2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 01
Category: Clinical Vignette
Residency Program: Corewell Health William Beaumont University Hospital
Presenter: Tanya Amal
Additional Authors: Johnson P, Sharif A, Bin Hameed U

Streptococcus pneumoniae Cervical Abscess in a PCV-Immunized Female with Waldenström's Macroglobulinemia: Exploring the Role of Opsosonization Failure and Functional Hyposplenesim Beyond the Spectrum of Malignant B-Cell Disorders

A 64-year-old female with recently diagnosed Waldenström's macroglobulinemia presented with pain and swelling in the neck. Three weeks prior, she had accidentally punctured her neck with her fingernail, leading to initial swelling. She visited the ER, but workup showed no acute infection. A contrast-enhanced CT scan revealed enlarged bilateral cervical lymph nodes. Over the next two weeks, the swelling became increasingly painful. On presentation, she had sharp, localized pain (10/10 intensity), tachycardia, and a 3x3 cm swelling on the right side of her neck, with redness, warmth, and tenderness. Laboratory results showed lymphocytic leukocytosis (WBC 31.5, lymphocyte 24.8%, neutrophil 6.1%). A repeat contrast-enhanced CT scan showed a 5x5 cm ring-enhancing lesion in the subclavicular space. Ultrasound-guided drainage with indwelling drain placement was performed, and cultures grew Streptococcus pneumoniae. The patient had been vaccinated with PCV13 and PPSV23 18 years ago. She was treated with IV ceftriaxone for 48 hours, followed by oral cephalexin for 14 days.She was discharged with the drain in place After infection resolution, she received repeat vaccinations with PCV, meningococcal, and Haemophilus influenzae vaccines. Notably, a previous PET scan showed marked splenomegaly with increased FDG uptake.

Streptococcus pneumoniae, a common respiratory pathogen, can cause opportunistic cutaneous infections, particularly in patients with neutropenia or hyposplenism. Those with Waldenström's macroglobulinemia (WM) are at increased risk of sinopulmonary infections, pyelonephritis, and septicemia due to immune dysregulation from somatic mutations in the"V". "D" and "J/H' segments of immunoglobulin. These mutations impair affinity maturation and memory B-cell formation, leading to a suboptimal response to vaccinations against pathogens like Streptococcus pneumoniae, Staphylococcus aureus, and Varicella, similar to multiple myeloma. Severe infections with gram-positive organisms, including osteomyelitis and sepsis, have been reported in WM. Our patient, with splenomegaly but no signs of immunodeficiency or splenic sequestration, was treated with IV antibiotics and continuous drainage for 48 hours due to the risk of severe infection. She was revaccinated to dye functional hyposplenism and risk of recurrent infection

Recurrent infections in B-cell neoplasms with normal neutrophil counts remain poorly understood. Genetic immune dysregulation has not been proven in vivo. Abscess formation in vaccinated Waldenström's macroglobulinemia patients highlights impaired antibody response. Splenic involvement and opsonization defects, similar to multiple myeloma, may predispose to infections with encapsulated organisms. Ensuring infection resolution and determining optimal vaccination frequency is crucial.

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Resident Oral Presentation # 02
Category: Clinical Vignette
Residency Program: Corewell Health William Beaumont University Hospital
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Marathon Miles and Melena: Unmasking Acute Gastrointestinal Bleeding in an Endurance Athlete

Gastrointestinal bleeding (GIB) is a recognized complication of endurance sports, particularly long-distance running. While most cases are mild and self-limited, studies indicate that up to 12% of ultramarathon participants experience occult bleeding. Severe or life-threatening GIB, such as ischemic colitis requiring surgery, has been reported but remains rare. Despite its potential significance, exercise-induced GIB remains poorly understood, with limited organized data on its prevalence and mechanisms.

A 38-year-old male presented with a three-day history of melena following a recent marathon. Symptoms began with loose stools, progressing to tarry stools, accompanied by fatigue, exertional dyspnea, dizziness, and mild generalized abdominal discomfort. He denied hematemesis, bright red blood per rectum, or dietary changes. A prior GI workup in 2018 for hematochezia and IDA was unremarkable, including EGD, colonoscopy, capsule endoscopy, and CT enterography. His medical history was otherwise unremarkable, and NSAID use was minimal (4–5 times/month).

On presentation, he was hemodynamically stable but pale. Labs revealed normocytic anemia with Hb 6.6 g/dL (baseline 14), Hct 26.9%, MCV 97.8 fL, and reticulocytosis. Iron studies showed ferritin 18 ng/mL, serum iron 44 mcg/dL, TIBC 366 mcg/dL, and transferrin saturation 12%. B12 and folate were normal, as were coagulation studies (PT 11.1 s, INR 1.1, fibrinogen 210 mg/dL). Peripheral smear showed no hemolysis, and flow cytometry ruled out PNH and lymphoma. He received IV PPIs and one unit of PRBCs, raising Hb to 7.4 g/dL. EGD and colonoscopy revealed no significant pathology except for grade 2 hemorrhoids. TTE and TEE showed moderate-to-severe AR, trileaflet aortic valve with calcification, and no stenosis. Cardiac MRI confirmed LV dilation (EF 55%) and moderate-to-severe AR. Capsule endoscopy was normal without any localized sources of bleeding.

The patient underwent minimally invasive AVR and was discharged on daily PPIs. Further episodes of melena remain to be seen.

Endurance running stresses the GI tract through splanchnic vasoconstriction, diverting up to 80% of blood flow to muscles and causing ischemic injury. Dehydration, with plasma volume losses of 10%–15%, worsens hypoperfusion, while repetitive impact induces microtrauma in the bowel. In this case, moderate-to-severe AR may have further contributed to ischemic vulnerability, though its role is less established than AS, making endurance running the most plausible diagnosis.

Diagnosing exercise-induced GIB is challenging, especially in acute cases, as most data focus on occult bleeding. This patient's workup failed to identify a source, reflecting the limitations of these modalities for transient lesions. The intermittent nature of ischemic or exercise-induced injury makes small bowel ischemia or angiodysplasia a plausible etiology in this context.

Preventing GIB in endurance athletes involves optimizing hydration, pre-event nutrition, and selective PPI use, which can reduce stool occult blood positivity from 34% to 10%. Gradual training and monitoring for IDA symptoms are crucial, especially in athletes with underlying conditions.

This case highlights the importance of recognizing exercise-induced GIB as a potential cause of anemia or acute bleeding in endurance athletes. As participation in endurance sports grows globally, understanding and addressing this condition will be critical to supporting safe and healthy athletic performance.

Resident Oral Presentation # 03
Category: Clinical Vignette
Residency Program: Corewell Health William Beaumont University Hospital
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A Complex Case of Tracheoesophageal Fistula Following Chemoradiation and Esophagectomy

Tracheoesophageal fistula (TEF) is a pathological connection between the trachea and esophagus. It is a rare but serious complication following esophagectomy, particularly in patients who have undergone concurrent radiation therapy, with rates of 5-15%. TEFs often manifest with severe complications such as malnutrition, infections, and life-threatening bleeding, making them exceptionally difficult to manage. This case report highlights a rare presentation of TEF in a patient with esophageal adenocarcinoma treated with multimodal therapy.

A 45-year-old male with stage III esophageal adenocarcinoma underwent concurrent chemoradiation, esophagectomy, and immunotherapy. Subsequent oligometastatic disease required further treatment, including radiofrequency ablation and Keytruda maintenance. The patient later presented with syncope, anemia, hypotension, and tachycardia. CT thorax was concerning for a contained esophageal perforation in the right paratracheal region with gas and food material. The patient subsequently developed severe hemoptysis and hematemesis, necessitating airway protection via intubation. Bedside bronchoscopy identified blood products in both airways but no active bleeding source. Mesenteric and thoracic angiography showed no evidence of an active bleed.

Endoscopy revealed a large TEF approximately 20 cm from the incisors, located at the mid-trachea. Definitive surgical repair was deemed unfeasible due to the fistula's size, location, and tissue fragility from prior treatments. Conservative measures included a tracheostomy with balloon placement distal to the fistula and strict NPO status to minimize further damage and allow time for potential spontaneous healing. Unfortunately, the tracheostomy tube dislodged into the fistula, causing hypoxia and bradycardia, requiring emergent reversal and endotracheal tube replacement. Despite repeated interventions, the patient experienced recurrent bleeding and airway compromise. Ultimately, catastrophic bleeding led to severe hypoxia and cardiac arrest, with the family opting for comfort measures, and the patient passed away shortly thereafter.

Tracheoesophageal fistula (TEF) is a severe complication of esophagectomy and radiation therapy, with mortality rates reaching 40% due to due to sepsis, airway obstruction, and other complications. Early diagnosis is essential for preventing life-threatening complications. In our case, diagnosis was confirmed via combination of bronchoscopy and endoscopy.

Management of TEF focuses on stabilizing the patient and addressing the structural defect. Initial conservative measures, such as tracheostomy adjustments and parenteral nutrition, are implemented to minimize further damage and facilitate healing. However, definitive treatment often necessitates surgical intervention, including tracheal resection and esophageal closure using tissue flaps. Alternatively, stenting can offer symptom relief and improve quality of life. However, outcomes remain poor for patients with significant tissue damage or advanced malignancy. In our case, due to the patient's history of radiation, radiofrequency ablation, the location of the injury, and prior surgical repair, thoracic surgery determined that surgical intervention had a very low likelihood of success. A distal tracheostomy with balloon placement below the injury site, along with abdominal enteric feeding, was considered the best approach from a surgical perspective. Despite these measures, complications persisted, highlighting the limitations of current strategies.

This case emphasizes the critical need for advancements in diagnostic tools, minimally invasive therapies, multidisciplinary approach and individualized treatment strategies to improve outcomes for patients with TEF.

Resident Oral Presentation # 04
Category: Clinical Vignette
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Unmasking Lupus through Myopericarditis

Systemic lupus erythematosus (SLE) is a complex, multisystem autoimmune that often presents with nonspecific symptoms, complicating diagnosis. Myopericarditis is a rare initial manifestation, mimicking infections or malignancies. We present a case underscoring the importance of considering SLE in refractory multisystem illness.

A 26-year-old previously healthy male presented to an outside hospital with a one-week history of left-sided pleuritic chest pain, fever, chills, palpitations, fatigue, cough, sinus congestion, and headache. Initial evaluation revealed marked tachycardia (heart rate 180s/min on exertion). CT pulmonary angiography excluded pulmonary embolism but identified a large right-sided consolidation consistent with pneumonia. His initial troponin was 223 with no acute changes in the electrocardiogram (EKG). An echocardiogram was done, which revealed moderate pericardial effusion with normal ejection fraction. Coxsackie A antibodies were positive so he was diagnosed with myopericarditis. He received 7 days of ceftriaxone and doxycycline in the hospital and discharged with 5 more days of amoxicillin for the pneumonia. He was started on ibuprofen, colchicine, and metoprolol succinate for the myopericarditis, which he was instructed to continue taking outpatient and follow up with a cardiologist.

Despite adherence to therapy, symptoms persisted, prompting evaluation at our institution two weeks later. At that time his chief complaints were fatigue, palpitations, and night sweats. His viral symptoms were also still present, but somewhat improved. In the emergency department his troponin was still elevated, but his EKG remained unremarkable. His labs were remarkable for low hemoglobin of 9.0 and elevated BNP of 136. Urinalysis showed non-infectious proteinuria (protein-to-creatinine ratio 1.5). Repeat CT angiography demonstrated bulky mediastinal, hilar, and axillary lymphadenopathy with splenomegaly. Physical exam confirmed generalized lymphadenopathy (cervical, axillary, and inguinal). Epstein-Barr infection was suspected, but IgM antibodies were negative.

Given concern for lymphoma, an excisional lymph node biopsy was performed, revealing reactive hyperplasia. Echocardiography showed severely increased wall thickness of the left ventricle, moderately increased wall thickness of the intraventricular septum, and small to moderate pericardial effusion. Cardiology was consulted and a cardiac magnetic resonance imaging study was done which revealed global inflammation and edema, consistent with myocarditis.

At this time, autoimmune serology returned positive antinuclear antibody (ANA, 1:280 titer), anti-double-stranded DNA (dsDNA), anti-Smith, anti-RNP, and anti-SS-A/Ro antibodies, strongly supporting systemic lupus erythematosus (SLE) or mixed connective tissue disease. During his hospitalization, the patient also started complaining of muscle pain in his quadriceps and his creatinine kinase was 3,791 indicating possible myositis. Nephrology consultation prompted a kidney biopsy due to proteinuria, revealing mesangial proliferative lupus nephritis (Class II). Rheumatology initiated high-dose methylprednisolone (60 mg daily) and mycophenolate mofetil (500 mg twice daily), with colchicine continued for pericarditis. Within 72 hours, his fatigue, myalgias, and tachycardia improved significantly.

SLE should be considered in young patients with persistent, multisystem inflammation despite treatment, even when infections are present. Early serologic testing (ANA, anti-dsDNA, anti-Smith) and multidisciplinary collaboration are critical to avoid diagnostic delays. This case reinforces that myopericarditis, though uncommon, may herald underlying autoimmunity, warranting thorough evaluation for connective tissue diseases.

Resident Oral Presentation # 05
Category: Research
Residency Program: Henry Ford Hospital Jackson
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Rare Sarcoid Like Reaction in Renal Cell carcinoma-A Case Report

Renal cell carcinoma (RCC) is considered a vascularly rich tumor and can spread to different organs, including the lungs. RCC can also manifest locally or cause systemic disturbances such as paraneoplastic syndromes. A sarcoid-like reaction (SLR) happens when non-necrotizing granulomas, aggregates of immune cells and macrophages without central necrosis, grow in tissues resembling the histologic picture of sarcoidosis. However, the hallmark of true sarcoidosis, systemic granulomatous illness, is absent in SLR.

A sarcoid-like reaction is likely to be associated with carcinomas over sarcomas; however, it is rarely reported with renal cell carcinoma, with exceptionally low incidence and mostly seen in advanced or metastatic cases.

This is the case presentation of a 60-year-old patient with a rare sarcoid-like reaction in a biopsy-proven clear cell type renal cell carcinoma. The patient was initially diagnosed when he started complaining of right lower back pain, especially with weightlifting, and a CAT scan incidentally showed a solid mass in his right kidney with a small pulmonary nodule. He subsequently underwent radical right nephrectomy of a 4.8 cm mass, pT1b (confined to the kidney between 3 to 7 cm in size), clear cell type (histological subtype of RCC), G2 (moderately differentiated tumor cells) with vascular invasion present, and R0 (negative surgical margins).

Subsequent MRI imaging post nephrectomy demonstrated numerous enhancing lesions in his thoracic spine, nonspecific retrocrural lymph nodes, and scattered prominent retroperitoneal/periaortic lymph nodes suggesting metastatic disease. The PET scan also raised concern for metastatic adenopathy in the mediastinum, osseous metastasis, especially in the thoracic and lumbar spine, and prostate hypermetabolism. Bone biopsy of T12 vertebral body demonstrated benign trabecular bone with bone marrow extensively replaced by non-necrotizing granulomatous inflammation. Endobronchial ultrasound (EBUS) and transbronchial needle aspiration given subcarinal mediastinal lymph nodes resulted in cytology negative for malignancy with a single poorly formed granuloma. TB QuantiFERON was negative. Follow-up scans showed new liver lesions and enhancing lesions that have increased in L3 and L1. Re-biopsy of T12 demonstrated negative AFB and infectious cultures, but the pathology exam showed trabecular bone with non-necrotizing granulomas and no evidence of metastatic carcinoma.

Immunohistopathological exam of the granuloma stained positive only for CD68 (expressed in tissue macrophages), with negative staining for AE1/AE3, Pax8, S100 protein, and SOX10 (tumor markers). Labs were negative for ACE, ESR, CRP, ANA screen, C3, C4, proteinase 3 IgG, and cryoglobulin (systemic sarcoidosis and other autoimmune disease markers).

Given the laboratory results and the absence of a systemic reaction to support a real sarcoidosis, this case exhibits a sarcoid-like reaction in renal cell carcinoma.

We would like to highlight the lack of proven management for sarcoid-like reactions. Addressing the underlying cancer is the recommended treatment. Also managing symptoms associated with the reaction; for example, considering a steroid course for any symptomatic pulmonary or lymphatic involvement while keeping in mind that corticosteroids may interfere with RCC immunotherapies.

We would like to direct researchers to investigate sarcoid-like reactions as a potential paraneoplastic syndrome in RCC.

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Resident Oral Presentation # 06
Category: Clinical Vignette
Residency Program: Henry Ford Hospital Jackson
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Pancytopenia in Sarcoidosis: Complex Diagnosis and Management with Biologic Agents

Introduction:

Sarcoidosis is a multisystem granulomatous disorder characterized by noncaseating granulomas in affected organs, commonly the lungs, lymph nodes, skin, and eyes. Hematologic manifestations, though rare, may include anemia, thrombocytopenia, and pancytopenia. These manifestations often present diagnostic and therapeutic challenges due to their multifactorial and poorly understood pathophysiology. This case highlights the diagnostic complexity of hematologic sarcoidosis and the management of refractory cytopenias in an immune-mediated disorder.

Case Presentation:

A 52-year-old woman with a history of morbid obesity and type 2 diabetes presented with severe anemia (hemoglobin 4.7 g/dL) and thrombocytopenia (platelet count 4×10^9/L). Her prior CBCs were unremarkable from 2014 to 2019. Initial workup, including infectious disease, viral, and autoimmune panels, along with multiple bone marrow biopsies, was inconclusive. Bone marrow biopsy revealed normocellular marrow with multifocal granulomas but no evidence of malignancy or myelodysplasia.

She was started on oral prednisone (20–80 mg/day) and Bactrim for PCP prophylaxis, but there was no improvement in cytopenias. She recieved IVIG without any improvement. She required weekly transfusions of packed red blood cells (PRBCs) and platelets for symptomatic anemia and thrombocytopenia.

Referral to a tertiary care center and subsequent liver biopsy confirmed noncaseating granulomas in liver consistent with sarcoidosis. She received Inflectra 5mg/kg every 8 week, combined with low-dose prednisone and methotrexate (escalated to 10 mg weekly). Her pancytopenia was controlled with third line agent Infliximab. In our case anti TNF agents leds to stabilization of disease which was unique.

Discussion:

Bone marrow involvement in sarcoidosis is rare, occurring in only 0.3–2.2% of biopsies. Hematologic abnormalities, including anemia, leukopenia, and thrombocytopenia, often reflect advanced systemic involvement. Anemia in sarcoidosis may result from chronic disease, bone marrow infiltration, or autoimmune hemolysis. Thrombocytopenia, while uncommon, may be immune-mediated and typically responds to corticosteroids. Pancytopenia, as observed in this case, indicates severe bone marrow involvement and presents a unique therapeutic challenge.

Corticosteroids are the first-line treatment for sarcoidosis. However, in refractory cases or when steroids are poorly tolerated, second-line agents like methotrexate, azathioprine, or mycophenolate mofetil are recommended. Anti-TNF agents, including infliximab (Inflectra), are effective as third-line therapies for refractory sarcoidosis. This patient responded to a combination of Inflectra and methotrexate, underscoring the potential efficacy of biologic agents in managing advanced disease.

Clinicians should remain vigilant about the side effects of anti-TNF agents, including infections and tuberculosis reactivation. For cases unresponsive to these treatments, fourth-line options such as rituximab or Janus kinase inhibitors may be considered, though evidence remains limited.

Conclusion:

Sarcoidosis-related hematologic abnormalities, including pancytopenia, signify extensive systemic involvement and require a multimodal treatment approach. While corticosteroids remain the cornerstone of therapy, biologics and immunosuppressants provide options for refractory cases. Further research is needed to optimize therapeutic strategies and improve outcomes for patients with hematologic and bone marrow involvement in sarcoidosis.

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Resident Oral Presentation # 07
Category: Clinical Vignette
Residency Program: Henry Ford Hospital Jackson
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A Case of Atypical ANCA Vasculitis: A Fever of Unknown Origin and Beyond

Antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis (AAV) is a rare and potentially life-threatening autoimmune condition characterized by inflammation of small to medium-sized blood vessels. Its variable and often nonspecific clinical presentation poses significant diagnostic challenges, frequently leading to delays in diagnosis and treatment. Early recognition and appropriate management are critical to prevent irreversible organ damage. Our case illustrates an atypical presentation of AAV, diagnostic difficulties encountered, and strategies to improve clinical recognition and management.

A 63-year-old female presented with abdominal pain, oligoarthritis, intermittent fevers, nausea and vomiting for 3 weeks. Initial investigations, including a CT abdomen, revealed soft tissue swelling distal to the T10 thoracic spine raising concern for discitis or osteomyelitis. A biopsy demonstrated inflammatory cells with kappa light chain predominance, initially suggesting a possible lymphoproliferative disorder. However, infectious workup including TB, histoplasmosis, blastomycosis, CMV, HSV, and HIV were negative. Further oncologic evaluation deemed lymphoproliferative disorder was unlikely. The patient later developed episcleritis and recurrent otitis media with persistently elevated inflammatory markers (i.e. ESR and CRP), alongside positive PR-3 ANCA and RF titers, raising suspicion for AAV.

One of the challenges of diagnosing AAV lies in its mimicry of other conditions, such as infections, malignancies, or neurologic disorders. In our patient, symptoms of abdominal pain, fevers, and oligoarthritis initially diverted attention away from vasculitis. Episcleritis and recurrent otitis media were subtle indicators of vasculitis but required synthesis of multiple clinical and laboratory findings for diagnosis. Subsequently, the patient was started on high-dose glucocorticoid therapy leading to significant improvement of her systemic symptoms. Follow up imaging revealed no intracranial pathology or orbital complications, and the patient's symptoms stabilized on a tapering prednisone regimen. Patient continued to have persistent symptoms, including frothy urine, pulsatile tinnitus, and sensorineural hearing loss, indicating potential renal and auditory involvement which necessitated continued rheumatologic and otolaryngologic monitoring.

Advancements in the management of AAV have introduced novel therapeutic options, supplementing traditional glucocorticoid and immunosuppressive regimens. First-line induction therapies, such as rituximab and cyclophosphamide, have demonstrated efficacy in achieving remission. Moreover, targeted therapies like avacopan, a C5a receptor inhibitor, have emerged as valuable tools in reducing glucocorticoid dependence while mitigating long-term side effects. Maintenance therapy with agents such as azathioprine or methotrexate remains essential for reducing the risk of relapse.

The clinical complexity of AAV lies in its nonspecific presentation and often overlap with other conditions. In our patient, symptoms of abdominal pain, fever, and oligoarthritis were not representative symptoms of vasculitis leading to a delay in timely diagnosis. Subtle findings like episcleritis and recurrent otitis media were instrumental in guiding the diagnostic process. Additionally, evolving symptoms, including persistent auditory and ophthalmology involvement, underscores the importance of clinical vigilance and longitudinal monitoring to detect organ-specific complications in AAV. Early initiation of high-dose glucocorticoids was crucial in stabilizing the patient, highlighting the need for prompt therapeutic intervention. A multidisciplinary approach is integral for managing the complex interplay of systemic and organ-specific disease manifestations and in developing a personalized treatment plan guided by disease severity and the patient's response.

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Resident Oral Presentation

Resident Oral Presentation # 08
Category: Clinical Vignette
Residency Program: Henry Ford Hospital Jackson
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A Rare Case of Cardiac Metastasis Arising from a Neuroendocrine Tumor

Introduction: Neuroendocrine tumors (NETs) are a diverse group of malignancies that arise from neuroendocrine cells and are primarily found in the GI tract, pancreas, and lungs. They can metastasize to various organs but cardiac metastasis from a NET is exceedingly rare, with only a few documented cases in the literature. They can be asymptomatic or may lead to severe complications, including arrhythmias, heart failure, and obstructive symptoms.

Case Presentation: A 73-year-old man with a past medical history of Coronary artery disease, hypertension, and COPD underwent a CT chest for lung screening, showed a small isodense mass in relation to the intraventricular septum near cardiac apex. Further workup included a transthoracic echocardiogram showing a normal function, EF of 65%, and normal valves. Heart catheterization showed moderate LAD disease. A cardiac MRI showed an enhancing lesion at the right ventricular apex attached to the RV and septum. PET scan showed a mildly hypermetabolic cardiac apical region mass measuring about 2.1 x 1.5 cm along with additional lesions in the liver. He underwent a CABG with right ventricular mass excision. Pathology showed the tumor cells to be diffusely and strongly positive with synaptophysin and no reactivity with ACTH. Movat stain showed a pseudo capsule around the tumor and focal moderate interstitial fibrosis of the myocardium. The mass was deemed to be a NET. Followed by a Ga-68 dotatate scan showed mass-like thickening in the terminal ileum, metastatic lesions in the left hepatic lobe and mesentery were seen as well. CT chest/abdomen/pelvis showed a 2.5 x 2 cm mass in the ileocolic mesentery in proximity to the ileocolonic junction containing coarse calcifications. He was diagnosed with stage IV neuroendocrine cancer of the small bowel. Lab work showed a chromogranin A level of 160 ng/ml (reference range 0 - 160 ng/mL) and 5HIAA level of 13.5 mg (reference range < 10 mg/24h). Even though the patient was asymptomatic he was started on octreotide injections monthly in the setting of visceral and cardiac metastasis. A repeat CT and echocardiogram after 6 months showed no significant changes from before. He is continuing treatment with octreotide, tolerating it well, and is being monitored annually with CT chest/abdomen/pelvis along with functional hormone levels.

Discussion: Cardiac metastasis from NET is rare but poses significant clinical challenges due to the risk of life-threatening complications like obstruction, arrhythmias, and embolic events. Imaging plays a central role in diagnosing cardiac metastasis, and PET-CT and cardiac MRI are valuable tools for characterizing these lesions. Treatment typically involves systemic therapy tailored to NET management, with peptide receptor radionuclide therapy (PRRT) showing promise in cases with extensive or symptomatic metastasis. Alternate options include somatostatin analogs, targeted therapy, and chemotherapy. Surgery can be considered for localized NETs. This case highlights the importance of considering cardiac metastasis in NET patients presenting with cardiac symptoms. Multimodal imaging and a multidisciplinary approach are essential in managing such cases. Further research is needed to understand the mechanisms and optimal treatment strategies for cardiac metastases in neuroendocrine tumors.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 09
Category: Research
Residency Program: Henry Ford Hospital Jackson
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SAFETY AND EFFICACY OF PULSE FIELD ABLATION VERSUS CRYOABLATION FOR ATRIAL FIBRILLATION: A COMPREHENSIVE META-ANALYSIS

Background

Atrial fibrillation (AF) remains the most common sustained cardiac arrhythmia. The irregular rhythm prevents the atria from contracting effectively, leading to decreased cardiac output and an increased risk of thromboembolic events. causing significant morbidity, particularly due to the increased risk of stroke, heart failure, and mortality.

Objective

We analyzed available study data comparing PFA vs CA for AF in the context of efficacy, procedural characteristics, safety profiles, and prognostic outcomes.

Method

Performed a systematic literature search on 4 Databases (PubMed, Cochrane Library, Science Direct, and Google Scholar) from inception to September 2024. The inclusion criteria were Randomized controlled trials, cohort, or observational studies with Adults (≥18 years) with atrial fibrillation, studies directly comparing PFA and CA, report at least one relevant outcome (efficacy or safety), and published in English. The exclusion criteria were Case reports, reviews, editorials, or expert opinions, patients under 18 or with severe structural heart disease, studies not directly comparing PFA and CBA, lack of relevant efficacy or safety outcomes, and non-English publications without translations.

Results

A total of 20 studies were included. The total number of patients was 4622, with 1887 in the PFA group and 2735 in the CA group. PFA had a shorter procedure duration (MD: -11.07, p<0.00001), reduced contrast dye usage (MD: -51.62, p<0.00001), and smaller fluoroscopy dose (MD: -5.28, p=01). However, it required more applications per procedure (MD: 20.73, p=0.01) and longer fluoroscopy time (MD: 1.55, p=0.0005). PFA had a lower overall complication rate (OR: 0.46, p<0.0001), reduced risk of both persistent (OR: 0.13, p=0.0008) and Transient (OR: 0.12, p<0.00001) phrenic nerve palsy. However, it showed a higher incidence of cardiac tamponade (OR: 2.86, p=0.01) and atrial tachycardia (OR: 2.62, p=0.002). PFA was superior to CA in terms of post-operative changes in heart rate (MD:-8.76; p=0.007). 5 variables with >10 studies. Egger's test was performed using MedCalc Version 23.0.6. A p-value <0.05 was considered statistically significant. Results show no evidence of publication bias (P>0.05) for: Fluoroscopy time (P = 0.4525), Procedure duration (P = 0.9423), Peri-procedural complications (P = 0.2936), Tamponade rate (P = 0.4155), Vascular access complications (P = 0.6401). If the heterogeneity (I2) was >50%, we performed a sensitivity analysis by sequentially removing each study and reanalyzing the remaining data.

Conclusion

PFA may offer superior efficacy in AF treatment as compared to CA; better outcomes in preventing AF recurrence and 1-year-freedom from atrial arrhythmia. PFA also shows some procedural advantages, including shorter procedure duration and reduced contrast dye usage. The safety profile presents a lower risk of overall complications with PFA but increased risks of cardiac tamponade and atrial tachycardia as compared to CA. The prognostic outcomes showed that PFA was superior to CA in terms of postoperative changes in heart rate.

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Resident Oral Presentation # 10
Category: Clinical Vignette
Residency Program: Henry Ford Hospital Jackson
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Sickle cell anemia complicated by Bone Infarction: A unique Clinical Case

INTRODUCTION:

Sickle cell disease is a spectrum of disorders like sickle cell anemia (HbSS), HbSC, and HbSb-thalassemia. Sickle cell anemia is an inherited autosomal recessive hemoglobinopathy caused by a point mutation resulting in the substitution of valine for glutamic acid in the beta-globin gene. Eight million people are living with sickle cell disease worldwide. The prevalence of sickle cell disease in the United States is 100,000, with more than 90% being African American. Conditions like dehydration, hypoxia, infection, stress, cold weather, and pregnancy can trigger the sickling of RBCs and result in a vaso-occlusive crisis.

CASE PRESENTATION:

A 22-year-old African American male with a past medical history of sickle cell disease, stroke, left femur osteomyelitis, and acute chest syndrome secondary to sickle cell disease, was admitted for sudden onset localized left knee pain. On examination, it was warm, tender, and had a limited range of motion, but no swelling or erythema was noted. On presentation, he had a low-grade fever with a T max of 100.4 F, tachycardia HR 105 bpm, and tachypneic RR 26. Labs showed leukocytosis of WBC 12.2 K/uL with left shift ANC 8.91 K/uL, and normocytic anemia with Hb 10.2 g/dL. Further, workup revealed reticulocytes of 10%, LDH of 689 IU/L, and total bilirubin of 4.1 mg/dL, indicating a vaso-occlusive crisis. Inflammatory markers were not impressive, with ESR being 2 and CRP 8.3, which was chronically elevated. Differentials include septic arthritis, gout, septic bursitis, osteomyelitis, and vaso-occlusive pain. Orthopedic was consulted for possible aspiration, but they had low suspicion of an infection, and no effusion was reported on imaging. Overnight, he had a fever spike of T max 103 F, along with tachycardia and leukocytosis WBC 13.3 K/u/L. Infectious disease was consulted for possible infection, and ceftriaxone 2 g IV daily was started.

MRI of the left knee showed acute or subacute bone infarction of the distal femur and proximal tibia with myositis, but no evidence of osteomyelitis. Antibiotic was discontinued. He was diagnosed with bone infarction, another complication of sickle cell disease. Hematology consulted for possible exchange transfusion, but they recommended continuing aggressive hydration, pain management, and hemoglobin monitoring.

DISCUSSION:

Sickled red blood cells cause microvascular obstruction and causes ischemic injury. It can affect any body system, including musculoskeletal like osteonecrosis, osteomyelitis, bone infarction, dactylitis, osteoporosis, myositis, and septic arthritis. The incidence of bone disease increases with age. Osteonecrosis is the most serious complication, which ranges from 3.2% to 26.7%. Avascular necrosis is termed osteonecrosis of epiphyseal regions of long bones, with femoral head being the most common site, followed by the humeral head and knee.

Bone infarction involves metaphysis and/or diaphysis regions of long bones. Bone infarcts most commonly affect the metaphyseal-diaphyseal region of the knee (distal femur, proximal tibia, and/or fibula), followed by the proximal femur. It causes pain, erythema, warmth, and sometimes low-grade fever and leukocytosis. Overall, it is important to consider necrosis/infarction as a differential in sickle cell patients presenting with joint pain; diagnosing and managing its complications promptly is crucial.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 11
Category: Clinical Vignette
Residency Program: Corewell Health Dearborn Hospital
Presenter: Mariam Jamil
Additional Authors: Muhammad Hussein(MD) Amna Jafri (MD) Asim Mohamed (MD) Rajiv John (MD)

When pressure rises: Identifying Abdominal Compartment Syndrome Amid Critical Illness

Introduction

Abdominal Compartment Syndrome (ACS) occurs in approximately 15% of patients with severe acute necrotizing pancreatitis and is associated with a poor prognosis. Treatment typically involves urgent decompressive laparotomy. However, diagnosing ACS in an intensive care unit (ICU) setting can be challenging, as patients often present with primary illnesses that independently drive end-organ dysfunction. This case highlights a diagnostic framework for ACS while emphasizing common pitfalls and challenges.

Case Description

A 54-year-old male with a history of alcohol abuse presented with a two-week history of abdominal discomfort and shortness of breath. Initial evaluation, including clinical examination, imaging, and laboratory findings, revealed circulatory shock secondary to acute pancreatitis. The patient developed worsening hypoxia and labored breathing, and a CT angiogram of the chest identified a small right-sided pulmonary embolism. He was intubated, initiated on fluid resuscitation, and placed on a heparin drip for anticoagulation.

Four days into his ICU stay, the patient developed periumbilical bruising, and CT imaging revealed free fluid extravasation in the abdomen, prompting discontinuation of heparin due to concerns of hemorrhagic pancreatitis. Concurrently, he developed acute renal failure requiring continuous renal replacement therapy (CRRT) and ongoing vasopressor support. Due to worsening abdominal distension and clinical suspicion of ACS, indirect intra-abdominal pressure (IAP) measurements were initiated via bladder sensor every four hours. Initial readings were 19 mmHg, rising to 34 mmHg later that night. Repeat measurements after administration of a paralytic agent confirmed persistently elevated pressures of 34-35 mmHg. Despite uncertainty about whether the patient's slightly increased pressor requirements and reduced urine output were secondary to ACS or severe necrotizing pancreatitis, the substantially elevated IAP prompted surgical decompression.

Discussion

Subsequent case review raised concerns about a potential misdiagnosis of ACS and a premature decision for decompressive laparotomy, a procedure with significant risks, including fluid and protein loss and a hypercatabolic state. This underscores the importance of a systematic approach to diagnosing ACS, given its overlap with other critical illnesses. Key considerations include:

1. Establish a Temporal Relationship: Critically ill patients frequently exhibit end-organ dysfunction due to their primary illness. Establishing a clear temporal association between rising IAP and worsening organ function is essential to isolating ACS as the primary culprit.

2. Accurate IAP Measurements: Faulty measurements due to improper catheter placement, incorrect fluid volume instillation, or failure to measure at end-expiration can lead to diagnostic errors. Use of short-acting paralytic agents can aid in obtaining reliable readings.

3. Additional Clinical Markers: While oliguria and renal dysfunction are common early findings in ACS, these are nonspecific in shock patients. Other markers, such as elevated lactate, increased vasopressor requirements, and elevated ventilator pressures, may support the diagnosis.

4. Imaging and Targeted Interventions: Bedside point-of-care ultrasound (POCUS) or CT imaging can identify specific targets, such as ascites, that may be amenable to minimally invasive decompression before resorting to open surgical intervention.

This case highlights the complexity of diagnosing ACS in critically ill patients and advocates for a systematic, evidence-based approach to avoid unnecessary interventions and optimize outcomes.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 12
Category: Clinical Vignette
Residency Program: Henry Ford Hospital Detroit
Presenter: Amanda Darzi
Additional Authors: Amanda Darzi DO, Jamie Abad MD, Kyle McElyea MD, Ahmad Mattour MD, and Vijaya Donthireddy MD

Diagnostic Challenges in Portal Vein Thrombosis: Uncovering Primary Myelofibrosis through Multivisceral Transplant

Introduction: Underlying etiologies contributing to portal vein thrombosis (PVT) include cirrhosis, malignancy, intra-abdominal surgery, infection, thrombophilia, and myeloproliferative neoplasms (MPNs). Up to 20% of PVTs have no known predisposing factor at presentation and approximately 35% will be found to have a durable, prothrombotic condition. This case highlights the diagnostic complexity of PVT, particularly in the setting of uncertain cirrhotic status, emphasizing importance of hematologic evaluation in identifying primary myelofibrosis (PMF).

Case Presentation: A 65-year-old female presented with progressive abdominal pain and significant unintentional weight loss over two years. Initial endoscopy revealed esophageal varices. MRI abdomen revealed splenomegaly, ascites, and an atrophic appearing liver along with totally occlusive portal, splenic, renal, and mesenteric vein thrombosis. Hepatologic evaluation for cryptogenic cirrhosis and transplant evaluation included a dedicated MRI liver which redemonstrated sequela of portal hypertension and an undulated liver surface without morphologic cirrhosis or hepatic steatosis.

Given extensive thrombosis without predisposing factors, she was evaluated by hematology. An external healthcare system's thrombophilia work up was reportedly negative for antiphospholipid antibodies, JAK2 mutation, and Paroxysmal Nocturnal Hemoglobinuria, leading to no further repeated evaluation.

Due to diffuse thromboses and progressive portal hypertension, she underwent multivisceral transplant (en bloc liver, pancreas, bowel from stomach through proximal transverse colon). Explanted liver and spleen revealed significant extramedullary hematopoiesis without cirrhosis on histology.

Months post-transplant, she developed thrombocytosis (platelets of 1,059 K/uL), prompting further hematology evaluation. Peripheral blood smear showed basophils, smudge cells, schistocytes, and nucleated red blood cells, raising concerns for myeloproliferative disorder, myelodysplastic syndrome, or leukemia.

Bone marrow biopsy confirmed the delayed diagnosis of primary myelofibrosis with 90% hypercellularity and G2/3 Fibrosis, JAK2+ positivity and cytogenetics showing 5q deletion. The patient was started on hydroxyurea but developed pancytopenia, likely due to hydroxyurea and tacrolimus. Hydroxyurea was discontinued, with subsequent count improvement. She remains on immunosuppressive therapy post-transplant, with no current plans for stem cell transplant or anti-JAK2 therapy.

Discussion: This case demonstrates the diagnostic complexity of PVT in a patient with initially suspected cirrhosis, highlighting routine consideration of alternative etiologies like PMF.

Initial workup was started at an external system and JAK2 testing was not repeated due to documented negative status, insurance barriers, and practice patterns that are prohibitive against retesting.

Post-transplant workup confirmed JAK2+ PMF, likely longstanding, present at the time of presentation, leading to multiorgan failure requiring transplant.

A sequalae of PMF includes extramedullary hematopoiesis, noted on explanted tissue, contributing to hepatosplenomegaly and thrombosis. This presentation mimicked cirrhosis, as evidenced by portal hypertension, varices, and ascites, although cirrhotic morphology was not seen on explanted tissue. Had primary myelofibrosis been diagnosed earlier or identified as the cause of PVT in the initial phases of care, progression to multivisceral transplant may have been avoided.

This case illustrates the impact of insurance limitations and lack of access to medical records on patient care and timely diagnosis, highlighting the need for comprehensive testing in complex PVT presentations.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 13
Category: Clinical Vignette
Residency Program: Henry Ford St. John Hospital
Presenter: Samer Dubaisi
Additional Authors: Ahluwalia, Guneet DO; El-Haddad, Mohamed A MD

Chronic Non-Healing Ankle Wound After A Transcatheter Aortic Valve Replacement

Introduction:

Transcatheter aortic valve replacement (TAVR) has become a transformative treatment for patients with severe aortic stenosis who are at high or intermediate surgical risk. Despite its minimally invasive approach, complications can arise, such as vascular injuries. This report highlights a rare case of external iliac artery dissection following TAVR, leading to acute peripheral arterial disease (PAD). With no history of PAD, the patient presented with a chronic, non-healing ulcer in her left ankle after a fall - requiring prompt diagnosis and intervention. This case underscores the importance of recognizing vascular complications associated with TAVR and emphasizes the need for multidisciplinary collaboration in managing these potentially limb-threatening conditions.

Case:

A 70-year-old female with a medical history of COPD, heart failure and hypothyroidism underwent a TAVR for severe aortic stenosis without peri-operative complications. She had been following up with her cardiologist monthly with no post-procedural complaints. 2 months after her TAVR, she had a mechanical fall on her left ankle, leaving behind a non-healing wound that eventually ulcerated and became infected. The ulcer quickly expanded, and antibiotics with wound-care were not successful in treating her 3x2-inch ulcer. A venous doppler was negative for a DVT and an X-ray showed no acute processes. This finding was highly suspicious for severe PAD, causing poor blood flow in that area and risking the need for amputation. An arterial doppler showed over 75% occlusion of her left common and external iliac arteries, and a peripheral angiogram was urgently performed. During the intravascular ultrasound (IVUS) assessment of the angiogram, we noted a dissection in the left external iliac artery, causing 89% stenosis and a minimal luminal area of 5.1 mm squared. A self-expanding stent was deployed followed by balloon dilation. Re-evaluation with IVUS showed 0% stenosis and a minimal luminal area of 16.1 mm squared with excellent apposition and expansion. Additionally, a repeat angiography revealed well-preserved three-vessel runoff below the knee. She was discharged in stable condition and will continue her dual antiplatelet therapy and follow-ups with cardiology.

Discussion:

External iliac artery dissection is a rare complication of TAVR, with reported incidences ranging from 0.1% to 0.3%. While no significant stenosis was noted during the procedure, factors such as vessel tortuosity, calcification, or arterial fragility could have still predisposed the artery to injury. This case highlights the unpredictable nature of vascular complications, even in the absence of significant anatomical abnormalities. Clinicians should remain vigilant for ischemic symptoms following TAVR, as early diagnosis and intervention are crucial in mitigating morbidity and preserving limb function.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 14
Category: Clinical Vignette
Residency Program: McLaren Oakland
Presenter: Harika Doddi
Additional Authors: Jahnavi Ethakota, Kursat Gurel, Ammar Hatahet

A rare case of recurrent pericarditis secondary to Histoplasmosis

Introduction:

Pericarditis is inflammation of the pericardium. The most common etiology includes viral infections, trauma, post-MI, bacterial infection, and autoimmune disorders. It can lead to cardiac tamponade which is often fatal. Histoplasma causing pericarditis is known to be rare with incidence less than 10%. This case report showcases a case of recurrent pericarditis in a young patient secondary to Histoplasmosis.

Case presentation:

A 20-year-old male presented with recurrent pleuritic chest pain and shortness of breath that was progressively worse from his previous admission, during which he was diagnosed with a large pericardial effusion and was discharged on colchicine and ibuprofen for possible viral pericarditis. The patient denied cave exploration, exposure to bats, and soil or gardening. On physical exam distant heart sounds, and tachypnea were noted. On presentation, he was tachycardic with HR of 100, tachypneic with RR-22, BP was 110/58, and afebrile. The EKG showed a normal sinus rhythm with no ST segment changes during this presentation. Troponin was within normal limits, and BNP was elevated at 400. D-dimer was elevated, CTA chest showed large pericardial effusion, subtle tree-in-bud opacities in the anterior right upper lobe in the suprasellar region, multiple prominent calcified mediastinal and hilar lymph with sequelae of prior granulomatous disease, with calcified splenic granulomas and negative for pulmonary embolism. Inflammatory workup, TSH, UDS, and HIV were unremarkable. The pericardiectomy showed significant lymphohistiocytic infiltrate and multifocal poorly formed granulomas. Marked paracortical expansion and focal caseating granulomas were found in the paratracheal lymph nodes, with positive GMS special stain suspicious for fungal organisms and negative for malignancy. Immunohistochemical staining showed marked chronic lymphohistiocytic infiltrate with more T cells than B cells. Congo red for amyloid is negative. GMS stain shows positive black staining, suspicious for fungal microorganisms, morphology suspicious for Histoplasma capsulatum and AFB is negative. Histoplasma complement fixation testing was positive and Histoplasma urine antigen was negative. The patient was diagnosed with fibrosing mediastinitis, associated with Histoplasma infection, and was started on an antifungal therapy, initially with amphotericin B, followed by itraconazole.

Discussion:

Histoplasma pericarditis pathogenesis involves hypersensitivity to the yeast within mediastinal lymph nodes. It represents an inflammatory response rather than an infection and the diagnosis of H. capsulatum pericarditis can be done by culture, histopathology, cytopathology, antigen detection, or serology. The main choice of treatment is itraconazole, colchicine, NSAIDS, or amphotericin B in severe cases.

In conclusion, in areas with a prevalence of Histoplasma capsulatum, it is important to consider it as a differential in pericarditis cases. High suspicion with early workup can lead to early diagnosis with better patient outcomes.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 15
Category: Quality Improvement/Patient Safety/High Value Care
Residency Program: Trinity Health Ann Arbor
Presenter: Alycia Bellino
Additional Authors: Kairui Sun, Rishita Gupta DO, Misha Khan MD, Dhruva Govil DO, Emmanuel Daniel MD, Ola Al-Sous MD

Increasing SGLT2i Prescriptions for Inpatient Heart Failure Care

INTRO

It is well-known that goal directed medical therapy (GDMT) for congestive heart failure (CHF) improves mortality. One component of GDMT is Sodium-Glucose Cotransporter 2 inhibitors (SGLT2-i), which a meta analysis showed decreased cardiovascular death and heart failure hospitalizations by 33%. A three-month retrospective review of all Medical Teaching Service (MTS) teams revealed a noticeable gap in the rate at which this medication was prescribed to patients with CHF who met the criteria during hospital admission. Therefore, we aimed to increase the rate this medication group was prescribed for qualifying patients on MTS teams.

METHODS

Baseline data for the percentage of patients admitted with CHF, whether in exacerbation or not, who were prescribed SGLT2-i was collected from December 2023 through April 2024.

The primary outcome measure was the percentage of patients with CHF who were prescribed SGLT2-i at discharge, continued their already prescribed SGLT2-i at discharge, or documented intention to discuss/start medication in the outpatient setting. Bi-weekly EMR-generated reports were reviewed to track this outcome, and the data was plotted on a run chart to allow for real time analysis. Our goal was to increase the median percentage of prescription rate of SGLT2i from a baseline of 37.2% to 55% by December 2024 with an overall upward trend on the run chart.

For our first PDSA cycle, we first focused on education with residents on MTS teams, which was done through monthly lectures detailing the importance of SGLT2-i in this patient population along with contraindications. Teams were also given info sheets to leave in their team rooms as a reference. Additionally, residents were provided with a smart phrase template to use in documentation that detailed all GDMT needed for CHF patients, including SGLT2-i. The smart phrase was tailored in real-time based on resident feedback.

RESULTS

Prior to our intervention, 37% of providers were prescribing SGLT2 inhibitors for patients admitted with CHF to MTS teams. Following the intervention, the median percentage of providers prescribing SGLT2 inhibitors increased by 18%, ultimately reaching our goal of 55%. Although there were fluctuations in the prescribing rates across the months, the overall trend demonstrated in our run chart was upward and showed a consistent improvement in the median percentage of providers post-intervention.

CONCLUSION

Our QI initiative demonstrated a consistent improvement in prescribing SGLT2 inhibitors for patients admitted with CHF on MTS teams. To sustain these improvements, ongoing training for current and future residents will be essential to reinforce the established guidelines. Future iterations of this initiative should explore additional modalities to enhance education and standardization, ensuring consistent implementation and adherence among all residents.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 16
Category: Research
Residency Program: Trinity Health Ann Arbor
Presenter: Emmanuel Daniel
Additional Authors: Yash Patel, Alycia Bellino, Noor Alsammarraie, Jane Wong, Chin-I Cheng, Suneja Anupam

IMPACT OF RACIAL DISPARITY ON FAILURE TO RESCUE IN PATIENTS UNDERGOING CABG: A NIS DATABASE STUDY

Background

Non-Hispanic black patients have a 30% higher age-adjusted death rate from heart disease yet were 24% less likely to receive coronary artery bypass grafting (CABG) and had a 9% higher risk-adjusted mortality post-CABG. This survival difference persisted for five years. It is uncertain whether the increased mortality is due to failure to rescue (FTR), a well-defined surgical quality metric defined as hospital death amongst patients with an adverse event. We used the National Inpatient Database (NIS), the largest inpatient database with data on approximately 20% of all US inpatient hospitalizations.

Methods

This retrospective cohort study utilized data from the NIS database from 2013 to 2019. The study included patients who underwent CABG surgery to determine if there are racial disparities in FTR between non-Hispanic black and white patients. We identified the associated sociodemographic and comorbid factors using variables from the NIS data dictionary and ICD-9 and ICD-10 codes. The Rao-Scott design-adjusted chi-square test, which takes the stratified survey design into account, examined the association between binary variables and race for patients undergoing CABG. Multivariable logistic regression models were used to estimate the adjusted odds ratio to demonstrate the impact of race/ethnicity on the occurrence of FTR.

Results

We identified 1,344,490 coronary artery bypass grafting (CABG) procedures performed between 2013 and 2019. Most patients were male (74.5%) and white (78.9%). Black patients were younger than white patients, with a mean age of 62.83 compared to 66.84, and had a higher all-patient refined diagnosis-related group (DRG): risk of extreme likelihood of dying mortality subclass of 18.53% vs. 14.59% ($p < 0.0001$), respectively. A steady increase in major adverse events was observed from 2013 to 2019 ($p < 0.001$).

On univariate analysis, black patients were more likely to experience FTR than white patients (OR 1.261; 95% CI, 1.151-1.383). However, in multivariable regression, this difference was no longer statistically significant after adjusting for comorbidities, insurance status, and hospital type.

Conclusion

While our initial univariate analysis suggested a racial disparity with black patients undergoing CABG demonstrating higher FTR rates when compared to non-Hispanic white patients, the multivariable analysis, adjusted for relevant covariates, did not find a statistically significant difference. This divergence in results suggests that the observed disparity in univariate analysis may be attributed to differences in sociodemographic and clinical factors rather than inherent racial differences in outcomes. Further research is needed to explore the underlying factors contributing to the rising complication trends in patients with CABG and to develop strategies to improve outcomes for all patients undergoing CABG.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 17
Category: Research
Residency Program: Trinity Health Ann Arbor
Presenter: Monika Olejnik-Wilczynska
Additional Authors: Qianzi Zhao, Misha Khan, Preethika Palani, Mohammed El Nayir, Yash Patel, Ahmad Mizyed, Eric Wise

Biologics use and risk of heart failure in patients with rheumatic diseases

Background:

Studies have suggested an increased risk of HF in patients with rheumatic diseases (RDs). Several inflammatory cytokines have been implicated in the pathogenesis of heart failure (HF), tumor necrosis factor (TNF)α inhibitors, interleukin-1 (IL-1) and interleukin-6 (IL-6). While biologics, including TNFα inhibitors, IL-1 inhibitors and IL-6 inhibitors have been used increasingly in the treatment of RDs, the risk/benefit of biologics on heart structure and function in RDs patients remains unclear. We aimed to investigate whether biologics increase the risk of heart failure and overall mortality in patients with rheumatic diseases.

Methods:

A retrospective cohort study was conducted using data from electronic medical system in a community based hospital. We identified patients with newly diagnosed RDs between Apr 1, 2020 and May 30, 2021. Patients were divided into 2 cohorts of biologics use and non-biological disease modifying antirheumatic drug (nbDMARD) use. Biologics included TNFα inhibitors, IL-1inhibitor and IL-6 inhibitor. nbDMARDs included methotrexate and hydroxychloroquine. Follow-up period was three years. We collected demographic variables, cardiovascular risk factors, comorbidities and medication use. The primary end point was new diagnosis of HF or all-cause death. Cox proportional hazard models were used to estimate adjusted hazard ratios (HR) with 95% confidence interval (95%CI) of biologic use on new HF diagnosis and death.

Results:

770 patients were included with 185 biologic users and 585 nbDMARDs users. Biologic users were younger (44[54±15] vs. 51[60±15]) and had lower prevalence of coronary artery disease (7.0% vs. 13.1%), CKD(7.8% vs. 13.1%) and hypertension (36.5% vs. 50.5%) compared to nbDMARDs users. 6 patients with biologics use developed new heart failure diagnosis and 48 patients with nbDMARDs use developed new heart failure diagnosis. There was no increased risk of new heart failure with biologics use compared to nbDMARDs use (adjusted HR 0.43 [95% CI 0.16 to 1.18]), after adjusting for age and comorbidities. There were 4 all-cause deaths in biologics users and 17 in nbDMARD users. There was no significant difference in all-cause mortality associated with biologics use compared to nbDMARDs use (HR 0.72 [95% CI 0.24 to 2.13]).

Conclusion:

Biologics use did not increase the risk of new HF compared with nbDMARDs in this RDs population.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 18
Category: Clinical Vignette
Residency Program: Trinity Health Grand Rapids
Presenter: Michael Kopka
Additional Authors: Courtney Hurd, DO, Ali Nasir, MD, and Courtney Soubliere, DO

A Storm Inside: The Intersection of Thyroid Crisis and Psychiatric Emergencies

Introduction

Thyroid storm is a life-threatening emergency representing the most severe form of thyrotoxicosis, characterized by end-organ damage. Although the exact cause of progression from thyrotoxicosis to thyroid storm remains unclear, stressors like infection, trauma, surgery, and psychological stress can precipitate it. Rapid identification and treatment are critical, with fatality rates between 8% and 25%. We present a case of thyroid storm with concurrent acute psychosis.

Case Presentation

A 42-year-old female with Bipolar I disorder, but no prior thyroid history, presented to the ED acutely psychotic, with emotional lability, pressured speech, and paranoid delusions (e.g., “aliens over the White House, demons, earthquakes, and internal entities stabbing her abdomen”). She was tachycardic (150s) and tachypneic (40s), but otherwise vitally stable. Labs showed TSH < 0.01, T4 4.67, T3 19.69, and anion gap of 13, consistent with acute thyrotoxicosis. She was admitted and treated with Ativan, Versed, droperidol for psychosis, and PTU, propranolol, Lugol's iodine, and hydrocortisone for thyroid storm. Her vitals stabilized overnight, and she was euthymic with resolution of psychosis. She was discharged with propranolol, PTU, and endocrinology follow-up.

Discussion

This case highlights the complex relationship between thyroid storm and psychosis. Whether the psychosis triggered the thyrotoxicosis or vice versa is unclear, but both possibilities are supported in literature. Elevated thyroid hormone can potentiate dopamine blockade, leading to neuropsychiatric symptoms, while emotional stress can worsen thyroid storm by amplifying the hypermetabolic state associated with thyrotoxicosis.

Conclusion

Thyroid storm requires a multidisciplinary treatment approach, including antithyroid medications, beta-blockers, corticosteroids, and supportive care. This case emphasizes the need for early suspicion, recognition, and treatment in patients presenting with acute psychosis. Clinicians should maintain a high index of suspicion for thyroid storm to prevent diagnostic delays in this potentially fatal condition.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 19
Category: Research
Residency Program: Trinity Health Livonia
Presenter: Hemica Hasan
Additional Authors: Bazigh Naveed MD, Alea Mohamed MD, Durga Yerasuri MD

Renal-Limited Sarcoidosis Presenting with Recurrent AKI and Hypercalcemia

Introduction

Sarcoidosis is an idiopathic, systemic inflammatory disease characterized by non-necrotizing granulomas. While it most commonly affects the lungs, intrathoracic lymph nodes, skin, and eyes, it can involve virtually any organ system, often presenting with a variety of symptoms. This case report highlights a rare case where recurrent hypercalcemia and acute kidney injury (AKI) were the initial presentation of sarcoidosis.

Case Presentation

A 56-year-old female with stage IIIb chronic kidney disease and history of resected appendiceal adenocarcinoma (in remission since 2023) presented with multiple episodes of acute kidney injury (AKI) and severe hypercalcemia during 2023-2024. Her initial presentation in December 2023 featured hypercalcemia of 15mg/dL, requiring treatment with intravenous fluids and zoledronic acid. She had total of 9 admissions for recurrent hypercalcemia and AKI, during some of her admissions she required urgent hemodialysis due to severe hypercalcemia refractory to medical treatment.

Patient underwent extensive workup for evualation of etiology of hypercalcemia with multi-specialty involvement of endocrinology and nephrology. Her work up revealed suppressed parathyroid hormone (PTH) levels. Malignancy evaluation was first completed given her history of appendiceal adenocarcinoma, it included bone marrow biopsy, Positron Emission Tomography (PET) scan, and multiple site Computed Tomography (CT)/Magnetic Resonance Imaging (MRI), which were negative. Parathyroid hormone-related protein (PTHrP) was also within range. Initially, granulomatous disease was considered less likely due to normal 1,25-hydroxy vitamin D levels and absence of typical features of tuberculosis or sarcoidosis, including a negative chest CT. Tuberculosis and fungal testing were negative, vitamin D levels were normal.

Due to her progressive renal insufficiency and recurrent hypercalcemia, a decision to perform renal biopsy was made, revealing granulomatous interstitial nephritis. Despite prior normal 1,25-hydroxy vitamin D levels, this finding strongly suggested sarcoidosis, and the patient was initiated on prednisone therapy.

Discussion

While sarcoidosis typically presents with pulmonary involvement, isolated renal sarcoidosis is rare but documented. Robson et al. described seven cases of granulomatous interstitial nephritis without extrarenal sarcoid, and Carmichael and O'Donnell reported that renal-limited sarcoidosis comprises less than 2% of cases. This case is notable for its atypical presentation with isolated renal involvement and normal vitamin D metabolism, despite sarcoidosis typically being associated with dysregulated 1,25-dihydroxyvitamin D production by granuloma-associated macrophages.

This case highlights the importance of considering sarcoidosis in the differential diagnosis of unexplained hypercalcemia and renal dysfunction, even in the absence of typical pulmonary findings or vitamin D abnormalities. It also demonstrates the crucial role of renal biopsy in establishing the diagnosis when conventional workup is nondiagnostic.

Resident Oral Presentation # 20
Category: Clinical Vignette
Residency Program: Trinity Health Livonia
Presenter: Umer Javaid
Additional Authors: Rochelle Jayavendra, Preeti Misra

Acquired Hemophilia A

Acquired inhibitors of coagulation are due to antibodies that function to either inhibit or increase the clearance of certain clotting factors with the most common being factor VIII. Acquired hemophilia is characterized with an elevated PT and PTT inhibitor. Most cases are seen peri-operatively, however some patients present with large hematomas, ecchymosis, epistaxis, and hematuria. We report a unique case of a 68-year-old female with Acquired Factor VIII Inhibitor.

A 68-year-old female with a past medical history of beta thalassemia minor, radiculopathy, fatty liver, arrhythmia, and GERD who presented with headache, nausea, vomiting, body aches and fever. She reported a head injury a few weeks ago but didn't notice anything abnormal except for episodes of unexplained bruising. Labs revealed a hemoglobin 9.8, hematocrit 30, MCV 63.4, MCH 20.7, PTT 75 and a normal PT and INR. CT head without contrast revealed a left sided posterior fossa subdural hematoma causing mild mass-effect narrowing the fourth ventricle. CTA head with venogram had consistent findings of posterior fossa subdural hemorrhage causing mass effect on the left transverse dural venous sinus. Further lab work revealed a dRVVT screen-ARUP of 31, PTT-LA screen (PTT-D)-ARUP of 84, and PTT inhibitor screen of 87 which are consistent with acquired inhibition of coagulation; factor VIII. She was admitted to the ICU and given 2 units of FFP which decreased her PTT to 61. Repeat CT brain revealed worsening bilateral posterior fossa subdural hematoma with mass effect so a suboccipital craniectomy was performed which temporarily improved her mentation. Another CT brain revealed mild increase in hemorrhage and effacement of the quadrigeminal and ambient cisterns so decompression of the hematoma and C1 laminectomy was performed. She was then transferred to a tertiary care center for further management.

The pathophysiology of Acquired Hemophilia A is unclear however, it has been proposed that genetic polymorphism and autoreactive CD4+ T lymphocytes are at play. The most common immunoglobulin is IgG antibodies which bind to the C2 or A2 portion of factor VIII which normally binds to the procoagulant phospholipid phosphatidylserine on activated platelets, endothelial cells and von Willebrand factor. Hence, when occupied by IgG it leads to decreased coagulation and increased risk for hemorrhage. Coagulation profiles are expected to have an elevated PTT and normal PT. Furthermore, a mixing test is used to detect a factor inhibitor. Bethesda assay and ELISA can also provide information on specific factor VIII activity level and the antibody titer. Management to control the bleeding include desmopressin, factor VIII concentrate, aPPC; Factor Eight Inhibitor Bypassing Activity, and recombinant human factor VIIa. Elimination of the factor VIII inhibitor can be done by using immunosuppressive agents like glucocorticoids alone or with either cyclophosphamide or rituximab for 5-10 weeks. Once this goal directed therapy is initiated, it's vital to monitor factor VIII inhibitor titers to see if there is any response or if any adjustments are needed. Due to the rare incidence in the population, the condition poses a challenge as little is known about clinical course, diagnostics and treatment.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 21
Category: Research
Residency Program: Trinity Health Oakland
Presenter: Utheja Dasari
Additional Authors: Roopeessh Vempati, Vikash Kumar Karmani, Nanush Damarlapally, Srivatsa Surya Vasudevan, Christian Toquico Gahona, Geetha Krishnamoorthy

Association of Platelet-lymphocyte Ratio with Contrast-Induced Nephropathy in Patients Who Underwent Percutaneous Coronary Artery Intervention for Acute Coronary Syndrome: An Updated Meta-analysis

Association of Platelet-lymphocyte Ratio with Contrast-Induced Nephropathy in Patients Who Underwent Percutaneous Coronary Artery Intervention for Acute Coronary Syndrome: An Updated Meta-analysis.

Introduction:

Contrast-induced nephropathy (CIN) is a serious complication following percutaneous coronary artery intervention (PCI), especially in acute coronary syndrome (ACS) patients. Platelet-lymphocyte ratio (PLR), an emerging indicator of systemic inflammation, has been investigated to forecast the risk of CIN in various cardiovascular events. Our meta-analysis aims to evaluate the association between PLR and the onset of CIN in ACS patients undergoing PCI.

Methods:

Relevant databases such as PubMed, Google Scholar, and, Scopus were systematically reviewed to determine the association between the PLR and CIN in ACS patients undergoing PCI. An updated meta-analysis was performed using a random effects model, mean difference, 95% confidence intervals, and I2 statistics. The Newcastle and Ottawa Scale tool was employed for qualitative analysis and funnel plots were used to detect publication bias. Leave-one-out sensitivity analysis was conducted along with meta-regression to detect the robustness of the selected studies and identify any confounding factors such as age and gender respectively.

Results:

A total of 14,247 ACS patients who underwent PCI with a mean age of 58.79 years, and 69.45% males were included in 9 studies. 1524 (10.7%) developed CIN after PCI and 12,723 (89.3%) patients didn't develop CIN after PCI. Most studies had baseline characteristics such as hypertension, diabetes, and a history of smoking. The primary outcome was the association between PLR and CIN in ACS patients undergoing PCI. Our updated meta-analysis resulted in statistically significantly higher levels of PLR in the CIN group compared to the non-CIN group (Mean difference: 34.8, 95% CI: 24.3-45.3, p <0.0001). However, I2 statistics revealed heterogeneity of 86.6%. Sensitivity analysis showed no significant change in the overall effects with any one study removal. Meta-regression analysis showed no significant association with variables such as age (p = 0.91) and male (p = 0.10), indicating the robustness of the study. Newcastle and Ottawa Scale reported no risk of bias, and funnel plots showed no publication bias. All P values <0.05 were considered statistically significant.

Conclusion:

Our updated meta-analysis indicates that a higher PLR is independently associated with a greater risk of CIN in ACS patients receiving PCI. Thus, PLR could act as a simple, economical biomarker in detecting at-risk cardiovascular patients and help formulate early preventive strategies for this population.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 22
Category: Clinical Vignette
Residency Program: Trinity Health Oakland
Presenter: Kanika Goyal
Additional Authors: Dr. Nikhil Vojjala, Dr. Parjanya Bhatt, Dr. Geetha Krishnamoorthy

An Unknown Foe: Case of Recurrent Pregnancy Loss and Preterm Premature Rupture of Membranes in a 23-Year-Old Female

Introduction

Recurrent pregnancy loss (RPL) is a distressing condition with a profound impact on affected individuals and families. It is defined as the loss of two or more pregnancies before viability, occurring in 1% to 4% of couples attempting conception. While many causes for RPL have been identified, the role of inherited and acquired thrombophilia has garnered significant attention. One rare cause of inherited thrombophilia is polymorphism in the Plasminogen Activator Inhibitor-1 (PAI-1) 4G/5G allele. We report a rare case of a 23-year-old female with a history of RPL and preterm deliveries attributed to PAI-1 4G/5G polymorphism, emphasizing the interplay between genetics, pregnancy outcomes, and multidisciplinary management. Various case reports and meta-analysis have shown a significant association between PAI 4G/5G polymorphism and RPL. The impaired plasmin-dependent proteolysis can favor recurrent abortion by promoting fibrin deposition in early placental circulation, or by limiting trophoblast development, or both. Hypo-fibrinolysis is also associated with preeclampsia, intrauterine growth retardation (IUGR), abruptio placentae, and stillbirth.

Case presentation:

Our patient is a 23-year-old Gravida 6, Para 0-2-3-2, presented at 32 weeks of gestation to the Emergency Department (ED), reporting leaking per vaginum. Her past Obstetric history is significant for two preterm deliveries, both due to preterm premature rupture of membranes (PPROM) and three first-trimester miscarriages. On physical examination, vitals were stable, with a blood pressure of 120/70 mm Hg and a maternal heart rate of 88/min. Gynecological examination confirmed the rupture of membranes, and speculum examination revealed clear amniotic fluid with no signs of active infection. She denied any symptoms suggestive of a urinary tract infection. Initial Laboratory investigations showed mild anemia with a hemoglobin of 10.1 g/dl (Normal range is 12-16 g/dl). The rest of the laboratory tests were unremarkable. Given a history of recurrent pregnancy loss and PPROM, an underlying thrombophilia etiology was considered. Acquired thrombophilia workup for antiphospholipid antibody syndrome was negative. Protein C, Protein S, Antithrombin 3 mutations, and Factor V Leiden were negative. Further Genetic thrombophilia testing confirmed heterozygous Plasminogen activator inhibitor - 1 (PAI-1) 4G/5G allele polymorphism. Diagnosis of PAI-1 4G/5G polymorphism-related recurrent Obstetric thrombophilia was made. Hematology Oncology was consulted, and the patient was placed on long-term anticoagulation. Meanwhile, the Obstetrics team managed maternal and fetal care, including the administration of betamethasone to accelerate lung maturity, administration of broad-spectrum antibiotics, and fetal monitoring. The patient underwent normal vaginal delivery, and a plan was made to continue long-term anticoagulation with Lovenox for the next 6 weeks.

Conclusion:

• This case report highlights a rare but underrecognized entity in patients with unexplained recurrent pregnancy loss and PPROM.

• This also underscores the significance of primary care physicians being aware of this rare entity and initiating genetic counseling and tailoring management. It highlights the need for further research to clarify the prevalence and clinical implications of PAI-1 4G/5G polymorphism in diverse populations. Multidisciplinary care involving obstetrics, hematology, and neonatology is essential for balancing maternal and fetal risks, ensuring the best possible outcomes in such high-risk pregnancies.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 23
Category: Research
Residency Program: Trinity Health Oakland
Presenter: Reshma Reguram
Additional Authors: Yash Shah, Geetha Krishnamoorthy

Using AI to Optimize Insulin Dosing in Type 1 Diabetes: A Path to Precision Medicine - A Literature Review

Background: Optimizing glycemic control in Type 1 Diabetes (T1D) remains a complex challenge due to individual variability in insulin sensitivity and lifestyle factors. Current approaches, including basal-bolus regimens and continuous glucose monitoring (CGM), have improved outcomes but are limited in addressing dynamic fluctuations in glucose levels. Artificial Intelligence (AI) presents a promising avenue for enhancing insulin dosing precision through personalized medicine.

Objective: To review and analyze recent literature on the effectiveness, methodologies, and clinical outcomes of AI-driven insulin dosing strategies for patients with T1D.

Methods: A thorough literature search was conducted across electronic databases, including PubMed and Google Scholar, to identify 39 studies from the past decade relevant to AI applications in insulin dosing for T1D. The selection criteria included Randomized Controlled and Cross over Trials (RCTs) involving AI-driven insulin delivery systems in T1D patients that looked at HbA1c, Time in Range and hypoglycemic events. Our goal was to gather evidence on the effectiveness of AI-assisted insulin dosing, highlight common methodologies, and explore their potential benefits and challenges.

Results: The review suggests that AI-driven insulin dosing algorithms may enhance glycemic control in T1D. Studies consistently report lower HbA1c levels (0.67% decrease compared to 0.19% in traditional dosing methods), increased time in range (70.61% compared to 55.23% in traditional dosing methods), and reduced hypoglycemic episodes with AI-assisted management (0.69% compared to 2.71% in traditional dosing methods). Improvement in nocturnal glycemic control was also noted. Various AI techniques, including Proportional Integral Derivative (PID), Model Predictive Control (MPC), and Fuzzy Logic (FL) leverage real-time CGM data and patient-specific factors to tailor insulin dosing. These methodologies demonstrate notable improvements in managing glucose dynamics influenced by meals, exercise, and other daily activities. Patient satisfaction with AI-assisted management is also notably enhanced, emphasizing its potential to revolutionize diabetes care through personalized approaches.

Conclusion: AI represents a transformative advancement in the field of diabetes management, offering personalized insulin dosing strategies that adapt to individual glucose dynamics and lifestyle factors. Despite promising outcomes, the robustness of AI algorithms can be compromised by data quality and availability, necessitating reliable and continuous data input from CGM devices. Standardizing AI methodologies and validating long-term benefits across diverse patient populations are crucial next steps. The ongoing evolution of AI technologies holds considerable promise for improving patient outcomes and quality of life in T1D.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 24
Category: Research
Residency Program: Trinity Health Oakland
Presenter: Nikhil Vojjala
Additional Authors: Rishab Prabhu, Geetha Krishnamoorthy

Thrombotic and Bleeding Outcomes in Patients with Myeloproliferative Neoplasms Undergoing Elective Primary Total Joint Arthroplasty: Paving the Way for Tailored Thromboprophylaxis

Background:

Myeloproliferative neoplasms (MPN) are associated with increased thrombotic and bleeding complications. Data for perioperative planning for elective surgery in this population is limited.

Aims:

To evaluate the impact of MPN diagnosis on rates of thrombotic and bleeding complications after total knee and hip arthroplasty (THA/TKA).

Materials and Methods:

We accessed the Nationwide Inpatient sample database from 2016-2020 to identify patients undergoing primary THA/TKA. Patient-level details such as demographics, hospital characteristics, comorbidities (including MPN), and healthcare utilization metrics were extracted. In-hospital outcomes were labeled using validated algorithms including thrombosis (including deep vein thrombosis (DVT), pulmonary embolism (PE), bleeding (by site), and mortality. Logistic regression analysis was performed to assess the impact of MPN diagnosis on outcomes by calculating adjusted odds ratios (OR) with 95% confidence intervals (CI).

Results:

Of 8691585 THA/TKA hospitalizations, an underlying MPN was identified in 0.18% (n=16159). Among patients with MPN, the mean age was 70.85 years, 63.9% were females and the majority had Essential Thrombocythemia (64.5%), followed by Polycythemia Vera (26.8%). (Table 1) The mean length of stay and total hospitalization charges were higher in patients with MPN versus those without MPN (5.19 days vs 2.66 days and 89315.6 vs $67650.4) respectively. Patients with MPN had a significantly higher risk of thrombosis (DVT: OR 2.99 95% CI 1.89, 4.72) and PE: OR 2.15 (95% CI 1.27, 3.64)). Similarly bleeding risk in general was significantly higher in patients with MPN (OR 6.71 95% CI: 2.34, 19.2) and GI bleeding (OR 2.40 95% CI: 1.19, 4.87). In-hospital mortality risk was also higher for patients with MPN (OR 2.51 95% CI: 1.53, 4.11).

Conclusions:

In this national database study, we found that underlying MPN is associated with significantly elevated risks of both thrombotic and bleeding post-surgical complications after TKA/THA. These data highlight the importance of tailored thromboprophylaxis decision-making in this population.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 25
Category: Research
Residency Program: Wayne State University Detroit Medical Center Sinai Grace
Presenter: Ayca Kutlu
Additional Authors: Enis Yilmaz, Kamal Khalil, Abhimani Wickrama

Management of Splenic Hemorrhage in Hemodynamically Stable Patient: Splenectomy vs. Embolization

Background/Introduction: There is currently no clear consensus on the optimal management of hemodynamically stable patients with a hemorrhagic ruptured spleen from blunt trauma, particularly when there is concern about the potential for excessive bleeding that could lead to hemodynamic instability. A literature review was conducted to examine whether medical management/observation, splenectomy, or splenic artery embolization (SAE) would be the optimal intervention in such cases.

Methods: A literature search was performed using PubMed and Google Scholar, focusing on studies published in the last 10 years. The key search algorithm was defined as follows: ((embolization) OR (PSE)) AND (((surgical) OR (surgery)) OR (splenectomy))) AND ((splenic rupture) OR (splenic hemorrhage) OR (ruptured spleen)). Studies were included in this literature search if they focused on treatment outcomes in hemodynamically stable adult patients and studies were excluded if they focused on patients with splenic varices, cirrhosis, or splenic arterial aneurysms.

Results: The literature search displayed an emphasis on splenic injury severity as defined by The American Association for the Surgery of Trauma (AAST) radiologic grade. When comparing outcomes of non-operative medical management vs SAE, it was demonstrated that patients with AAST Grade 1 to Grade 3 injuries should not be routinely recommended SAE, however, SAE should be strongly considered as an adjunct to non-operative medical management in patients with AAST Grade 4 and Grade 5. When comparing outcomes of splenectomy vs SAE in hemodynamically stable patients with AAST grades 4 and 5, SAE was demonstrated to be a safer and more effective management approach for blunt splenic injury patients with significantly lower rates of in-hospital mortality, shorter intensive care unit length of stay, and lower blood product transfusion requirements demonstrated when compared to splenectomy. When comparing outcomes of prophylactic splenic artery embolization (pSAE) vs. surveillance and then embolization only if necessary (SURV) in AAST Grade 3 to Grade 5 patients, no significant difference was found in splenic rescue rates, complications, or impact on activities between pSAE and SURV.

Conclusions: The decision between non-invasive medical management, SAE, or splenectomy for traumatic splenic injury depends on the severity of injury according to AAST grade and hemodynamic stability. SAE should be strongly recommended as an adjunct to medical management in patients with AAST Grade 4 and Grade 5 injury, however, should not be routinely recommended in patients with AAST Grade 1 to Grade 3 injuries. SAE has more favorable morbidity and mortality outcomes compared to splenectomy in high-grade (AAST 4 and 5) injury management in hemodynamically stable patients. Therefore, splenectomy should not be recommended in hemodynamically stable blunt spleen injury patients.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 26
Category: Clinical Vignette
Residency Program: Wayne State University Detroit Medical Center Sinai Grace
Presenter: Osman Muslehuddin
Additional Authors: Daphne Pete, Husam Muslehuddin, Hafeezuddin Ahmed

Septic Arthritis Caused by a rare yeast, Lodderomyces elongisporus

Introduction:

We present a rare case of septic arthritis caused by Lodderomyces elongisporus, a yeast rarely implicated in human infections. This case highlights the diagnostic challenges and management strategies for fungal septic arthritis in an immunocompromised patient.

Case Presentation:

A 63-year-old African American woman with a complex medical history, including chronic heart failure (CHF), hypertension, end-stage renal disease (ESRD) on hemodialysis, severe protein-energy malnutrition on total parenteral nutrition, duodenal switch with malabsorption, deep vein thrombosis (DVT) on warfarin, and previous sepsis episodes, presented with worsening dyspnea. She was admitted in August 2024 for acute-on-chronic CHF exacerbation. During her admission, she developed progressive left knee swelling and pain, prompting evaluation for suspected septic arthritis. During a prior hospitalization from June to July of 2024, the patient had bilateral knee pain. The knee pain was attributed to pseudogout since arthrocentesis revealed calcium pyrophosphate crystals. Corticosteroid injections provided minimal relief. Cultures from her left knee revealed WBC 29,850/mm3 and grew Lodderomyces elongisporus, which was dismissed as a contaminant.

Clinical Course:

Left knee arthrocentesis revealed 32,660 WBC/mm3, 20,000 RBC/mm3, and no crystals. Cultures again grew Lodderomyces elongisporus. Given the repeated isolation, a diagnosis of fungal septic arthritis was confirmed. Knee X-rays revealed moderate osteoarthritis in both knees with effusions. CRP decreased from 83.5 mg/L to 4.4 mg/L from July to October of 2024. ESR decreased from 89 mm/hr to 48 mm/hr from August to October of 2024. Blood cultures were repeatedly negative which ruled out systemic dissemination.

Management:

Orthopedic surgery performed washout and debridement of the left knee. Post-operative thrombectomy and transition to oral anticoagulation with apixaban were managed to address extensive DVTs. Infectious disease specialists prescribed intravenous micafungin 100 mg daily for six weeks, as echinocandins are considered first-line treatment for Lodderomyces elongisporus. Physical and occupational therapy were initiated to restore mobility.

Discussion:

This case underscores the rarity of fungal septic arthritis due to Lodderomyces elongisporus, an environmental yeast with limited virulence. Immunocompromised states such as ESRD, chronic malnutrition, and previous episodes of sepsis likely predisposed this patient to infection. Misinterpreting the initial culture isolation of Lodderomyces elongisporus as contamination delayed the diagnosis and subsequent treatment, underscoring the critical need to differentiate true infection from contaminants. This case illustrates the importance of repeated culture testing to confirm fungal arthritis, particularly in immunocompromised patients with atypical pathogens. Moreover, it highlights the challenges in managing rare fungal infections, including limited antifungal susceptibility data and established treatment protocols for Lodderomyces elongisporus. Surgical debridement, combined with prolonged antifungal therapy, remains the cornerstone of management in such cases. This report emphasizes the necessity for heightened clinical vigilance, meticulous diagnostic efforts, and a multidisciplinary approach in treating rare fungal infections in high-risk individuals. Further research is warranted to guide optimal management strategies for these uncommon yet significant infections.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 27
Category: Quality Improvement/Patient Safety/High Value Care
Residency Program: Wayne State University Providence Rochester Hospital
Presenter: Ayushi Garg
Additional Authors: Jai Kumar, Nour Aldaoud, Vesna Tegeltija

Enhancing Colorectal Cancer Screening in a Resident Based Community Clinic: A Resident Based Quality Improvement Initiative

Background:

Colorectal cancer (CRC) remains a leading cause of cancer-related morbidity and mortality in the United States. Recent guidelines from the U.S. Preventive Services Task Force (USPSTF) have expanded the recommended age for CRC screening to 45-75 years, aiming to detect cancers at earlier, more treatable stages. Despite these recommendations, significant disparities persist in screening uptake across various demographic groups, including age, gender, race, and language proficiency. Studies have shown that while overall CRC screening rates have increased, they remain disproportionately low among certain populations, such as younger adults, racial and ethnic minorities, and individuals with limited English proficiency. Addressing these disparities is crucial for improving early detection and reducing CRC-related mortality.

AIM:

The goal of PDSA Cycle 2 is to address the barriers identified in the first cycle and achieve a 20% increase in CRC screening compliance among at-risk groups in one year.

Methods:

Using the IHI Model, a multidisciplinary team approach initiated a quality improvement project. The Plan, Do, Study, Act (PDSA) cycle was employed to test change.

Results:

In PDSA Cycle 1, we analyzed CRC screening data for 175 patients aged 45-75, with 131 remaining after exclusions. The mean age was 60.5 years. Of the patients, 61.1% were referred for colonoscopy and 15.3% were provided stool DNA test kits, resulting in an overall compliance rate of 41.2%. Disparities were identified across various demographics, with younger patients (mean age 52.8 years) having fewer screening discussions and women less likely to complete colonoscopy referrals compared to men (33.3% vs. 47.3% compliance). 60% of Black patients and 75% of patients listed as "other race" received colonoscopy referrals, with 20% and 25% compliance, respectively; 73.3% of non-English-speaking patients had referrals sent, with 33.3% compliance, and 53.3% of these patients reported language and cultural barriers. These findings highlighted critical gaps in care and informed the interventions planned for Cycle 2.

Based on the above findings, targeted interventions will be implemented to address these barriers in PDSA Cycle 2. These include placing CRC screening pamphlets in clinic rooms, training residents to discuss screening importance, and addressing language and cultural barriers. Multilingual educational materials will be provided in English, Albanian, Hindi, and other languages, and discussions will be held to explore gender and age-related hesitancies. A reminder system using calls, texts, and emails will be introduced to reduce missed appointments, and non-compliance data will be collected and analyzed for ongoing improvement. Data on non-compliance will be collected and analyzed to guide future improvements and refine strategies.

Conclusion:

This study highlights critical disparities in CRC screening within our clinic, particularly among younger adults, females, non-White, and non-English-speaking patients. These findings align with national trends indicating that certain groups experience lower screening rates, contributing to higher mortality and morbidity. Implementing targeted interventions, such as culturally tailored educational materials and language-specific resources, is essential to address these disparities. By focusing on these at-risk populations, we can enhance screening adherence, promote early detection, and ultimately improve CRC outcomes.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 28
Category: Research
Residency Program: Wayne State University Providence Rochester Hospital
Presenter: Joiven Nyongbella
Additional Authors: Vamsi Krishna Lavu (MD), Priya Mishra (MD), Rizwan Hashim (MD), Jai Kumar (MD), Yash Patel (MD), Rochelle Jayavendra (MD), Kopal Kotak (MD), David Bock (MD), Jeffrey Amir Sharza, Johnson Zachary (MD)

Trends and disparities in Cardiac Arrest related mortality in patients with Arrhythmias other than Atrial fibrillation or Flutter in the United States from 1999 to 2020: Insights from the CDC Wonder database

Background: Heart disease is the leading cause of mortality in the United States and arrhythmias-associated cardiac arrest are among the most prominent causes in American Adults. This study analyzed demographic trends and disparities in mortality rates due to Cardiac Arrest in adult patients aged 25 years and older with Cardiac arrythmias other than Atrial fibrillation or Flutter.

Methods: A retrospective analysis was conducted to acquire death data using the Centers for Disease Control and Prevention WONDER (Wide-ranging Online Data for Epidemiology Research) database from 1999 to 2020 using ICD-10 codes for Cardiac arrest (146) and arrhythmias other than Atrial fibrillation and Flutter (147 and 149). Age-adjusted mortality rates (AAMRs) were calculated per 100,000 persons and stratified by year, gender, race, ethnicity, urbanization, state, and geographical region. Using Joinpoint regression, Trends were assessed using Average Annual Percentage Change (AAPC) for AAMR with 95% CI and p-value.

Results: Between 1999 and 2020, arrhythmia-associated cardiac arrest contributed to 293,877 deaths among adult individuals in the US population. The overall AAMR for arrhythmia-associated cardiac arrest decreased from 7.54 in 1999 to 5.84 in 2020, with an AAPC of -1.83 (-2.79 to -0.85), p-value = 0.00089. The mean AAMR was significantly higher in men (men: 8.23; women: 4.72, $p<0.001$). The Average AAMRs varied among racial/ethnic groups, with Blacks or African Americans having the highest mean AAMR (8.44), followed by Hispanics (6.63), whites (6.04), Asian or Pacific Islanders (5.90), and American Indian or Alaska Natives (5.12). AAMRs decreased for all races except for American Indians or Alaska Natives. Geographically, the Mean AAMR Varied from a lowest of 2.27 in Maryland to a highest of 11.02 in California, with the West region having the highest mean AAMR of 8.32. Large Metro areas had the highest average AAMR of 7.32, and all areas except micropolitan experienced a significant decrease in AAMR, as indicated by their respective AAPC.

Conclusion: This analysis depicts significant demographic and geographic disparities in mortality rates attributed to arrhythmia-associated cardiac arrest. As with many cardiovascular diseases, African American males are disproportionately affected, thus targeted interventions and equitable healthcare access are crucial to mitigate these disparities and improve outcomes for these populations.

Keywords: Age-adjusted mortality rates; Arrhythmias, Cardiac Arrest; Ethnicity; Geographic regions; Race; Gender.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 29
Category: Quality Improvement/Patient Safety/High Value Care
Residency Program: Wayne State University Providence Rochester Hospital
Presenter: Aman Saleemi
Additional Authors: Darlene Nguyen, Elif Tama, Hasan Ilyas, Rochelle Jayavendra, Vesna Tegeltija

Improving Management of Type-2 Diabetes Mellitus in a Resident Clinic

Background:

Type-2 Diabetes Mellitus (DM) affects approximately 11% of the U.S. population and is the 7th leading cause of death. Recent ADA guidelines emphasize the use of GLP-1 receptor agonists (GLP-1 RA) for improved cardiovascular and renal outcomes, especially in patients with coexisting chronic kidney disease (CKD) or coronary artery disease (CAD). Despite their proven benefits, GLP-1 RA utilization in our resident clinic has been suboptimal.

Aim:

To increase GLP-1 RA therapy initiation among eligible patients with type-2 DM by 50% within one year through enhanced interventions in PDSA Cycle

Methods:

Summary of PDSA Cycle 1:

In the first cycle, a brief education session was conducted for residents, and patient charts were reviewed over 2 months. Among 46 eligible patients, 32% had documented discussions about GLP-1 RA, and 19% initiated therapy. Approximately 33% had no documentation of GLP-1 RA discussions. Identified barriers included limited resident familiarity with prescribing workflows, patient concerns about cost and side effects, and lack of standardized documentation.

PDSA Cycle 2:

The PDSA Cycle 2 plan focuses on addressing barriers identified in Cycle 1 to improve the initiation of GLP-1 RA therapy among eligible patients with type-2 diabetes mellitus. Interventions included in this cycle are enhancing resident training through an in-depth workshop covering eligibility criteria, contraindications, dosing, titration, follow-up workflows, and cost-saving programs, supplemented by a quick-reference guide. Patient-centered support involving developing an educational handout explaining GLP-1 RA benefits, side effects, and cost options will also be incorporated. A standardized documentation template will be implemented in the EMR, featuring an eligibility checklist and a follow-up plan. Additionally, a follow-up workflow will include an EMR-based tracker with reminders to ensure follow-up visits occur within four weeks of therapy initiation. Anticipated barriers include limited time during clinic visits, which will be addressed by distributing patient education materials in advance and scheduling follow-ups for detailed discussions, and high medication costs, mitigated through providing access to manufacturer assistance programs.

Conclusion:

PDSA Cycle 2 builds on the foundation of Cycle 1 by addressing identified barriers through enhanced education, documentation standardization, and patient support. The ultimate goal is to improve Type-2 DM management in our resident clinic, aligning patient care with ADA recommendations and achieving better outcomes for high-risk populations.

2025 Michigan Chapter ACP and SHM Michigan Chapter Resident and Medical Student Day
Resident Oral Presentation

Resident Oral Presentation # 30
Category: Clinical Vignette
Residency Program: Western Michigan University Homer Stryker M.D. School of Medicine
Presenter: Bruna Dellatorre Diniz
Additional Authors: Wilo Issack, IM-PGY-1; Jacob Baker, MD (Infectious Diseases Faculty)

Blurred Lines: Unraveling CMV Retinitis and Neurosyphilis in an immunocompromised patient

Introduction

Prior to the introduction of potent ART, HIV-related complications were considerably more prevalent. Today, the severity of these complications is directly linked to the degree of immunosuppression. Untreated HIV, poor adherence to ART, or treatment failure significantly increase the risk of neurological involvement, including ocular complications that may lead to vision loss. We present a patient with vision loss due to concurrent CMV and syphilis infection.

Case description:

A 36-year-old male with a history of HIV, off antiretroviral therapy, presented with sudden-onset vision loss in the right eye, which began approximately one week prior following a coughing fit.

On physical examination, he had a mildly dilated right pupil with sluggish response to light, and photophobia. Visual field testing revealed an inability to read letters with the right eye, with perception limited to large objects. He exhibited total visual deficits in the right nasal field and blurred vision across all visual fields. A limited fundoscopic examination raised concern for retinal inflammation in the right eye.

Laboratory findings were notable for a CD4 count of 121, HIV viral load exceeding 1 million, elevated CMV IgG, and a positive treponemal antibody titer of 1:64. Ophthalmology consultation was obtained, and dilated fundoscopic examination revealed vitreitis with granular retinal whitening in the inferior retina. Intravenous valganciclovir was initiated and patient was promptly transferred to a higher-level care facility, where he received intravitreal ganciclovir and foscarnet. Further evaluation confirmed neurosyphilis, with a positive CSF VDRL. He was treated with a 14-day course of intravenous penicillin G and completed a total of 20 days of valganciclovir for CMV retinitis. The final diagnosis was CMV retinitis with syphilitic chorioretinitis.

Discussion:

Vision impairment is a common complication in patients with advanced HIV, especially in AIDS. Low CD4 count and high viral load are associated with higher ocular complications (1). CMV retinitis accounts for 90% of HIV-associated blindness, with a prevalence of 30% in patients with CD4 count<50 (2). CMV retinitis is typically identified by recognizing characteristic retinal findings observed through a dilated pupil during ophthalmoscopic examination by an experienced ophthalmologist. In this context, the diagnostic accuracy has a positive predictive value of approximately 95% (3). To ensure timely diagnosis and treatment, early involvement of ophthalmology and infectious disease experts is critical for these patients. Routine ophthalmology evaluation for HIV patients is also crucial as half of the patients with CMV retinitis are asymptomatic (4).

Neurosyphilis, like ocular syphilis, can develop at any stage of syphilis. The clinical manifestations of neurosyphilis in individuals with HIV are similar to those seen in patients without HIV; however, in HIV-positive patients, concomitant ocular syphilis may be more prevalent. Syphilis can affect almost any ocular structure (3). In HIV-patients, panuveitis is the most common manifestation (5). Posterior uveitis, particularly chorioretinitis, is also relatively high in both HIV and non-HIV patients. When there is a high suspicion for ocular syphilis with clinical presentation and positive serological tests, fluorescein angiography and indocyanine green angiography can be used for further evaluation (5).