAP experience no change or an increase in BMI, rather than a decrease in BMI. Given the benefits of weight loss in this population, studying the efficacy of comprehensive weight management programs in addition to PAP warrants further exploration.

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Megan McCrohan

Additional Authors: Ioana Petrescu, M.D; Filip Ionescu, M.D; Priscilla Sigua Arce, M.D;
Adam Foglesong, M.D; Brian Renard, M.D

The Secret Behind the Typical Acute Coronary Syndrome

Introduction: Takotsubo cardiomyopathy (TCM) is a clinical syndrome characterized by a transient, left ventricular dysfunction after a stressful event, easily mistaken for acute coronary syndrome (ACS).

Case Presentation: 69 year-old male with intermittent angina for three days was admitted for unrelieved pain. Past medical history included hypertension, hyperlipidemia, smoking, obesity, and anxiety. Prior stress MPI revealed nonspecific ST segment abnormalities, CT showed a calcium score of 1575. Has family history of cardiovascular diseases in parents and younger sister that passed recently from myocardial infarction, causing him severe grief.

ECG and Troponin were normal. Pain subsided after three sublingual nitroglycerin pills. Unstable angina was most probable, and he began dual antiplatelet therapy and intravenous heparin. Coronary angiogram ruled out occlusive disease and ventriculogram showed hypokinesia of the inferior apical wall with hypercontractility of basal segments, suggestive of TCM. He was discharged on beta blocker (BB) and angiotensin receptor blocker (ARB) with follow-up echocardiogram in four weeks.

Discussion: TCM is a rare cause of chest pain, representing 1-2% of cases believed ACS. As the demographic is primarily postmenopausal women (90%), this case reinforces the need to maintain high suspicion for TCM, even in men. Psychiatric disorders are risk factors for TCM – here anxiety. The condition is self-limited; treatment is not well-established, but there is evidence that BBs and ARBs provide improvement in survival and rate of recurrence.

This case displays the value in a thorough history and workup, even in a patient presenting with typical chest pain with significant cardiovascular risk factors.

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Girish Pathangey

Additional Authors: Mathew Stamos, Bruce D. Johnson, Glenn M. Stewart

Reproducibility and Sensitivity of the Forced Oscillation Technique at Different Operating Lung Volumes

Introduction—Forced Oscillation Technique (FOT) is considered advantageous over spirometry; however, it may be influenced by operating lung volume (OLV). This study examined the reproducibility and sensitivity of FOT derived airway reactance and resistance at different OLV's.

Methods—Twelve subjects trained on a spirometer to breathe at six different OLV's: Tidal volume (TV); Two-times tidal volume (2xTV); 50% inspiratory reserve volume (50%IRV); Total lung capacity (TLC); Residual Volume (RV); 50% expiratory reserve volume (50%ERV). Subjects then performed each OLV maneuver in triplicate and randomized order on a Resmon-Pro FOT device to derive resistance and reactance. Reproducibility was assessed by within-subject coefficient of variation (CV) and sensitivity by percent change from TV at each OLV.

Results—Average within-subject CV for resistance (19Hz) was: $7\pm 3\%$ at TV; $8\pm 3\%$ at 2xTV; $8\pm 4\%$ at 50%IRV; $10\pm 8\%$ at TLC; $8\pm 5\%$ at 50%ERV; $9\pm 7\%$ at RV. Average CV for reactance (5Hz) was: $14\pm 11\%$ at TV; $12\pm 7\%$ at 2xTV; $14\pm 14\%$ at 50%IRV; $16\pm 14\%$ at TLC; $24\pm 15\%$ at 50%ERV; $21\pm 12\%$ at RV. Relative to TV, resistance did not change at 2xTV, $p=0.486$; decreased by $16\pm 23\%$ at 50%IRV, $p=0.045$; decreased by $29\pm 24\%$ at TLC, $p=0.004$; increased by $27\pm 31\%$ at 50%ERV, $p=0.017$; increased by $54\pm 31\%$ at RV, $p<0.001$. Relative to TV, reactance increased by $16\pm 19\%$ at 2xTV, $p=0.014$; increased by $50\pm 49\%$ at 50%IRV, $p=0.006$; increased by $89\pm 44\%$ at TLC, $p<0.001$; increased by $197\pm 270\%$ at 50%ERV, $p=0.029$; increased by $462\pm 400\%$ at RV, $p=0.002$.

Conclusion—FOT-derived measures were reproducible and sensitive to changes in OLV's. Further investigations should determine if a shift in OLV's affects differential diagnosis.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 28

Category: Clinical Vignette

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Zachary Scherzer

Additional Authors: Abdalla Kara Balla, MD, Internal Medicine residency, Beaumont Hospital – Royal Oak, MI Joseph Skender, MD, Internal Medicine re

A Case of Thromboangiitis Obliterans Precipitated by Electronic Cigarettes

Introduction: Thromboangiitis Obliterans (TAO), also known as Buerger's Disease, is characterized by progressive inflammation and thrombosis affecting small to medium-sized arteries and veins of the extremities in the context of tobacco use.

Case presentation: We present a case of a 21-year-old Caucasian male who presented to the ED with a 3-week history of bilateral, progressive hand pain and distal extremity color changes. He endorsed smoking cigarettes for 5 pack-years, but quit 2 years prior to admission. Vital signs were stable on presentation. Physical exam showed ischemic necrosis of the right 3rd and 4th digits and left 3rd and 5th digits with tenderness to palpation, decreased capillary refill, and diminished sensation to light touch. Pulses were preserved. Bilateral upper extremity arterial duplex showed severely dampened blood flow in the implicated digits. Endocarditis was ruled out by negative blood cultures and absence of vegetation on transthoracic echocardiogram. Labs showed elevated CRP of 42 mg/L and ESR of 36 mm/h. Comprehensive urine drug analysis and nicotine quantitation revealed markedly elevated levels of nicotine and related metabolites. Further questioning revealed the patient's heavy use of electronic cigarettes. Patient met clinical and diagnostic criteria for TAO. Imdur and Nifedipine were initiated for symptomatic relief. He was counseled on cessation of e-cigarettes and discharged home with outpatient follow-up.

Conclusion: The prevalence of TAO in North America has declined given a downtrend in tobacco use; however, the effects of e-cigarette use on TAO incidence is not well established. Our case demonstrates possible association between vaping and TAO.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 29

Category: Research

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Aryana Sharrak

Additional Authors: A Halalau, MD, MSc; J Ditkoff, MD; J Hamilton, MS, PA-C; A Sharrak, BS; A Vanood, BSE; A Abbas, MD; J Ziadeh, MD

Emergency Center Curbside Screening During the COVID-19 Pandemic

Importance: Coronavirus Disease (COVID-19), caused by SARS-CoV-2 virus, is a global pandemic that has placed a significant burden on the healthcare systems. The purpose of this study was to describe the curbside testing procedure implemented at a large hospital system and evaluate its safety and efficiency.

Methods: This was a retrospective cohort study of 2782 patients that were screened for COVID-19 via curbside testing between March 12 and April 8, 2020. The study was conducted at Beaumont Health, Royal Oak, Michigan with all patients who sought SARS-CoV-2 testing through curbside screening. A curbside screening model was evaluated over its first 28 days.

Results: A total of 2782 patients were seen through the emergency center (EC curbside). The median time of the total screening process was 28 minutes (IQR 17-44). EC visits at a minimum of 7 days after curbside screening were seen for 257 patients (9.2%). Inpatient admissions were reported in 64 (24.9%), of which 4 patients (0.01%) expired.

Conclusions and Relevance: Curbside screening is a safe and efficient way of delivering SARS-CoV-2 testing, allowing for a medical decision within a median of 15 minutes from arrival. Less than 10% of these patients returned to the ED at a minimum of 7 days follow up, significantly reducing the additional stress on the already overburdened emergency center. Our study encourages the incorporation of this model at other high-volume facilities during an infectious disease pandemic.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 30

Category: Clinical Vignette

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Aimen Vanood

Additional Authors: Aryan Sharrak; Vanood Khalid, MD

HSV-2 Meningitis Presenting with Diarrhea: A Diagnostic Dilemma During a Pandemic

We present the case of a 29-year-old female with a past medical history of type 1 diabetes who presented with diarrhea, emesis, subjective fever, and headache in April 2020. The patient exhibited no focal neurologic defects or respiratory distress. Given her symptoms, she was initially suspected to have COVID-19 (corona virus disease 2019). Real-time reverse transcriptase-polymerase chain reaction (rRT-PCR) testing for SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) was sent immediately but returned negative the following morning. The treatment team then suspected viral gastroenteritis and was inclined to discharge the patient home with recommendations for supportive care and quarantine. However, given the history of headache and fever amidst her other symptoms, the attending physician from internal medicine performed a lumbar puncture to rule out meningitis. Cerebrospinal fluid testing revealed lymphocytic pleocytosis and FilmArray Meningitis/Encephalitis panel returned positive for Herpes Simplex Virus Type-2. Upon further questioning, the patient reported a remote history of genital lesions 7 years prior with no recurrence since. In light of the current pandemic, we describe this case so as to remind our colleagues to not forget that other known infections, such as meningitis, continue to exist and, due to overlapping symptomology, may otherwise be missed.

School: Ross University School of Medicine

Clerkship Director: Geetha Krishnamoorthy, MD

Presenter: Ajay Kerai

Additional Authors: Sarakshi Mahajan, MD, Amitha Kakulavaram, MD, Shamla Kalyan, MD

A Rare Case of Mycobacterium Abscessus Complex Bacteremia in Ehlers-Danlos Syndrome Patient Receiving Total Parenteral Nutrition

Introduction

Mycobacterium Abscessus complex are rapidly growing, multidrug-resistant, nontuberculous mycobacteria. They are known to cause infections involving skin and soft tissues, lungs, central nervous system and eyes. Most notably they also cause catheter-associated bacteremia in immunocompromised hosts such as patients with HIV, end stage renal disease, cancer and neutralizing anti-IFN- γ antibodies.

Case Description

A 54 year old female with gastroparesis on TPN for 6 months secondary to Ehlers-Danlos syndrome type III, malnutrition and alcohol use disorder presented with shortness of breath and fever for 3 days. She was hypertensive, tachycardic and febrile. Blood work revealed no leukocytosis, albumin 3.1, grossly elevated CRP, LDH and procalcitonin. Lung exam was benign. Patient was admitted for sepsis and started on empiric vancomycin and cefepime.

Blood and mediport cultures were positive for Mycobacterium Abscessus. Mediport was removed and antibiotics changed to IV amikacin, azithromycin and meropenem. Four days later repeat blood cultures were negative and patient was discharged home to complete 14 days of IV amikacin and imipenem (changed due to insurance). Then after, patient was to complete one year of oral triple antibiotics.

Discussion

This is the first reported case of Mycobacterium Abscessus bacteremia in patient receiving TPN and hence emphasizes the need of maintaining high suspicion for such pathogens in such patients. No set treatment protocols exist. We demonstrate the ability of triple IV therapy with amikacin, azithromycin and meropenem in achieving negative blood cultures within 4 days of treatment.

School: St. George's University School of Medicine

Clerkship Director: Raymond Hilu, MD, FACP

Presenter: Payne Andrew

Additional Authors: Paul Fozo M.D., Shyam Moudgil M.D

Inflammatory Demyelinating Intramedullary Mass Mimicking Spinal Cord Tumor

Introduction: Neoplastic tumors comprise the vast majority of isolated intramedullary spinal cord masses. Previous studies have identified clinical and imaging characteristics that are helpful in identifying non-neoplastic lesions mimicking spinal cord tumors; However, these findings are generally insufficient to preclude the need for open biopsy which carries a high incidence of morbidity and postoperative complications.

Case: We report an isolated inflammatory demyelinating mass identified in a 65-year old male with a presumptive preoperative diagnosis of neoplasm. The patient presented with sudden-onset left upper-extremity pain, weakness and paresthesia of 1-day duration. Physical exam revealed polydermatomal & myotomal involvement with prominent upper-extremity weakness, and painful hypersensitivity in the C3-C5 dermatomes. The patient denied constitutional symptoms, or prior neurological manifestations. Vital signs and routine lab work were non-contributory, and an HIV screen was negative. MRI of the head and neck showed a mildly expansile solitary peripherally-enhancing mass between C1-C4 with no evidence of brain involvement. CT of the chest and abdomen along with CSF analysis was unrevealing. Ultimately decision to biopsy the lesion was made, and histopathological examination revealed an inflammatory demyelinating process.

Discussion: This case illustrates multiple previously described findings suggestive of non-neoplastic etiology including minimal cord enlargement, prominent T2 signal changes, peripheral-enhancement, and acute clinical presentation. Despite the presence of such findings, open biopsy is often indicated to direct appropriate management; Nevertheless, the significant risk of postoperative complications highlights the importance of risk stratification and of exhausting less invasive diagnostic modalities before proceeding with surgical intervention especially among poor surgical candidates.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 33

Category: Clinical Vignette

School: St. George's University School of Medicine

Clerkship Director: Raymond Hilu, MD, FACP

Presenter: Anita Kamath

Additional Authors: Bishoy Abraham MD, Raid Saco MD, Zain Azzo MD

Risk versus Reward: Prolonged Indwelling Inferior Vena Cava Filter

Introduction

Inferior vena cava filter placement is suggested for patients with a prior venous thrombosis or pulmonary embolism with contraindications to anticoagulation. However, while protecting the pulmonary vasculature, an IVC filter increases the risk of DVT after the therapeutic window has passed.

Case Presentation

A 55-year-old female presented with bilateral lower extremity edema. The patient has a history of PE in 2011. This was treated with Warfarin but complicated by a GI bleed, therefore an IVC filter was placed in lieu of anticoagulation. During her current admission, a Doppler ultrasound was obtained. This revealed a high burden DVT. CT abdomen/pelvis with contrast revealed a thrombotic occlusion extending from the bilateral popliteal veins to just above the IVC filter. Vascular surgery was consulted and pharmaco-mechanical thrombectomy was performed. The procedure was without complications and the patient was placed on Lovenox with eventual bridge to Warfarin. Hypercoagulable workup was negative.

Discussion

Oral anticoagulation is the current cornerstone for treatment of DVT. However, in patients with contraindications, IVC filter is recommended. Retrievable IVC filters are not without risk and can become thrombogenic over time. Removal is suggested when the primary contraindication has passed after 2-3 weeks of anticoagulation. Studies have shown that patient education significantly improved filter removal rates.

Conclusion

IVC filter placement is indicated in patients who have recurrent venous thromboembolism with contraindications to blood thinners. However, prompt removal of the filter after the burden has passed falls largely on an adherent physician-patient plan.

School: St. George's University School of Medicine

Clerkship Director: Raymond Hilu, MD, FACP

Presenter: Olumide Olotu

Additional Authors: Michael Baracy MD

Ultrasound-Assisted Catheter-Directed Thrombolytic Therapy for Treatment of Saddle Pulmonary Embolus in Pregnancy

Background

In the U.S., pulmonary embolism accounts for about 9-11% of all pregnancy related deaths. In the non-pregnant population, the standard treatment for a patient with massive pulmonary embolism is systemic thrombolysis. Systemic thrombolysis is considered a high-risk treatment in pregnant patients due to increased risk of major bleeding. Currently, there is limited evidence or a standardized approach for the treatment and management of pulmonary embolism in pregnancy.

Case

A 36-year-old G3P2002 at 31 and 0/7 weeks gestation with PMH of DVT in her previous pregnancy presented to the emergency department with shortness of breath. A CT angiogram confirmed the diagnoses of a saddle pulmonary embolus. A subsequent bedside echocardiogram showed a dilated right ventricle with severely reduced right ventricular systolic function. She was successfully treated with bilateral ultrasound-assisted catheter-directed thrombolysis. Hospital course was unremarkable, and patient was discharged on LMWH. The duration of the patient's pregnancy was uneventful, and she subsequently delivered a healthy male infant at 38 and 1/7 weeks gestation.

Conclusion

The number of cases of ultrasound-assisted catheter-directed thrombolysis in pregnant patients are limited. Our case demonstrates that localized thrombolysis is a viable treatment option for life-threatening pulmonary embolism in third trimester pregnancies. Given the high mortality and morbidity rate associated with massive and saddle pulmonary embolisms, it is reasonable to utilize catheter-directed thrombolysis. However, more research, including randomized controlled trials, need to be completed to establish efficacy and safety profiles of localized thrombolytic therapy in pregnancy.

School: St. George's University School of Medicine

Clerkship Director: Raymond Hilu, MD, FACP

Presenter: Theodore Rovers

Additional Authors: Bishoy Abraham, MD. Louis Saravolatz, MD

Is Itraconazole Superior to Fluconazole in Treating Acute Septic Coccidioidomycosis Monoarthritis?

Introduction

Coccidioidomycosis, a fungal infection referred to as "Valley fever", is typically a pulmonary infection with occasional extrapulmonary symptoms. We present a case of coccidioides manifesting as septic monoarthritis.

Case Presentation

A 72-year-old female with a past medical history of Valley Fever and right knee coccidiomycosis arthritis presented to the hospital with right knee pain and swelling. She was treated with fluconazole for more than 1 year. However, she continued to have relapses in addition to significant impairment in her daily activities. Samples of synovial tissue and fluid were obtained, both revealing morphology indicative of coccidioides species. MRI of the knee revealed a large effusion, and inflammation secondary to infection. The patient was transitioned to itraconazole 200 mg twice daily. The patient responded well to itraconazole with the resolution of the symptoms.

Discussion

Coccidioides are fungi endemic in desert regions of the Southwestern United States and Central and South America. Disseminated coccidioidomycosis frequently involves only a single joint, most commonly the knee joint. Treatment involves fluconazole or itraconazole. Amphotericin B can be used for patients who failed azole therapy. Previous studies and case reports have shown the superiority of itraconazole to fluconazole in treating septic coccidioides monoarthritis. Also, patients received itraconazole had fewer relapses compared with patients received fluconazole. Our patient responded well to itraconazole after failing fluconazole, with no recurrence.

Conclusion

Treating coccidioidomycosis septic arthritis may be challenging. Also, relapse is common despite adequate treatment. Itraconazole should be considered in patients who fail fluconazole.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 36

Category: CQI/EBM

School: University of Medicine and Helath Sciences

Clerkship Director: Sarwan Kumar, MD, FACP

Presenter: Arjun Bharadwaj

Additional Authors: Ankita Aggarwal MD, Anubhav Jain MD, & Nishit Choksi MD, FACC

Assessing the Reliability of Measured Activated Clotting Time Device in Cardiac Catheterization

Background: The current method of assessing the degree of anticoagulation during cardiac catheterization is Activated Clotting Time (ACT).

The purpose of this study is to assess the reproducibility of ACT measurement with two similar devices (Hemochron Signature Elite (HSE)).

Method for assessment was through a prospective study in which blood samples were collected, before and after heparin administration of 23 patients who underwent cardiac catheterization. Samples were tested for ACT using two HSE devices simultaneously. 2 Tailed, Paired T-test was done to compare mean ACT of the two HSE devices. Correlation testing was determined using a scatter plot. Limit of Agreement (LoA) was determined using the Bland Altman plot and t-test.

Results of 46 sample sizes showed a mean of 231 vs 248, $r = 0.92$, & p-value 0.02 for both before and after heparin administration, which is determined to be a statistically significant correlation. There is a significant inconsistency with a mean bias of 11.1, with 95% CI 0.77 to 24.9 and LoA were -35.8 to 58.1. Reliability was 30% in between devices with more than 10% difference in 30% of the paired samples and more than 20% difference in 9% of the samples.

In conclusion, 2 similar HSE devices showed a significant correlation with ACT measurement but inconsistency exists which might be due to the fact neither device's data is interchangeable between them or reproducible. Further studies are needed to assess the reliability and validity of ACT devices which may affect clinical decisions and patient outcomes.

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Marc Gutierrez

Additional Authors: James Brian Byrd (MD, attending), Benjamin Beduhn (MD, resident)

Basic Breathing: Use of a Non-Rebreather Mask to Resolve Respiratory Alkalosis

A 71 year old man with non-small-cell lung carcinoma, managed on pembrolizumab, and heart failure with reduced ejection fraction was transferred to the ICU after stabilization from cardiogenic shock. Two days after transfer, he developed pain in his left femur, tachypnea, and altered mental status (AMS). Physical examination revealed expressive aphasia and decreased orientation. X-ray of the left hip demonstrated known metastasis without a new fracture. CT revealed no intracranial mass or blood. Brain MRI lacked signs of cerebritis, of concern because of pembrolizumab. Arterial blood gas (ABG) showed pH 7.72, pCO₂ 18 mmHg, bicarbonate 24 mmHg, pO₂ 84 mmHg, and lactate 1.8 mmol/L. His worsening respiratory alkalosis prompted transfer to the ICU. A non-rebreather (NRB) mask was used with 3L oxygen for 4 hours to increase CO₂ retention while avoiding hypoxemia. ABG was repeated every 90 min. His AMS improved over 24 hours as his alkalosis resolved.

This patient's AMS was likely related to respiratory alkalosis. The differential diagnosis included: hyperventilation due to acute hip pain, over-exuberant treatment of metabolic acidosis during shock and CNS pathology. Acute hypocapnia results in AMS from cerebral vasoconstriction, as cerebral blood flow is directly proportional to PaCO₂. For patients who are not mechanically ventilated, treatment of respiratory alkalosis focuses on addressing the underlying cause: pain management, sedation, anxiolytics or reassurance. Just as with breathing into a paper bag, treatment of acute hypocapnia with a NRB requires careful monitoring of the patient's oxygenation and should be avoided in the setting of myocardial ischemia.

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Ali Hammoud

Additional Authors: Kevin Karlic, Helena Schotland

Bleomycin-Induced Lung Injury: A Case of Acute Respiratory Failure

Introduction:

Bleomycin is a DNA synthesis inhibitor used in the treatment of germ cell tumors. Bleomycin-induced lung injury (BILI) is well-documented and is likely related to free-radical formation. Risk factors include renal dysfunction, increased age, and cumulative dose. BILI frequently presents with dry cough and dyspnea.

Case Presentation:

A 48 year-old male with stage IIC seminoma, status-post three cycles of bleomycin/etoposide/cisplatin presented to the ED with acute limb ischemia due to arterial thrombosis and incidentally noted bilateral pulmonary emboli. Notably, the patient had developed dyspnea two weeks prior to admission. After undergoing surgical management and subsequent systemic anticoagulation, he oxygenated well on room air. On post-operative day 2, he required supplemental oxygen. His oxygen requirements initially improved with IV diuresis. However, despite continued diuresis, his oxygen requirements began climbing again, requiring transfer to the ICU for non-invasive ventilation. Chest CT angiography demonstrated new ground glass opacities and unchanged pulmonary emboli. Due to increasing concern for BILI versus infection, corticosteroids and antibiotics were initiated. Despite significant hypoxia, the patient denied shortness of breath and refused intubation. On post-operative day 10, he was intubated for worsening hypoxia. Of note, physical examination revealed signs of barotrauma with subcutaneous emphysema prior to intubation. He died on post-operative day 12.

Discussion:

Due to the non-specific presentation and difficulty in diagnosing BILI, early consideration and treatment is essential. Treatment of BILI includes discontinuation of Bleomycin, treatment with corticosteroids, and supplemental oxygen with or without non-invasive or invasive ventilation in the setting of hypoxia.

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Clare Jacobson

Additional Authors: Carmel Ashur M.D., Letitia Pirau M.D., Marcus Geer M.D.

Diagnosis of Chronic Pulmonary Aspergillosis from Clinical and Radiologic Evidence Alone

Introduction

Pulmonary aspergillosis commonly mimics malignancy when performing lung cancer screening with FDG-PET. Diagnosis of chronic pulmonary aspergillosis typically requires radiologic findings, systemic symptoms, and direct evidence of *Aspergillus* infection.

Case Presentation

A 74-year-old man presented with a several month history of bilateral leg pain, weakness, paresthesias, 30 pound weight loss, and fatigue. Relevant history includes a 240-pack-year smoking history, employment as a brick mason, and COPD. He had no change to his chronic cough and infrequent bloody sputum. On exam he appeared cachectic but non-toxic, breathing comfortably on room air. He had no palpable lymphadenopathy and lungs were clear to auscultation. CT and PET imaging demonstrated an FDG avid mass in the RLL of the lung with several other nodular opacities. EBUS/BAL demonstrated no evidence of metastatic carcinoma in hilar nodes. Fungal sputum cultures, aspergillus EIA, and Fungitell were all negative. CT-guided-biopsy of the RLL was planned but aborted after prone imaging demonstrated a round, mobile mass within a thin-walled cavity. Aspergilloma was subsequently diagnosed. Repeat CT at 4 months showed consolidation of the cavity with an interval decrease in size.

Discussion

When assessing the need for biopsy, the risk of disseminating the likely aspergilloma outweighed the probability of dangerous malignancy. This case demonstrates that diagnosis of aspergillosis can be made in the appropriate clinical setting with a CT scan showing a mobile mass within a cavitory space. Confirming diagnosis with radiologic and clinical findings alone limits the need for invasive and potentially harmful diagnostic interventions.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 40

Category: Clinical Vignette

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Tochukwu Ndukwe

Additional Authors: Elizabeth Scruggs, MD & Sarah Hartley, MD

Syphilis: A Disease that Catches the Eye

Case Presentation: A 37-year-old man with a past medical history of long-standing HIV (viral load 10,000, CD4 200) not on antiretroviral therapy and uncontrolled HTN presented with hypertensive emergency and bilateral papilledema. Patient previously had a 3 month history of decreased vision with unknown cause. On admission, BP 202/136, HR 107, and exam notable for oropharyngeal thrush with rest of exam being normal. Neuro-ophthalmology recommended infectious workup for papilledema and a lumbar puncture. His workup was significant for a positive RPR with high titers 1:512, positive treponemal antibody and normal LP results with VDRL CSF negative. Infectious Disease recommended starting IV penicillin for 14 days due to concern for both ocular syphilis and neurosyphilis.

Discussion: Papilledema is a marker of elevated intracranial pressure and while it can be associated with hypertensive emergency it occurs in other disease states. In this patient, a broader differential diagnosis was considered due to history of decreased vision and underlying immunodeficiency related to his HIV. Ocular syphilis is classified as an early form of neurosyphilis with papilledema being one presenting sign. Infectious etiologies like syphilis should be considered for patients with papilledema especially for patients with HIV. Early appropriate treatment is critical to manage visual symptoms.

Conclusion: In cases of early signs of neurosyphilis, patients may present with visual symptoms. It is important for physicians to be aware of the potential visual complications related to syphilis infection. Prompt identification of ocular syphilis is critical to prevent and manage sequelae of ocular and neurosyphilis.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 41

Category: CQI/EBM

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Cayla Pichan

Additional Authors: Cassidy D. Merklen, Clare E. Anderson, Lillian C. Min, MD; Mary C. Blazek, MD, MEHP

GET Access: Geriatric Education on Telehealth. A Covid-Driven Initiative to Improve Virtual Care Access for Geriatric Patients

Introduction: The Covid-19 pandemic placed an unprecedented demand on health systems to rapidly shift ambulatory in-person care to virtual care. Geriatric patients face more challenges with video visit access compared to younger patients due to discomfort with technology and less access to devices and internet. Thus, it is a priority to enhance remote connections between geriatric patients and their providers.

Objectives: Medical students created an initiative to improve access to and comfort with video visits for geriatric patients. Goals were 1) explore options for the delivery of personalized training to older adults, 2) create materials for volunteers to successfully navigate conversations with patients and caregivers, 3) provided patients one-to-one remote guidance, identifying and overcoming barriers, with practice sessions to increase comfort, 4) share with the larger health system, and 5) ensure sustainability.

Results: We created a 28-page manual and trained 26 volunteers to provide remote guidance to patients in an effort to convert phone to video visits. Evaluation compared video vs telephone visits over a 10-week period. Intervention visits were visits conducted by a provider after GET Access support began, compared with visits with the same providers, prior to support. Averaged over the 10 weeks of the program, intervention visits were video format 43% of the time compared to 19.2% before participation (adjusted OR 3.38 [95% CI 2.49, 4.59]).

Conclusion: A program dedicated to personalized virtual technological instruction and practice helped geriatric patients transition from phone to video visits, to provide a platform for stronger connection with their providers.

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Morgan Pike

Additional Authors: Dr. John Schmidt

Mycoplasma Induced Rash and Mucositis (MIRM)

L.M. is a 9 y.o. previously healthy male who presented with 5 days of oral and penile ulcers. He initially developed ulcers on his mouth along with swelling and pain in his lips that led to erosions. His PCP diagnosed herpetic gingivostomatitis and recommended supportive care with tylenol and motrin to help with pain and a lot of fluids to keep him hydrated. Over 3 days, the oral ulcers then progressed from his lips, to the inside of his mouth, throat, and later to the glans of his penis. He also had low-grade fevers with a Tmax 100F. He was able to drink fluids but food intake was restricted by pain. Also, he had one week ago of URI with cough, and congestion. At UM ED, he was given fluids, a dose of oral acyclovir, ibuprofen, acetaminophen, and Benadryl and was admitted to the general pediatrics service. Oral and genital ulcers initially presumed to be due HSV gingivostomatitis with genital ulcers possibly secondary to self-inoculation and treated empirically with acyclovir while awaiting HSV swabs, which returned negative and acyclovir was discontinued. ID and Derm were consulted for suspected mycoplasma induced rash and mucositis (MIRM) given recent illness although RPAN negative. A mycoplasma pneumoniae antibody IgG and IgM was obtained, but given that Landon was otherwise ready for discharge and benign nature of antibiotic, recommended empiric treatment with azithromycin standard 5-day course and oral dexamethasone solution swish and swallow for 2 weeks. M pneumoniae antibodies IgM/IgG were both later positive.

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Marc Schlessel

Additional Authors: Dr. Nicole Grogan, Dr. Alice Cusick

Elevated Ferritin and a Case of Histoplasmosis-Induced Hemophagocytic Lymphohistiocytosis

Introduction: A 56-year old woman with a history of lupus presented with fevers, shortness of breath, and elevated ferritin. It is essential for an internist to be able to recognize the differential diagnosis for hyperferritinemia, which includes hemophagocytic lymphohistiocytosis (HLH). Since treatment for secondary HLH is geared towards treating the underlying cause, failure to recognize a diagnosis of HLH based on elevated ferritin may lead to treatment delay.

Discussion: The patient presented with three weeks of fevers. She was found to be severely hypoxic and was started on broad spectrum antibiotics but did not clinically improve. Her ferritin was 14,964. Causes of markedly elevated ferritin include infection, malignancy, autoimmune disease (including SLE), iron overload, liver disease and HLH. This patient's SLE was well controlled. Evaluation for common infectious pathogens was negative. As such, we considered a diagnosis of HLH. Criteria for HLH, in addition to ferritin > 500, include fever, splenomegaly, cytopenia, hypertriglyceridemia, evidence hemophagocytosis, diminished NK cell activity, and elevated soluble CD25 (IL-2 receptor). Our patient met >5 of 8 criteria and was started on steroids. Primary HLH is unusual in adults. Secondary HLH arises from systemic illness such as autoimmune diseases, malignancy, or disseminated infection. The etiology is important because secondary HLH is best treated by addressing the underlying cause, while treatment of primary HLH includes chemotherapeutic agents. A bone marrow biopsy led to the discovery of hemophagocytosis and histoplasmosis in the bone marrow. The discovery of disseminated histoplasmosis allowed for proper treatment with amphoterecin B.

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Melinda Song

Additional Authors: Jordan Maxey, Matthew Pianko

Thrombotic Thrombocytopenic Purpura in a Critically Ill Patient: A Case Report

A 29-year-old man presented to an urgent care center with fevers, chills, and fatigue. His history included immune thrombocytopenic purpura treated with splenectomy at age 4 without appropriate vaccination. Following a positive nasal swab for influenza B, he was prescribed oseltamivir. One week later, he presented to the emergency department with progressive fevers and chills associated with dyspnea, chest pain, watery diarrhea, and bilateral leg weakness. Peripheral blood cultures demonstrated *Streptococcus pneumoniae* bacteremia. Despite clearance of blood cultures, he developed progressive thrombocytopenia from 37,000 to 8,000/uL, which persisted despite multiple transfusions. He also developed mild hemolytic anemia. His thrombocytopenia was attributed to bone marrow suppression from critical illness. However, he also remained persistently febrile. Antibiotic coverage was broadened, and an exhaustive infectious workup was unrevealing. Non-contrast head CT showed multiple hypodense areas, with subsequent brain MR notable for multifocal infarcts of varying ages. ADAMTS13 activity level measured 5% with an inhibitor level of 42%. Therapeutic plasma exchange was initiated, and the patient's platelet count normalized within two days. Recognition of the classic signs and symptoms of thrombotic thrombocytopenic purpura (TTP) can be particularly challenging in critically ill patients. Nonetheless, timely diagnosis is critical, as initiation of therapeutic plasma exchange (TPE) has been estimated to decrease mortality rates from 90% to 22%. This case illustrates that TTP is ultimately a clinical diagnosis and should be considered in critically ill patients with severe refractory thrombocytopenia. Infection and TTP should be considered concurrently in the appropriate clinical scenario.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 45

Category: Research

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Katherine Wolf

Additional Authors: Jenae Osborne, Tobias Else

Adrenal Cancer Might be a Rare Manifestation of Birt-Hogg-Dubé Syndrome – A Case Series and Literature Review

Birt-Hogg-Dubé Syndrome (BHDS) consists of fibrofolliculomas/trichodiscomas, renal tumors, lung cysts, and spontaneous pneumothoraces. Reports have linked BHDS with other cancers, but none are formally recognized. A literature review revealed four patients with malignant adrenal tumors. We describe three additional unreported cases, two highly suspicious patients based on clinical presentation awaiting genetic evaluation, and an update on a previously reported patient with an oncocytic adrenal tumor. Four patients with adrenal tumors and germline FLCN mutations or a clinical history suspicious for BHDS (2) were identified. Of the confirmed cases, one was previously reported by our institution. Age of diagnosis (AD) ranged from 32-66 years with a mean AD of 50.8 years. There was no difference in sex distribution (3M, 3F) and all patients identified as Caucasian. Biochemically, three cases had confirmed non-functional tumors, two were not assessed preoperatively, but reported no symptoms or history of hormone excess, and one was cortisol producing. Histologically, five were confirmed adrenocortical carcinoma (ACC) with one oncocytoma. Four patients developed metastatic disease requiring systemic chemotherapy and/or radiation. There are now seven confirmed malignant adrenal tumors in patients with BHDS, raising suspicions that these tumors might be a part of the BHDS tumor spectrum. When BHDS patients are screened for renal malignancies, special attention should be paid to the adrenal glands. Adrenal nodules should not be ignored as >50% of reported cases developed metastatic disease. Given the likely association with BHDS, testing for FLCN pathogenic variants should be considered during the genetic evaluation of ACC patients.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 46

Category: CQI/EBM

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Fouad Abdole

Additional Authors: Kathren Shamgo, Dr.Meena Moossavi, Sarah gonzalez.

Skin of Color Dermatology Education

Medical education in dermatology remains an important part of all pathophysiology curriculums. The field of dermatology has the potential to impact people's quality of life and having well educated medical professionals is vital to address healthcare needs of people. We created a module that focuses on pathologies on darker skin tones as we have determined that the current dermatology curriculums may not have sufficient training for detecting pathologies of darker skins. Because Detroit has a large African American population the goal of this module was to increase confidence in medical students in detecting pathologies in darker skin tones. This module was added to suplemant We assessed this with a survey after the module assessing confidence. The module was implemented into the course with more than thirty responses so far. Data analysis is still being done as we are still getting more responses.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 47

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Madeline Adelman

Additional Authors: Alexis B. Lyons MD, Iltefat H. Hamzavi, MD

A Retrospective Cohort Study of Infliximab Adverse Reactions in Patients with Hidradenitis Suppurativa

Hidradenitis suppurativa (HS) is a complex, painful chronic inflammatory skin disease in which successful treatment remains a challenge. Adalimumab, a human monoclonal antibody to tumor necrosis factor (TNF), is the only Food and Drug Administration-approved treatment for HS. Reports of successful HS treatment with infliximab, another anti-TNF, have also been described;^{1,2} however, large randomized, controlled clinical trials are lacking. For this reason, the purpose of this retrospective study was to determine the outcomes of patients with HS who were treated with infliximab. The overall reported incidence of infusion-related reactions to infliximab varies greatly. Our patient population had infusion reactions to infliximab consistent with or even higher than previously reported infusion reaction rates which should prompt physicians to be mindful of this possibility when prescribing infliximab. More studies with longer follow-up are needed to further elucidate risk factors, pathogenic mechanisms, and prophylactic management of infliximab infusion reactions.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Abdelwahab Ahmed

Additional Authors: Abdullah Najj, Victoria Golas, Anita Patel

A Rare Case of Collapsing Focal Segmental Glomerulosclerosis Caused by Cytomegalovirus in a Renal Transplant Recipient

We present a case of a 55-year-old Caucasian male status-post kidney transplant that developed secondary focal segmental glomerulosclerosis (FSGS) and focal thrombotic microangiopathy of the glomeruli due to cytomegalovirus (CMV) infection. The patient presented with lower extremity edema, hypotension, and complaints of diarrhea which were concerning for an acute kidney injury. Urinalysis revealed nephrotic range proteinuria and an increase in creatinine to 2.3 from a baseline of 0.8. Work-up for proteinuria was negative for compliment, SPEP, HIV, as well as an unremarkable transplant ultrasound. However, CMV PCR revealed elevated titers to 33,497IU/mL compared to 94 IU/mL measured a month prior. The results were concerning for rejection and the patient was subsequently started on Solumedrol 500mg and Ganciclovir 5mg/Kg. Renal biopsies were obtained that revealed collapse of the glomeruli with reactive podocytes and thrombosis within the glomerulus. This was investigated further with electron microscopy which unveiled a diffuse podocytopathy. Further, immunohistochemistry was positive for CMV. The patient's kidney function continued to improve on IV ganciclovir and was eventually switched to oral valganciclovir. CMV is a known cause of infection in solid organ transplant patients but it rarely affects the kidney and even more rarely causes FSGS and focal thrombotic microangiopathy. Our case had added to the limited but mounting knowledge of CMV-associated FSGS formation in renal transplant patients with the first recorded case of immunohistochemical evidence of CMV. Our patient had complete recovery following treatment and resumed baseline renal function and nephrology features.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 49

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Noel Akioyamen

Additional Authors: Mohammad Sattar, MS, Allen Kadado, MD, Nicole M Mott, BS,
Theodore W. Parsons, MD, Michael P. Mott, MD

Painful Total Hip Arthroplasty as the First Sign of Metastatic Breast Carcinoma in a Man

Case: A symptomatic, mechanically unsound total hip arthroplasty presented as the first sign of metastatic breast carcinoma in a male. He was successfully managed non-operatively with component retention, radiation therapy, bisphosphonates, and chemotherapy. Follow up at four years confirmed excellent clinical and radiographic results.

Conclusion: In a patient with new-onset mechanical pain secondary to metastatic disease at the site of a previously well-functioning total hip arthroplasty, component retention and oncologic management may offer good clinical and radiographic outcomes. Current classification systems for periprosthetic proximal femur fractures can be modified and extrapolated to help guide treatment strategies in patients with periprosthetic metastatic disease.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 50

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Joshua Brady

Additional Authors: Reem Kashlan, Meena Moossavi

The Epidemiology of Melanoma in Wayne County: A Preliminary Analysis of Racial Disparities

Objective: Although individuals of lighter skin tones are more likely to develop melanoma, studies have found that African American populations have a worse prognosis than their Caucasian counterparts. Many epidemiological analyses have been done assessing the general characteristics of melanoma nationally and the racial disparities surrounding this malignancy, but a specific study outlining the regional characteristics of Wayne County has yet to be done.

Methods: The Surveillance, Epidemiology, and End Results database was used to populate a cohort of 3,922 patients diagnosed with melanoma from 2000-2016 in Wayne County.

Results: Of the 3,922 patients diagnosed with melanoma from 2000-2016 in Wayne County, the racial distribution consisted of 96% white, 2.6% black and 1.25% classified as other or unknown. The stage of diagnosis for the entire cohort was reported as 3252 (82.9%) localized, 386 (9.8%) regional and 191 (4.9%). When stratified by race, black patients had a higher rate of regional and distant tumors (21.5% and 22.5% respectively) than white patients (9.6% and 4.5% respectively). A chi squared analysis on this variable outlined a statistically significant difference in stage of diagnosis between white and black patients. A t-test outlined a statistically significant difference in survival months between white and black patients ($p < .001$).

Conclusion: Despite higher incidence of melanoma among Caucasians in Wayne County, prognosis for black patients is worse as indicated by stage of diagnosis and survival months. Standardized protocols and local programs need to be in place to improve health literacy and education among these patients to identify melanoma earlier and improve overall outcomes.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Connor Buechler

Additional Authors: Hammad Ali, Diane Levine

Warm Autoimmune Hemolytic Anemia in the Setting of Chronic Macrocytic Anemia, Rectal Blood, and Red Urine

Warm autoimmune hemolytic anemia (AIHA)'s infrequency at an annual incidence of 1-3/100,000, combined with its often-idiopathic cause and any concurrent causes for anemia, can make it a diagnostic challenge. We present a 72-year-old gentleman with chronic macrocytic anemia due to hepatitis C and alcoholism (now abstinent), hemorrhoids, atrial fibrillation, and prostate cancer in remission after brachytherapy. The patient complained of "dizziness and weakness" for two weeks with red/brown urine and bright red blood per rectum. His current medications included rivaroxaban and aspirin, and he had recently been treated for urinary tract infections with trimethoprim-sulfamethoxazole and cephalexin. Fecal occult blood was present, urine dipstick was 2+ for blood, and hemoglobin was 6.1 g/dL. He was tentatively diagnosed with acute-on-chronic anemia secondary to hematuria and hematochezia, with consideration given to liver failure and aplastic anemia given multiple risk factors. However, further investigation revealed no frank blood on rectal exam, a recent unremarkable colonoscopy, lack of urinary erythrocytes, normal liver synthetic function, and reticulocytosis. Indirect bilirubinemia prompted concern for AIHA, bolstered by decreased haptoglobin, increased LDH, and polychromatic spherocytosis. Coombs test revealed 3+ IgG with negative c3, establishing the diagnosis. Corticosteroids stabilized his hemoglobin. This case illustrates delayed diagnosis of AIHA in the setting of comorbidities that are more widely discussed or common causes of acute anemia in the hospital. Although AIHA is rare, it is a predictable sequela of antibiotic treatment. Early recognition is critical in fragile and medically complex patients, as up to 30% of patients achieve remission with timely immunosuppression.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Fiona Clowney

Additional Authors: David Gelovani, MD, Abigail Entz, MD

A Late Presentation of Systemic Lupus Erythematosus Captured in an Anemia Work-Up

1. Recognize the importance of full work-up for anemia
2. Assess patients' health care needs to improve outcomes

We present a case of SLE discovered during evaluation of severe anemia. A majority of patients with SLE initially present with nonspecific symptoms rather than the classic malar rash. Clinicians have continually improved their time to diagnosis, contributing to improved outcomes.

A 44-year-old Hispanic, uninsured female presented with 7-month history of episodic tachycardia with shortness of breath. She also reported a one-year history of intermittent facial rash, raynaud phenomenon, arthralgias and fatigue. Blood work was significant for hemoglobin of 4.1 with high MCV, reticulocytes, and troponins. Hemoglobin showed minimal rise on receipt of RBCs. Work-up revealed hemolytic anemia with positive anti-IgG, ANA, dsDNA, and low complement levels. High dose corticosteroids were begun.

The patient was found to meet criteria for SLE and had pericardial and pleural effusions and nephrotic range proteinuria. Renal biopsy demonstrated Lupus Nephritis. In light of the additional findings mycophenolate and hydroxychloroquine were started. Patient experienced symptom improvement and was discharged.

SLE is difficult to diagnose, yet early treatment is critical to patient well-being. In this case, analysis of anemia may have decreased the lag time between onset and treatment. Lupus Nephritis occurs closer to diagnosis in Hispanic and African-American patients versus Caucasians. ESRD is more likely to develop in patients with low socioeconomic status. Necessary close follow-up is limited for the uninsured. Early diagnosis and treatment tailored to insurance status will improve patient outcomes in SLE.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Sawsan Edriss

Additional Authors: Sawsan Edriss, MD Candidate, BS; Cardell Louis, MD Candidate, BSME; Michael Yacoub, MD; Tarik Hadid, MD, MPH, MS

A Case of Confused Leukemia: CML or AML?

Background

A diagnosis of acute myelogenous leukemia (AML) requires at least 20% myeloblasts in the bone marrow or peripheral blood unless diagnostic genetic abnormalities are detected. Chronic myelogenous leukemia (CML) is characterized by the presence of BCR-ABL fusion gene in the setting of leukocytosis. Accelerated-phase and blast-phase CML are rare. Blast-phase CML, also known as blast crisis, is characterized by the presence of at least 20% of blasts in marrow or peripheral blood, large clusters/foci of blasts on bone marrow biopsy, or evidence of extramedullary blastic infiltrates.

Case Description

A 32-year-old woman presented with headache for 2 weeks. A brain CT revealed no acute process. CBC revealed hemoglobin of 5.6 gm/dL and leukocytes of 15,000 /mcl. PBS showed 20% blast cells with Auer rods and eosinophils. Iliac bone marrow biopsy showed 72% myeloblasts, promyelocytes, and 10% eosinophils. Assuming APL, all-trans retinoic acid (ATRA) was initiated but discontinued when t(15;17) returned negative. Cytogenetic analysis revealed a t(9;22) consistent with CML in blast crisis. This patient was given dasatinib prior to stem cell transplantation.

Discussion

This patient's bone marrow testing meets the diagnostic criteria for both AML and CML. The presence of >20% blasts in bone marrow suggests AML. The myeloid shift, BCR-ABL translocation, and eosinophils support CML. The diagnosis of CML in blast crisis is made. CML in blast crisis responds to tyrosine kinase inhibitors (TKI) for short-lived remission. Stem cell transplantation is essential to remission. This case highlights the importance of a prompt, accurate diagnosis in order to administer effective therapy.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Bassem Farah

Additional Authors: Nabil Al-Kourainy MD, Kyal Lalk, Diane L. Levine MD

Takotsubo's Cardiomyopathy in a Cancer Patient as a Result of "Bad News"

Takotsubo Cardiomyopathy (TCM) is a transient systolic ventricular wall dysfunction with characteristic wall abnormalities and symptoms of acute heart failure. It is most commonly seen in older women who experience emotional stress. However, it is an important disorder to consider in patients receiving distressing news.

A 44 year-old-woman with unresectable stage IV metastatic sarcoma of the pelvis, refractory to treatment with evidence of progression, was admitted for ifosfamide salvage chemotherapy. The patient had only recently been informed of her disease progression. On admission she was dyspneic and tachycardic. Echocardiographic (TTE) evaluation revealed an estimated left ventricular (LV) ejection fraction (EF) of 35-40% with predominantly global dysfunction and basal segment sparing. Potential etiologies for echocardiographic findings included chemotherapy-induced cardiomyopathy due to doxorubicin, ischemia, and tachycardia-mediated cardiomyopathy. Over the next ten days, dyspnea improved and repeated TTE revealed restoration of EF with no regional wall motion abnormality. A diagnosis of TCM was made. The patient's cardiac symptoms resolved but her disease progressed. She was transitioned to hospice and died three weeks later due to complications from cancer. In our patient, the transient nature of symptoms and TTE findings ruled out cardiomyopathy due to doxorubicin exposure and other etiologies. We believe receiving the news of disease progression led to TCM. In contrast to anthracycline induced cardiomyopathy, TCM is reversible. This case illustrates how severe emotional distress can induce TCM. It is important to be aware of this potential consequence when delivering bad news to cancer patients to ensure they receive adequate supportive care.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Aria Ganz-Waple

Additional Authors: Nikhil Gandhi DO, Ziad Kafri MD

There's Something FISHy About this Asthma

The diagnosis of Acute Myeloid Leukemia (AML) can often be challenging as its presentation is highly variable. A retrospective trial showed that the most common presentations include fever (71.9%) and generalized weakness (45.4%) with women less likely than men to develop it (39.6% vs. 60.4%).¹

We present a 29-year-old female with past medical history of asthma and uterine fibroids who came into the emergency department with complaints of dyspnea, chills, headaches and myalgias for two days. She initially attributed her symptoms to a viral illness but became increasingly concerned as her symptoms worsened. Initial vital signs were significant for hypoxia, tachypnea, and fevers of 101F. Physical exam was significant for diffuse wheezing. Laboratory evaluation revealed an anemia and thrombocytopenia with mild leukocytosis. Initial workup including rapid flu, strep test and chest radiograph were negative. Despite appropriate treatment for asthma, there was minimal improvement. During the hospital course, she reported menorrhagia and her white count became extremely elevated. The patient was found to have nontender axillary lymphadenopathy and hepatosplenomegaly. Blood cultures, viral antigens, and CSF cultures were negative. Oncology recommended bone marrow biopsy, which revealed hypercellular marrow with over 68% myeloblasts concerning for AML. This diagnosis of AML with inversion 16 was confirmed by FISH analysis and the patient was started on chemotherapy.

This case is especially unique as AML is typically a disease of elderly males with risk factors including environmental factors or familial disorders. Prompt initiation of appropriate chemotherapy is crucial for increasing survival, especially in this oncological emergency.²

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Megan Harrison

Additional Authors: Abigail Entz MD, Daniel Moore MD

Leukocytoclastic Vasculitis Associated with Late Sternotomy Infection

LEARNING OBJECTIVES

1. Identify causes of leukocytoclastic vasculitis
2. Learn treatment of infection-associated leukocytoclastic vasculitis

CASE

We present the case of a 45-year-old female with uncontrolled diabetes, dermatomillia and remote idiopathic pericarditis treated with pericardial window who presented with pain and swelling underneath her sternotomy scar. She then developed a pruritic rash on her extremities.

On presentation patient was afebrile with impressive fluctuance of skin surrounding her sternotomy scar. She also had violaceous, raised papules on her extremities. CT demonstrated a large abscess around her sternal bone. Labs were significant for an erythrocyte sedimentation rate of 130, C-reactive protein of 13.1, antinuclear antibody (ANA) to 1:320 with speckled pattern, and white blood cell count of 10.1. ANCA, cryoglobulins, hepatitis panel, complement levels, and dsDNA were all unremarkable. Skin biopsy with direct immunofluorescence revealed a pattern consistent with leukocytoclastic vasculitis (LCV). Wound aspiration grew methicillin susceptible *Staph aureus* (MSSA), and blood cultures were negative. She experienced relief of symptoms after treatment with antibiotics.

DISCUSSION

LCV can be secondary to an underlying process idiopathic (45%-55%), infection (15%-20%), inflammatory disease (15%-20%), drug intake (10%-15%), and malignancy (<5%). This case illustrates vasculitis as an immunological response to MSSA infection. Immunosuppression from her poorly controlled diabetes and dermatomillia may have contributed.

CONCLUSION

This case highlights the value of considering a relationship between underlying infection and vasculitis. The treatment of vasculitis in the setting of an infection is simply treatment of the underlying condition.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 57

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Luke Horton

Additional Authors: Susan John,

Neelima Thati

Vasoactive intestinal peptide tumors (VIPomas) are a rare subset of neuroendocrine tumors that typically arise in the pancreas. VIPomas produce vasoactive intestinal peptide (VIP) that causes gastrointestinal vasodilation and smooth muscle contraction, leading to the development of diffuse, watery diarrhea in affected patients. These GI losses can lead to dehydration and severe electrolyte abnormalities, typically, hypokalemia, hypochlorhydria, hypomagnesemia, and hypercalcemia. Here, we present a rare case of VIPoma in a 40-year-old woman refractory to medical, surgical, and ablative management presenting with unusually severe electrolyte abnormalities, including hypocalcemia, despite supplementation – necessitating creative and aggressive electrolyte supplementation and the use of calcitriol for its treatment. To the authors' knowledge, this is the first such case utilizing calcitriol for the treatment of VIPoma. Further, this patient had failed the typical therapeutic modalities, necessitating a creative treatment regimen for symptomatic control.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Inara Ismailova

Additional Authors: Vichar Trivedi, Khaled Almadhoun DO, Jasmine Omar MD

An Atypical Presentation of Liposarcoma: Primary involvement of the liver with secondary metastatic seeding

A 61-year old male with PMH significant for gastric bypass, anxiety/depression, and previous alcohol abuse, presented to the ED with 10-day history of SOB and abdominal distention. He endorsed difficulty taking deep breaths, urinating, and bowel movements. He denied any unexplained weight loss, night sweats, or history of ascites. Physical exam revealed abdominal distension and tenderness. Hepatitis screen, AFP, CEA, and CA19-9 were negative. AST, ALT, total bilirubin, and alkaline phosphatase were all WNL. CT imaging demonstrated pleural effusion with atelectasis, large amounts of ascites with mesenteric stranding, and a 7cm mass of unknown etiology adjacent/medial to the liver. CT-guided biopsy of the perihepatic mass was consistent with well-differentiated liposarcoma. IR-guided biopsy of the omental mass demonstrated de-differentiated liposarcoma, FNCLCC grade 2. Colonoscopy to assess second primary tumor found three polyps demonstrating tubular adenoma. The patient was diagnosed with metastatic primary liposarcoma of the liver.

Soft tissue sarcomas comprise ~1% of all malignancies in adults. The majority of these arise from primarily soft tissue, with bone as the next closest site of involvement.

Liposarcomas are a subclass of soft-tissue sarcomas, arising from precursor adipocytes. Their primary focus is in the retroperitoneum and extremities. A liposarcoma with primary involvement of the liver is very rare. If the liver is involved it is usually from distant metastasis rather than a primary focus, though that is also rare. With only about a dozen cases of primary liver liposarcoma reported in the literature, the knowledge of the clinical course, management, and prognosis are limited.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Janice Lau

Additional Authors: Falgun Patel, MD

AdDRESSing Rash as a Symptom of Angioimmunoblastic T-Cell Lymphoma

Angioimmunoblastic T-cell lymphoma (AITL) is a rare and aggressive form of non-Hodgkin lymphoma. Cutaneous manifestations of AITL are common, but often misdiagnosed, thus delaying treatment.

A 79-year-old man with gout was feeling well until 18 months prior to admission (PTA) when he developed a diffuse, morbilliform rash. He was diagnosed to have Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS) thought to be due to allopurinol. Allopurinol was discontinued. He was treated with steroids for this and three subsequent flares with good response. 10 months ago, the rash flared again, but persisted despite steroid treatment. One month PTA, skin biopsy demonstrated perivascular infiltrate with eosinophils, consistent with DRESS syndrome, but an axillary node biopsy two weeks later revealed AITL. Two weeks PTA, the patient developed a fever and productive cough. On admission he was hypotensive, tachypneic, tachycardic, and febrile with a worsening, pruritic rash.

Without a source for the fever, symptoms were attributed to AITL. His condition rapidly deteriorated. He was transferred to the ICU and intubated. He received one cycle of chemotherapy (CHOP) but remained hemodynamically unstable. He died 5 days after his admission, 2 weeks after the diagnosis of AITL, and 18 months after the initial rash presentation.

AITL is a rare malignancy. Cutaneous manifestations can be the presenting problem. This case demonstrates the importance of prompt and accurate diagnoses. Recognizing that rash is a symptom of AITL and differentiating it from DRESS is crucial and should be suspected when rash relapses or is refractory to steroid treatment.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Eric Lisznyai

Additional Authors: Stephanie Phillips M.D., Kajali Mishra M.D., Sean Drake, M.D.

Copper Deficiency Myeloneuropathy: An Atypical Presentation of Guillain-Barré Syndrome

Copper (Cu) deficiency myeloneuropathy due to acquired Cu-deficiency is both rare and debilitating. Patients classically present with anemia, leukopenia, gait disorders, sensory ataxia, and impaired vibration/position sense. Common etiologies include gastric surgery, zinc (Zn) overconsumption, dietary deficiency and gastrointestinal malabsorption. We present the case of a 63 y.o. woman with history of limited-stage small cell lung cancer in complete remission (6 months), COPD, and hypertension complaining of shortness of breath, weakness, paresthesias of bilateral upper/lower extremities, increasing difficulty grasping objects, and increasing gait impairment resulting in multiple falls over the previous 2 months. Initial workup at outside hospital demonstrated normal MRI Brain, C-spine, T-spine, and L-spine, normal lumbar puncture, benign CSF cytology, and negative paraneoplastic labs (ACh-R-antibody and VGCa2+Ch-antibody). After transfer to our hospital, EMG showed diffuse demyelinating polyradiculoneuropathy of the arms/legs. Due to concerns for a Guillain-Barré Syndrome variant, she underwent plasmapheresis (IVIg was not considered with history of cancer). The patient's condition deteriorated, and repeat EMG showed worsening of her polyradiculoneuropathy. Neurology recommended vitamin/metal deficiency labs. Cu level was 473 ug/L (reference range 810 - 1,990 ug/L) and she was given Cu and Vitamin B6 supplementation with instructions to avoid Zn. Our patient's strength and sensation improved, and she was discharged to a subacute rehabilitation facility. While Cu-deficiency is uncommon and insidious, it is important to consider in patients with ascending motor paralysis, gait issues, and sensory loss. Cu supplementation prevents further neurologic deterioration but provides variable improvement of neurologic symptoms; overall, sensory deficits respond best to treatment.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 61

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Lucia Luna Wong

Additional Authors: D. Quan, A. Shallal, R. Madan, A. Hamdan, H. Ahdi, A. Daneshvar, M. Mahajan, M. Nasereldin, I. Opara, and M. Zervos

Risk factors for Death and Severe Illness in Younger Patients Hospitalized with COVID-19

Background:

Younger individuals account for a growing proportion of COVID-19 cases. We examined the impact of patient and presenting characteristics on clinical outcomes in patients ≤ 60 years.

Methods:

Cohort study of 807 adult patients ≤ 60 years admitted from March 12 - April 24 with positive COVID-19 diagnosis. Patient sociodemographics, comorbidities, presenting characteristics and neighborhood socioeconomic measures were collected. Primary outcomes were death, invasive mechanical ventilation (IMV), and intensive care unit (ICU) admission. Multivariate analyses were performed to determine independent predictors of clinical outcomes.

Results:

Among the 807 patients, most were black (65.0%), 59 (7.3%) died, 142 (17.6%) required IMV, and 201 (24.9%) required ICU care. Patients who died were more likely to be male, smokers, and have higher Charlson Comorbidity Index (CCI). They also presented with higher qSOFA scores and inflammatory markers. Multivariate analyses revealed male sex (OR: 1.87, $p=0.04$) and CCI (1 unit increase OR: 1.54, $p<0.001$) to be independent predictors of death. BMI > 35 (OR: 1.61, $p=0.008$) and neighborhood median income (\$10,000 increase OR: 0.85, $p<0.001$) were independent predictors of IMV and ICU admission. Age and race were not independent predictors of death, IMV, or ICU admission.

Conclusion:

In younger patients, male sex and higher CCI are independent predictors of death. Higher CCI, obesity, and disadvantaged neighborhoods are independent predictors for IMV and ICU admission. Socioeconomic and health disparities influence the clinical course of COVID-19 in younger patients.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Ahila Manivannan

Additional Authors: Dana Kabbani, Diane Levine

There were 1095 Chances to Diagnose This Patient, But She Waited Until She Couldn't Breathe

A 43-year-old woman presented with one-month history of cough and shortness of breath. Exam was notable for a large, painless, abdominal mass which per patient had been slowly growing over three years (1095 days). The patient stated that she had been unable to obtain care due to lack of health insurance. This mass was associated with abdominal bloating and heaviness and was negatively impacting quality of life. Workup revealed a 34 x 38 cm abdominal mass and elevated CA-125. After initially declining therapy due to concerns about complications, the patient was convinced to have surgery. Exploratory laparotomy with performed and a 45kg mass was removed. Pathology showed stage IIIA leiomyosarcoma. Hospitalization was complicated by bilateral pulmonary embolisms and septic shock. After multiple complications and hospitalizations, the patient died.

African American women have higher rates of hospitalization and hysterectomies for leiomyosarcomas and thus may have more postoperative complications. For disease extending beyond the uterus, the role of surgery is controversial. With an estimated 6.6% RCRI surgical risk and comorbidities, the role of surgery in this patient was questionable. In a patient whose chief complaint was inability to breathe and who did not want surgery or intervention, it is important to explore the ways in which the health care system failed her. This case demonstrates how 1) lack of insurance can lead to delayed diagnosis and adverse health outcomes, 2) zealous intervention may not result in the most favorable outcome, and 3) offering hospice early in disease course may prevent unnecessary suffering.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 63

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Arif Musa

Additional Authors: Elizabeth Warbasse, Jenna Yousif, Kasim Pendi, David A Baron, Areio Hashemi, Emily Blodget, Susan Stevens, Besma Aly, Alisha Kha

Remdesivir for the Treatment of COVID-19: A Meta-Analysis of Randomized Trials

Introduction: The unprecedented global pandemic of Coronavirus Disease 2019 (COVID-19) has led to over 12 million confirmed cases and over 500,000 deaths. Remdesivir, an adenosine analog pro-drug, has shown effectiveness in previous in vitro and clinical studies. However, these studies are preliminary with small sample sizes and conflicting findings. As a result, we performed a meta-analysis of randomized, controlled trials to compare intravenous remdesivir to control in human patients with COVID-19.

Methods: We performed a meta-analysis following a comprehensive literature search of EMBASE, PubMed, Web of Science, and several clinical trials registries. After two reviewers reviewed the studies, those that met inclusion criteria were included. Standardized mean difference (SMD) and 95% Confidence Intervals (CI) were used for continuous outcomes and odds ratio (OR) and 95% CI were used for dichotomous outcomes.

Results: Remdesivir significantly reduced ordinal scores (2.4 ± 1.7 vs 2.8 ± 1.9 , SMD = -0.21, 95% CI = -0.33 to -0.09, $p < 0.001$), indicating clinical improvement, and significantly reduced mortality (6.8% vs 10.2%, OR = 0.62, 95% CI = 0.41 to 0.94, $p = 0.02$). The use of remdesivir did not significantly increase anemia, acute kidney injury, cardiac arrest, deep vein thrombosis, pulmonary embolism, respiratory failure, or septic shock (all $ps > 0.05$).

Conclusions: Intravenous remdesivir significantly improves clinical status and reduces mortality in patients with COVID-19 without increasing the risk for complications. Further studies are needed to complete the side-effects profile and to optimize dosing, timing, and course.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Hailey Olds

Additional Authors: Dr. Eric Scher

Budd-Chiari Syndrome Leading to Advanced Liver Disease in a Young Woman

A 32-year-old woman with a past medical history of hepatic steatosis and polycystic ovarian syndrome, well controlled with oral contraceptive pills, initially presented with right upper quadrant pain, nausea, and vomiting. The symptoms worsened with eating. After an ultrasound of the right upper quadrant, she was diagnosed with acute cholecystitis and a laparoscopic cholecystectomy was performed. During the procedure, the liver appeared cirrhotic and ascitic fluid was present. A CT scan showed diffuse hepatocellular disease with mesenteric lymphadenopathy. After extensive testing, no clear etiology for her advanced liver disease was discovered, and she was transferred to another hospital for escalation of care. During her admission to the second hospital, another CT scan of the liver was ordered. This scan revealed thrombi in the hepatic veins, along with bilateral lower lobe pulmonary embolisms. These findings were most consistent with Budd-Chiari syndrome secondary to a hypercoagulable state. Her oral contraceptives were discontinued, anticoagulation with apixaban was started, and interventional radiology performed a direct intrahepatic portocaval shunt (DIPS) procedure to relieve portal hypertension. This case illustrates that in young patients with rapidly progressing liver disease, Budd-Chiari syndrome is a rare but important diagnosis to consider, especially in those with hypercoagulable risk factors. In primary Budd-Chiari syndrome, a thrombus forms in the hepatic veins, preventing blood from exiting the liver. Treatment involves addressing the underlying cause, starting anticoagulation therapy, and relieving portal hypertension if present.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Aaron Panicker

Additional Authors: Dr. Heba Osman, Dr. Mira Mitry

An Unusual Case of H. Flu Septic Arthritis

Haemophilus influenzae (H. flu) is an aerobic gram-negative coccobacillus that resides in the nasopharynx as normal respiratory tract flora. Infection is more commonly seen in children, elderly, and the immunocompromised. We report a rare case of H. flu septic polyarthritis in an HIV-positive adult.

Patient is a 28-year-old male with a history of HIV who presented with subacute oligoarthritis and decreased range of motion of the right shoulder, knee, and ankle along with right knee swelling and fever. Previously, the patient was on antiretroviral therapy with a CD4 count of 321 cells/ μ L. Patient denied recent trauma, insect bites, or travel but had a recent history of an oral sex encounter along with symptoms of an upper respiratory infection prior to admission. Right knee x-ray showed joint effusion. Right knee arthrocentesis revealed purulent fluid, and culture resulted in H. flu. Pelvis and lumbar spine x-rays to rule out spondyloarthritis were unremarkable. HLA-B27 antigens and gonorrhea/chlamydia DNA amplification were negative. He subsequently underwent two knee washouts and was treated with ceftriaxone and discharged on azithromycin. After a six-week course of antibiotics, patient regained full function of his extremities. With the advent of Hib vaccines, H. flu has decreased in prevalence. Furthermore, the organism and its many serotypes are rare culprits in septic arthritis. However, in the differential diagnosis of suppurative arthritis for young, elderly, and immunocompromised patients, this pathogen should be considered to guide treatment outcomes. Prompt incision and drainage along with appropriate antibiotics can lead to symptomatic relief.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Kelley Park

Additional Authors: Kenisha Evans, M.D., Ronato Roxas, M.D.

Correctional Infrastructure as Healthcare Barrier

A 33 year old incarcerated man presented with a three week history of bloody diarrhea, an acutely ill appearance, was febrile, had a leukocytosis, elevated CRP, ESR, positive fecal leukocyte, and colonoscopy consistent with an acute ulcerative colitis (UC) flare. The patient was refractory to treatment despite escalation of therapy to IV methylprednisolone with mesalamine enemas and oral sulfasalazine. Once medically stable, discharge plan was to continue with adalimumab in prison. However, as a representative of a vulnerable population, the patient never received the biologic agent or continued supportive therapy, resulting in a prolonged readmission. There are many predisposing conditions that have been identified as UC triggers including vulnerable social status and limited medical care. This case illustrates healthcare inequality and correctional infrastructure failures that led to an unnecessary hospitalization, expenditures, and increased disease burden. Approximately 60% of the incarcerated population suffers from a chronic medical condition leading to nearly twice the disease burden as compared to the general population. Despite these numbers, there is a significantly lower standard of care and fewer treatment options available for patients. In a recent public health report, a grant program was implemented for incarcerated HIV to provide a safe transition of healthcare and community services back into the community, posing as a possible solution to discontinuous long-term treatments. There still remains a need for additional programs to address the root causes of poor health access among prisoner patients, educate correctional officers, and implement interventions that will mitigate treatment disparities in chronic illness.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP – Wayne State University School of Medicine

Presenter: Jaya Parulekar

Additional Authors: Dana Kabbani, Diane Levine

A Future of Infertility: Initiating Cyclophosphamide in a Late Adolescent with Systemic Lupus Erythematosus (SLE)

Cyclophosphamide is an immunosuppressant medication used in the management of various cancers and autoimmune diseases. It has a substantial side-effect profile that includes hemorrhagic cystitis and increased risk of bladder cancer. It is also known to cause primary ovarian insufficiency in women.

A 19-year-old female with a history of SLE presented with weakness, joint pain, and extremity swelling and was admitted for management of acute lupus flare. She is supposed to be on mycophenolate 1 g twice daily and hydroxychloroquine 200 mg daily, but admitted that she has been non-adherent to her medications. During the hospital course, she developed several dangerous complications of SLE, including lupus pericarditis, diffuse alveolar hemorrhage with hypoxic respiratory failure, and acute kidney injury secondary to lupus nephritis. She was started on pulse dose steroids, mycophenolate, and hydroxychloroquine; however, due to worsening of her lupus flare, she was initiated on cyclophosphamide. The patient was extensively counseled regarding cyclophosphamide-associated infertility by rheumatology and she agreed with the treatment plan. Reproductive Endocrinology and Infertility was also consulted after she reported an interest in future fertility.

This case illustrates the importance of medication adherence in preventing the known serious complications of SLE. It also illustrates the importance in recognizing that initiating life-saving medications may have life-changing side-effects, especially in late adolescents. It encourages physicians to carefully weigh the risks and benefits and use a multidisciplinary approach when treating patients, ensuring the care provided is holistic and congruent with their patients' future goals.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 68

Category: CQI/EBM

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Dhruvil Patel

Additional Authors: Aneesh Hehr, Firas El-Baba M.D., Eric Ayers M.D.

Understanding Contributors to Adverse Post-Transition Compliance Issues in the Current Model for Pediatric Inflammatory Bowel Di

Approximately 25% of patients with inflammatory bowel disease (IBD) are below the age of 16 requiring the care of a pediatric gastroenterologist until eventually transitioning to an adult provider. Studies have outlined barriers in this transition process which has contributed to decreased medication adherence, increasing the likelihood of poorer prognosis; barriers which we aim to understand in our hospital model. We administered a survey designed to assess patients with IBD and their parent/guardian's opinions of our transition process. Questions were asked on a 5-point Likert scale. The instrument gauges perceptions on factors including satisfaction of their physician, faith in the transition process, and assessing their dependency on the process to adhere to treatment regimens; effectively concluding their confidence for the transition.

13 dyads (patients and their parent/guardian) were enrolled thus far, spanning patients who had an average age of 15.8 years. Statistical analysis (t-test) will be performed to compare satisfied (4 and greater) and not satisfied (3 and below) to identify favorable and unfavorable components of the current model of the transition of care. Preliminary results show patients reporting an average score of 4 for how well the patient and the parent understand their pathology. Patients reported an average score of 4.7 when asked about medication compliance. Average scores of 3.5 and 3.6 were seen for assessing preparedness in transitioning to an adult provider for patients and parents respectively. Participants reported an average score of 3.7 when asked about encouragement from their physician to book independent appointments without their parents.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP – Wayne State University School of Medicine

Presenter: Daniel Quan

Additional Authors: Lucia Wong, Anita Shallal, R. Madan, H. Ahdi, A. Hamdan, A. Daneshvar, M. Mahajan, M. Nasereldin, Ijeoma Opara, Marcus Zervos

Impact of Socioeconomic Status on Death and Severe Disease in 2038 Patients Hospitalized with COVID-19

Introduction

The coronavirus disease 2019 (COVID-19) pandemic has disproportionately affected the impoverished and communities of color. In Michigan, African Americans account for 37% of COVID-19 cases and 42% of deaths, despite making up only 14% of the population. We examined the socioeconomic and living environments of patients hospitalized with COVID-19 to determine their impact on disease outcomes.

Methods

Retrospective cohort study of 2038 adult patients with positive SARS-CoV2 test admitted to an integrated health system serving southeast Michigan. Patients were admitted from March 12 to April 24 and followed until May 27, 2020. Collected data included patient sociodemographics, comorbidities, and neighborhood socioeconomic characteristics. The primary outcomes assessed were frequencies of death, invasive mechanical ventilation (IMV), and intensive care unit (ICU) admission.

Results

Black patients lived in significantly poorer neighborhoods than white patients (median income: \$34,758 vs. \$63,317, $p < 0.001$) and were almost twice as likely to have Medicaid insurance (19.4% vs. 11.2%, $p < 0.001$). Patients who lived in poorer neighborhoods were significantly more likely to require IMV and ICU admission in a dose-dependent response. After adjusting for age and comorbidities, higher median income (\$10,000 increase) was found to be a significant predictor for IMV (OR: 0.95, $p = 0.02$) and ICU admission (OR: 0.92, $p < 0.001$).

Conclusions

This study highlights the significant impact of socioeconomic status on mortality and disease severity in COVID-19 patients, especially in African Americans. Policymakers and healthcare providers must be aware of the impact of these disparities in order to address the systemic inequities that harm communities of color.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Tyler Russeth

Additional Authors: Ethan Cohen, Siri Sarvepalli

Improper Management of Ulcerative Colitis for Jail Inmate

A 33-year-old man with ulcerative colitis (UC), previously well-controlled on adalimumab, was brought to the emergency room from the County Jail complaining of 3 weeks of abdominal pain, bloody bowel movements, and a 40lb weight loss. The patient was admitted to jail 3-months prior to presentation. He stated he did not receive a health screening upon jail admission. During hospitalization, the patient was treated with steroids and adalimumab. At discharge, the medical team confirmed continuation of adalimumab with the jail; however, in jail the patient was only given acetaminophen for pain. The patient's condition declined. He was readmitted four days later with worsening symptoms. He was treated with blood transfusion and methylprednisolone and discharged with the same recommended medical regimen as the first admission. On return to jail, he received the recommended treatment. In jail, our patient did not receive his adalimumab which likely exacerbated his UC leading to hospitalization. This lapse in appropriate care may be traced back to the lack of a health screening upon jail admission, as reported by our patient. If a proper screening was performed, his UC could have been identified and his adalimumab continued, and the patient's subsequent two hospitalizations likely could have been prevented. While there has been significant attention given to screening in prison, no policies are evident for screenings of chronic medical conditions upon admission to jail. The lack of comprehensive medical screening poses a challenge in proper and timely diagnosis of chronic conditions.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Siri Sarvepalli

Additional Authors: Ethan Cohen, Tyler Russeth, Diane Levine

Challenges of Guardianship: Extended Inpatient Length of Stay in a Patient with Schizophrenia

71-year-old woman with schizophrenia, personality disorder, and pulmonary sarcoidosis was brought to the emergency department with acute psychosis and suicidal ideations. She was found non-decisional by psychiatry and, because she required chronic oxygen supplementation, was admitted to the medical service. She was treated with haloperidol and oxygen. On psychiatric evaluation, the patient was not suicidal and was able to answer questions appropriately, but displayed no insight into her condition. It was recommended she be discharged to a care facility. She remained on the medical service waiting for a guardianship hearing to allow placement post discharge. Guardianship was obtained on Day-44, and she was discharged to a nursing home with continued outpatient psychiatric care.

Our patient was initially admitted with an acute psychosis and should have had an emergency guardian appointed within 48 hours after appropriate parties were notified and filings submitted. However, she stayed in a medical ward for 44 days even though psychosis resolved and she was clinically stable. Providing care in the inpatient is more expensive than any other healthcare setting. Had timely guardianship been established, we could have greatly saved on costs as well as treated our patient more effectively and safely.

All systems are interconnected. As we focus on training physicians to care for complex patients, we must advocate for systems that are timely, efficient, and patient centered. This includes advocating within our court systems to facilitate timely guardianship to avoid inappropriate and extended hospital stays which unnecessarily expose patients to risk and increase healthcare costs.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Vinoja Sebanayagam

Additional Authors: Bayan Al-Share, MD; Neelima Thati, MD

Tension Pneumothorax, Is it sarcoma or Pazopanib?

Synovial sarcoma accounts for 8-10% of soft tissue sarcomas with 85% occurring in extremities, mostly lower limbs. This case discusses pneumothorax complicating a rare case of metastatic synovial sarcoma originating in the trapezius with lung metastases, after good response to chemotherapy.

A 28-year-old female was diagnosed with stage IV synovial sarcoma in soft tissue of the left trapezius, with lung metastases. Biopsy of the intramuscular mass revealed grade 2 monophasic synovial sarcoma. Although she received 6 cycles of Adriamycin, Ifosfamide with Mesna, the disease progressed shortly after treatment. Pazopanib, a tyrosine kinase inhibitor approved in 2012 to treat advanced soft tissue sarcoma was started and resulted in clinical and radiographic response. After a few months, she was admitted for spontaneous right-sided tension pneumothorax. Pazopanib was held and pneumothorax managed by chest tube placement and chemical pleurodesis. On discharge, Pazopanib was resumed due to the good response observed. Shortly after, she developed recurrent pleural effusion followed by significant clinical deterioration, at which time family pursued comfort care.

Although a handful of case reports document an association between Pazopanib and the incidence of pneumothorax, primary research does not establish a statistically significant causal relationship. Instead, pneumothorax is thought to be independently associated with the mere presence of pleural-based lung metastases, as seen in our patient. This case illustrates that unexpected complications can occur in young adults showing good chemotherapy response, which must be weighed against the risk of disease progression. Further research is required to identify the optimal treatment in such cases.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Kathren Shango

Additional Authors: Heba Habbal, MD2; Omar Rahal, MD3; Jonathan Zimmerman, MD4; Faisal Musa, MD5

Malignant Pleural Mesothelioma (MPM) Presenting as Chylothorax: A Case Study and Literature Review

Case Presentation

A 60-year-old male with past medical history of coronary artery disease, diabetes mellitus and hypertension presented with one-month period of progressive exertional dyspnea and unintentional weight loss. Exam revealed bilateral pleural effusion, palpable right axillary lymph nodes and ascites. Chest x-ray and CT showed bilateral pleural effusions with pleural thickening, extensive thoracic and retroperitoneal lymphadenopathy, and ascites. Patient underwent left thoracentesis and later PleurX catheter insertion. Pleural fluid revealed chylous effusion, positive cytology for malignant mesothelial cells and immunohistochemical staining for CK5/6 and calretinin. Hence, the diagnosis of stage IV MPM-induced chylothorax was made. Patient wasn't a surgical candidate and two cycles of Cisplatin and Pemetrexed treatment were completed. An initial transient response to the chemotherapy was followed by development of multiple complications, and he eventually passed away.

Clinical Significance and Discussion

Overall prognosis of chylothorax and MPM is poor, with a median survival of 1 year for MPM and a mortality rate around 50% for untreated chylothorax. Low output chylothorax (< 1 L per day) commonly responds to conservative management (drainage, somatostatin/octreotide and low-fat diet) or pleurodesis. However, high output chylothorax necessitate early thoracic duct repair or embolization as the risk of conservative management failure and severe metabolic or nutritional derangements are high. Unfortunately, there is no consensus guidelines for the management of MPM-induced chylothorax, therefore, further research is required.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 74

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Rebecca Sturgis

Additional Authors: Alleda Mack, MD; Jordan Maier, MD; Elisabeth Heath, MD

Appearance of Clivus Bone Metastases in Metastatic Cancer Patients

The clivus is a small but significant area of the cranium located near the base of the skull. Clival metastases are often associated with neurological deficits including facial numbness, visual changes, and abnormal tongue deviation. The clinical sequelae of clival metastases are significant, but little is known about which patients are prone to developing clival metastases, whether there are earlier clinical or radiographic indicators that suggest a patient will develop these metastases, or the optimal method for treating them. To begin answering these questions, we performed a retrospective review of patients treated at Karmanos Cancer Institute from January 2000 to June 2020 who were diagnosed with a primary metastatic cancer and went on to develop clival metastases. We identified 42 patients with clival metastases and characterized them according to cancer type, treatments received, neurologic symptoms present, and imaging performed prior to the identification of clival metastases. We will also review next generation sequencing from these patients to screen for any common underlying mutations in this patient population. Taken together, this data will aid in early identification of patients with clival metastases and contribute to optimizing their treatment plans. Early identification and treatment of clival metastases is critical to symptom and quality of life improvement.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 75

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Bhavana Tetali

Additional Authors: Norman Markowitz, MD

When It's More Than A Rash: VZV Encephalitis Complicated by Viral Co-Infection and SIADH

Introduction:

Encephalitis is a rare complication of varicella zoster virus (VZV) infection. Treatment can be a formidable challenge, particularly when complicated by co-existing conditions.

Case Description:

A 61-year-old male with untreated HIV presented with a burning abdominal rash accompanied by nausea, vomiting, headache and confusion for three days duration. The patient was afebrile and hypertensive to 155/102 mmHg. Examination revealed a tender, vesicular rash on the right T10 dermatome. Laboratory workup, chest X-ray and head CT were unremarkable. Lumbar puncture showed elevated protein with lymphocytic predominance in the cerebrospinal fluid (CSF), and treatment was initiated with broad-spectrum anti-viral and anti-fungal agents. CSF culture demonstrated VZV and Epstein-Barr Virus (EBV) via PCR, and treatment was narrowed to IV acyclovir. The patient was later diagnosed with SIADH, requiring fluid restriction. After 14-days of IV acyclovir therapy, the patient was discharged with marked symptomatic improvement.

Discussion:

PCR testing for VZV encephalitis has a sensitivity and specificity of >95% in immune-compromised patients. While diagnosis is straightforward, treatment can be challenging. There are reports of treating VZV encephalitis with oral agents, but only IV acyclovir has been studied in higher risk patients, thereby limiting our therapeutic options.

Additionally, renal crystal deposition is often reported with IV acyclovir and is prevented by administering maintenance fluids. However, this patient required fluid restriction for SIADH, yet another manifestation of VZV encephalitis. Managing these high-risk patients is complex due to limited therapeutic options and opposing medical needs. More studies are necessary to safely broaden treatment options.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 76

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Chloe Theeuwes

Additional Authors: Dr. Ashley Scott, MD; Dr. Scott Kaatz, DO

A Developing Relationship: Helicobacter Pylori and Immune Thrombocytopenic Purpura

Introduction

Immune thrombocytopenic purpura (ITP) is a rare condition, with an estimated prevalence of 9.5 per 100,000 persons in the United States. Several international studies have shown that platelets normalize following Helicobacter pylori eradication in roughly half of ITP cases. Although the prevalence of H. pylori is approximately 30% in the US, H. pylori-induced ITP is an under-recognized entity.

Discussion

This patient is a 63-year-old African American male with past medical history of H. pylori-induced peptic ulcer disease, hepatitis C cirrhosis, and hepatocellular carcinoma. He had completed triple therapy for H. pylori eradication on the day of admission. He presented with severe thrombocytopenia and several episodes of hematemesis and melena. On admission, his hemoglobin was 9.8 and platelets 17,000 (a decrease from 245,000 18 days prior to presentation). There was no recent heparin administration. Fibrinogen levels were unremarkable, and there were no signs of hemolysis on labs or peripheral smear. After five days of intravenous immunoglobulin infusion, his platelet count had increased to 150,000. A month after discharge, his platelet counts have doubled without further intervention.

Conclusion

Eradication of H. pylori can aid in resolving ITP related thrombocytopenia and achieving long term stability in conjunction with other therapies. Further research is merited to better understand the dynamics of this association.

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: David Tran

Additional Authors: Diane Levine, MD, FACP

Ur_in_(e) Trouble Without Follow-up

Case:

A 23-year-old man presented to the emergency department (ED) with hematuria and dysuria. He was diagnosed with cystitis, administered ceftriaxone, discharged on ciprofloxacin, and advised to follow-up. Two days later, he reviewed results on the portal noting urine culture positive for ESBL E. coli; sensitivities were not displayed. Patient was not contacted by the ED. Ten days later he developed recurrent dysuria and re-presented to the ED. Urinalysis was abnormal. He was treated with nitrofurantoin. Symptoms returned 10 days later and he was given an additional week of nitrofurantoin from the physician-father of a friend. He visited the clinic. Urinalysis remained abnormal and he was started on trimethoprim/sulfamethoxazole. Ten days later, cultures revealed ESBL E. coli resistant to nitrofurantoin, ciprofloxacin, and trimethoprim/sulfamethoxazole. He was treated with Fosfomycin with symptom resolution.

Discussion:

Patient portals provides access for patients to view test results. However, patients may not understand the information provided. The patient was advised to follow up, but he did not understand the rationale for follow-up. Furthermore, he assumed the medication provided by the physician was appropriate as the physician did not contact him to change his medication. Finally, the patient did not have a PCP. Identifying and arranging a visit with a new PCP when someone is ill is a daunting task. Identifying barriers to follow-up and utilizing interventions, such as teach-back communication prior to discharge, ED-made appointments, and telephone follow-up, have the potential to minimize post-ED follow-up failure, second ED visits, and most importantly, ensure good clinical outcomes.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 78

Category: Clinical Vignette

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, ACP Member

Presenter: Mahmud Abdeljaber

Additional Authors: Clayton Carter, Aditya Mehta, MBBS, Neiberg de Alcantara Lima, MD

Focal and Segmental Glomerulosclerosis in the Setting of Monoclonal Gammopathy of Undetermined Significance

INTRODUCTION: Monoclonal gammopathy of undetermined significance (MGUS) is a common plasma cell disorder found in about 3% of individuals over the age of 50. Focal and segmental glomerulosclerosis (FSGS) is a common renal pathology, manifesting as nephrotic syndrome. The association of FSGS with MGUS has been rarely reported in the literature. Recent evidence pointing towards a cytokine influenced pathophysiology for primary FSGS raises the possibility that a heightened inflammatory state, such as MGUS, leads to an increased risk for developing FSGS. This rare association was examined by researchers previously, finding a temporal and epidemiological link.

CASE PRESENTATION: After routine laboratory results raised suspicion for acute renal failure, a 68-year-old man with a history of monoclonal gammopathy of undetermined significance presented to the hospital with pallor, bilateral lower extremity edema, and jugular venous distension. Investigations revealed elevated serum creatinine, proteinuria, and elevated serum kappa free light chain. A kidney biopsy revealed the tip lesion variant of focal and segmental glomerulosclerosis. After resuscitation and management of his acute presentation, the patient was treated with a tapering dose of oral dexamethasone over one week, followed by a tapering dose of prednisone upon discharge. The treatment was successful in lowering the patient's serum creatinine to baseline levels, which was maintained at a 6 month follow up.

CONCLUSION: Despite its innocuous name, MGUS can be associated with serious pathologies, such as FSGS. Corticosteroids are considered first line in the treatment of primary FSGS and are also effective at treating FSGS in the setting of MGUS.

ACP Michigan Chapter Scientific Meeting 2020

Medical Student Poster # 79

Category: Clinical Vignette

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, ACP Member

Presenter: Keshav Patel

Additional Authors: Simran Kenth, MD and Prashant Patel, DO

While We Wait: Malignant Cardiac Tamponade in a Patient with a Previously Stable Pulmonary Nodule

Introduction:

Low-dose computed tomography (CT) of the chest has benefitted patients with tobacco use to screen for early, treatable lung malignancy. Although the risk of overdiagnosis exists with screening, we present a case demonstrating the importance of active surveillance in a high-risk pulmonary nodule to prevent rare and advanced complications, like malignant cardiac tamponade.

Case:

A 59-year-old male with a history of heavy tobacco use and a stable single solitary 16 mm left upper lobe pulmonary nodule diagnosed approximately 18 months prior to admission, who presented with a subacute cough, dyspnea on minimal exertion and pleuritic chest pain. The exam revealed tachycardia at a rate of 112 beats/minute and diminished breath sounds bilaterally, but was otherwise unremarkable. A CT of the chest revealed a large pericardial effusion with a persistent spiculated nodule in the left upper lobe. Echocardiography indicated tamponade physiology, thus the patient underwent urgent pericardiocentesis and surgical creation of a pericardial window. Cytology of the fluid confirmed metastatic adenocarcinoma consistent with a lung primary.

Discussion:

Our patient presented with the rare complication of a malignant pericardial effusion with cardiac tamponade from non-small cell lung cancer. Although symptoms of a pericardial effusion may be the first sign of occult malignancy, our patient's case highlights the importance of ongoing discussions regarding aggressive surveillance or tissue biopsy in high-risk pulmonary nodules. Per Li et al, these discussions may allow earlier initiation of treatment to reduce the risk of oncologic emergencies, like malignant cardiac tamponade, which carry a poor prognosis.

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, ACP Member

Presenter: Lucas Rich

Additional Authors: Katelyn King B.S., Eric Edewaard M.D., Prashant Patel D.O.

A Tale of Two Malignancies – Coincidence or Unifying Pathogenesis?

Introduction:

Renal cell carcinoma and multiple myeloma are both rare, accounting for nearly 3% and 1% of adult malignancies respectively. Although exceedingly rare to co-exist, population-based literature demonstrates an association between the two malignancies. We present such a case in a patient with a newly diagnosed solid renal tumor in addition to a malignant plasma cell dyscrasia.

Case:

A 58-year-old male with heavy tobacco use presented to the emergency department with severe subacute low back pain. His vital signs were stable. Physical exam was remarkable for conjunctival pallor, hepatomegaly to 3-4 cm below the costal margin, and tenderness over the T9 spinous process. Initial labs revealed features suggestive of multiple myeloma including hypercalcemia, acute kidney injury, and anemia. A computed tomography (CT)-guided bone marrow biopsy confirmed the diagnosis of multiple myeloma. An abdominal CT revealed a heterogenous enhancing renal mass, highly suspicious for renal cell carcinoma.

Discussion:

The pathogenic role of interleukin-6 (IL-6) in multiple myeloma is well understood, however the pathophysiologic association between renal cell carcinoma and multiple myeloma is unclear. Per Sakai et al., the pathogenesis may result from IL-6 produced by renal cell carcinoma, increasing proliferation of malignant plasma cells and resulting in multiple myeloma. The temporal relationship between our patient's malignancies is uncertain, but their co-occurrence supports the hypothesis of a paraneoplastic inflammatory syndrome driving carcinogenesis. Further, our patient's case highlights the therapeutic challenge of multiple malignancies, but further understanding of the role of IL-6 may ultimately guide approaches to novel combined therapeutic interventions.

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, ACP Member

Presenter: Jasmine Saeedian

Additional Authors: Ross Driscoll, MD

The Pandora's Box of Acute Illness

Thorough medical workup may identify additional threats to a patient's wellbeing in the context of their chief presenting concern. A patient may be asymptomatic and unaware of their comorbidities, particularly if they do not follow with a primary care provider. We present a case illustrating that treating acute illness may reveal significant co-morbid conditions, especially in patients without consistent primary care.

A 58-year-old woman with no known past medical history presents with a ruptured abdominal sebaceous cyst, along with secondary cellulitis and abscess formation. On arrival to the emergency department, the patient presents with hypertensive urgency; she has a systolic blood pressure of 207 without indication of end-organ damage. She begins scheduled amlodipine, bumetanide, and lisinopril, as well as PRN hydralazine and labetalol. CT scan of the abdomen and pelvis confirms an uncomplicated superficial lesion, while incidentally showing cholelithiasis and nephrolithiasis. Further workup identifies hypercalcemia as a function of primary hyperparathyroidism and parathyroid adenoma. Detection of a systolic murmur additionally warrants evaluation, and echocardiogram indicates reduced ejection fraction and calcification of the aortic valve. The patient's abdominal abscess is treated successfully with antibiotics and incision and drainage. Throughout her admission, she remains asymptomatic and hypertensive, with only slight improvement. She is discharged with plans for outpatient monitoring of resistant hypertension and endocrine surgery for definitive treatment.

his case highlights the benefit of accessible primary care in the early detection of asymptomatic disease. It further exemplifies the necessity of thorough workup in any setting, to detect underlying disease and avoid long-term or unamenable sequelae.