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New York Chapter
American College of Physicians

Annual Scientific Meeting

Poster Presentations

Saturday, October 26, 2024

Westchester Marriott
670 White Plains Road
Tarrytown, NY 10591

New York | ACP American College of Physicians Leading Internal Medicine, Improving Lives

New York Chapter
American College of Physicians

Annual Scientific Meeting

Medical Student Clinical Vignette

Poster Presentations

Kyle Blackmer, B.S.

Chris Elsayad, MD, FACP

Nassau University Medical Center

The Dangers of Unregulated Weight Loss Supplements: Tejecote-Induced Acute Liver Injury

The continued worsening of the obesity pandemic has spurred increased demand for alternative, seemingly convenient weight loss methods, including over-the-counter herbal supplements not regulated by the FDA. These compounds often possess wide-ranging side effect profiles with scant documented research. Tejocote, a product of the Mexican hawthorn tree Crataegus mexicana, is one such supplement marketed for weight loss. The present report describes the case of a middle-aged Hispanic female who ingested Tejocote with Famotidine and presented with acute gastrointestinal symptoms and transaminitis.

A 55-year-old obese Hispanic female with isolated asymptomatic dextrocardia and carpal tunnel syndrome presented to the emergency department with symptoms of nausea, abdominal pain, diarrhea, and decreased appetite. The patient stated she had been experiencing these worsening symptoms for the past month, partially relieved by Famotidine. Vital signs were within normal ranges. No jaundice, tenderness to palpation, or hepatomegaly was noted on physical examination. Comprehensive metabolic panel was significant for potassium 3.2 mmol/L (3.6-5.2 mmol/L), AST 85 IU/L (8-48 IU/L), ALT 107 IU/L (7-55 IU/L), ALP 207 IU/L (40-129 IU/L). EKG demonstrated normal sinus rhythm. She denied taking any prescription medications or using alcohol/illicit drugs recreationally. However, she admitted to starting an herbal supplement shortly prior to symptom onset. Further investigation revealed this supplement to be Tejocote â€“ Crataegus mexicana â€“ a Mexican root with purported weight loss benefits. She had stopped taking the supplement a few days before presentation at the ED due to concerns it was related to her GI symptoms. She was discharged in stable condition with instructions to avoid Tejocote and follow-up with the outpatient clinic. Two weeks later, a follow-up visit to the outpatient primary care clinic revealed complete resolution of transaminitis and all GI symptoms.

No documented literature attributes consumption of C. mexicana to acute transaminitis or hepatotoxicity. In fact, studies demonstrate the flavonoids and phenolic acids contained within the plant possess antioxidant properties, providing hepatoprotective benefits against free radicals and reactive oxygen species. Famotidine, taken alone, has been implicated as a rare cause of temporary drug-induced liver injury due to its activation into a toxic metabolite via the CYP450 system; however, this requires chronic use at higher doses that did not occur with our patient. According to Basheer and Kerem, flavonoids, flavanols, anthocyanins, and tannins inhibit CYP3A4, decrease P-glycoprotein-mediated cellular efflux of drug metabolites, and inhibit intestinal glucuronidation of drug metabolites. Thus, we postulate that ingestion of the polyphenolic compounds of Tejocote interfered with the drug metabolism of Famotidine, resulting in the accumulation of hepatotoxic metabolites that induced acute transaminitis in our patient. It is also possible that, given the lack of literature on C. mexicana, the supplement may be directly hepatotoxic in rare cases or in individuals with specific CYP450 polymorphisms.

Christopher Cook

Yannis Dimitroff

John Romano MD

Upstate Medical Norton College of Medicine

Severe Colitis Induced by Ocrelizumab Therapy

Introduction:

We report a case of a 31-year-old woman with history of multiple sclerosis (MS) who presents with severe colitis following administration of ocrelizumab (OB). OB is a humanized monoclonal antibody to CD20 antigen on B cells. OB is indicated in patients with primary progressive MS or relapsing MS. Colitis is a known side effect of OB, but there is a paucity of documented cases worldwide.

Case Description/Methods:

Our patient was started on OB treatment 2 years prior to presentation. She received 2 induction doses and then a third dose 6 months thereafter. Patient had no complaints prior to these infusions. She received her fourth dose of OB 1-week prior to presentation in GI clinic with complaints of bloody diarrhea and intense abdominal cramping. Pertinent negative history included no fever, chills, nausea or vomiting. Vitals were: 138/94 mm/Hg, 83 bpm, 16 resp/min, temp of 97 degrees. Abdominal exam with mild tenderness to palpation. Lab workup with (Hgb 11.5 g/dl, Hct 37.6%, Iron 28 mcg/dl, Sat 7.0%, Ferritin 3.8 ng/ml, MCV 73.6 fl, ESR 56 mm/hr, CRP 15.9 mg/L). She denied prior history of any form of inflammatory bowel disease or family history of GI diseases aside from colon cancer in a grandparent. Patient's upper endoscopy was normal with benign biopsies. Colonoscopy revealed severe inflammation, ulceration and edema in the cecum, ascending, transverse and descending colon in a non-contiguous fashion with pathology revealing severe colitis (Figure 1). The differential diagnoses were severe medication induced colitis due to OB treatment or Crohn's disease that was exacerbated by OB treatment. Initial treatment consisted of prednisone at 20mg for 14 days with mild improvement in patient' symptoms with plans for repeat endoscopy in 3 month time. In conjunction with neurology a decision was made to start natalizumab, which binds to alpha-4 integrin. This was chosen over more traditional biologics normally used for drug induced colitis. This is because traditional anti-TNF drugs may exacerbate demyelinating diseases such as MS.

Discussion:

Severe colitis is a rare and under-documented side effect of OB treatment with there being less than 15 reported cases in literature. Onset of symptoms have ranged from at initial dose up to 30 months after. To our knowledge, this case represents the longest development of symptoms after initial treatment date. Successful treatment of colitis included use of corticosteroids, salvage therapy with cyclosporine that failed and needed surgical resection to surgical resection alone. OB is the leading prescribed MS medication in the United States. Due to the rarity of documentation of this phenomenon, it is important for physicians to be aware of this potential side effect, further studies should be completed.

Annabella Deziel

Megan Gerber, MD, MPH

John Hickey, MD, MPH

Albany Medical College

Statin-induced Immune-mediated Necrotizing Myopathy: A Case Report

Immune-mediated necrotizing myopathy (IMNM) encompasses a rare group of inflammatory myopathies, categorized into seropositive (anti-HMGCR and anti-SRP positive) and seronegative subtypes. IMNM is characterized by rapidly progressive muscle weakness and elevated muscle enzymes, associated with significant morbidity and mortality due to complications such as dysphagia and respiratory failure. The condition is particularly important to recognize in patients with a history of statin use, as statins are known triggers for the disease.

This report presents a case of a 58-year-old male with a past medical history consisting of type 2 diabetes mellitus, peripheral neuropathy, hypertension, and hyperlipidemia, who had been on long-term atorvastatin therapy. His other medications included metformin, insulin aspart, insulin degludec, dulaglutide, gabapentin, and lisinopril. He initially presented with a 2-3 month history of progressive generalized weakness and fatigue. Initial laboratory investigations revealed creatine kinase (CK) 8416, aspartate aminotransferase (AST) 460, alanine aminotransferase (ALT) 395, alkaline phosphatase (AlkPhos) 93, and erythrocyte sedimentation rate (ESR) 42. Despite immediate discontinuation of atorvastatin, his symptoms rapidly worsened. 3 weeks after his initial appointment, he reported a 15lb weight loss, softened voice, and weakened cough and gag reflex, with an episode of near choking.

Further lab results showed persistently elevated muscle enzymes and inflammatory markers. Negative results were obtained for a wide range of infectious and autoimmune markers, including Hepatitis C antibody, HIV 1 and 2 antibodies, Anti-Smooth Muscle Antibody, Hepatitis B antigen and antibody, Antinuclear Antibody, Lyme, Babesia, Anaplasma, Ehrlichia serologies, Mycobacterium tuberculosis, Anti-Jo Antibodies, Antiscleroderma-70 Antibodies, and Sjogren's Anti-SS-A and Anti-SS-B antibodies. On day 33, positive anti-HMGCR antibodies resulted and thus confirmed the diagnosis of anti-HMGCR positive IMNM. Upon diagnosis, the patient was promptly treated with high-dose corticosteroids and intravenous immunoglobulin (IVIG), resulting in clinical improvement and resolution of dysphagia. By day 82, his CK levels had dropped to 331, and he was nearing his pre-illness baseline by day 97.

IMNM, particularly the anti-HMGCR positive subtype, is often associated with prior statin exposure, emphasizing the need for heightened clinical suspicion in patients with known statin use presenting with new-onset myopathy. Diagnosis relies on clinical presentation, elevated muscle enzymes, and specific autoantibodies. Management includes immunosuppressive therapy and strict avoidance of statins. Early recognition and treatment are crucial to mitigate disease progression and improve outcomes.

This case highlights the clinical course and management of anti-HMGCR positive IMNM, emphasizing the importance of recognizing this rare autoimmune disorder in patients with statin exposure. Timely diagnosis and appropriate treatment are essential to prevent severe complications and optimize patient outcomes.

Amauri Gomez, MS

Samer Mahmoud, Alexis Rivera, Alan Tusher, MD, PhD

Suny Downstate/Kings County Hospital

A Hidden Endocrine Disorder: Diagnosing Pancreatic Insulinoma After a Self-Inflicted Stab Wound

Introduction:

Pancreatic insulinomas are rare neuroendocrine tumors that cause severe hypoglycemia and lead to psychosomatic symptoms such as fatigue, insomnia, anxiety, and depression. Psychosomatic symptoms are defined as physical symptoms that arise from or are influenced by emotional and mental factors rather than direct physical causes. Diagnosing insulinomas is challenging due to their nonspecific presentation, often mimicking other conditions. This case report details a patient with an insulinoma who presented with severe depressive symptoms and a self-inflicted stab wound, highlighting the critical role of endocrine evaluation in the differential diagnosis of neuropsychiatric conditions with psychosomatic features.

Case Presentation:

A 45-year-old male with hypertension and depression presented with a self-inflicted stab wound to the left chest, which was surgically repaired. During the initial evaluation, a chest CT scan incidentally revealed a 2 cm mass in the pancreatic head. The patient reported severe insomnia and had not slept for three days prior to the incident. Despite medical management, he achieved only 3-4 hours of sleep per night while hospitalized. Initial glucose readings showed significant fluctuations, and the patient continued to experience hypoglycemic episodes with anxiety, sweating, and tremors. An MRI confirmed the pancreatic mass.

A prolonged fasting test was performed twice due to the severity of the patient's symptoms, yielding the following hypoglycemic workup results during symptomatic episodes:

Day 1: The patient was symptomatic with weakness, which improved after intravenous (IV) dextrose administration. Results: FSG 52 mg/dL, serum glucose 52 mg/dL, insulin 23.89 µIU/mL (normal: 2-20 µIU/mL), C-peptide 3.7 ng/mL (normal: 0.9-4.0 ng/mL), proinsulin 111.7 pmol/L (normal: <5 pmol/L).

Day 2: The patient was symptomatic with dizziness and lightheadedness, which improved after IV dextrose administration. Results: FSG 71 mg/dL, serum glucose 61 mg/dL, insulin 28.01 µIU/mL (normal: 2-20 µIU/mL), C-peptide 3.8 ng/mL (normal: 0.9-4.0 ng/mL), proinsulin 116.7 pmol/L (normal: <5 pmol/L).

These findings fulfilled Whipple’s triad (symptomatic hypoglycemia, low plasma glucose, and relief of symptoms after IV dextrose administration) and confirmed the diagnosis of insulinoma. Given the severity of the symptoms and the confirmation of insulinoma, the patient underwent a robotic-assisted converted to open pancreaticoduodenectomy (Whipple procedure) to remove the pancreatic tumor. The surgery was successful, and post-surgery glucose levels stabilized (post-surgery average: 145

mg/dL). The patient's depressive symptoms and insomnia significantly improved, suggesting a direct correlation with insulinoma-induced hypoglycemia.

Discussion:

This case underscores the importance of considering pancreatic insulinomas in patients with unexplained psychosomatic symptoms and glucose fluctuations. The incidental discovery of the tumor during a CT scan for a chest injury highlights the diagnostic challenges and the necessity for a thorough evaluation of endocrine disorders in patients presenting with severe psychosomatic symptoms or suicide attempts. Early diagnosis and surgical intervention can prevent severe complications, misdiagnosis, and inappropriate treatments.

Matthew Heider, B.S.

Michael Goldberg M.D., Isabel McFarlane M.D. FACP

SUNY Downstate Health Sciences College of Medicine

Post-Stroke Recrudescence Following Sedation with Midazolam

Post stroke recrudescence [PSR] is the re-emergence of previous stroke-related deficits. Literature has shown that patients who have suffered from transient cerebral ischemic episodes and were neurologically intact showed recrudescence of prior focal deficits after administration of the benzodiazepine anesthetics. The exacerbation or recurrence of previous stroke deficits with midazolam suggests a vulnerability of the recovered brain to GABAA-mediated inhibition. We present the case of a 56-year-old woman who underwent minimal sedation for electrophysiology study with midazolam and had altered mental status in the recovery room. The patient was initially misdiagnosed with conversion disorder, but upon taking a detailed history of similar focal neurologic deficits years before, it was revealed she had a prior TIA. Rapid recognition is key in preventing future midazolam exposures and avoiding further cardiovascular events; clinicians' awareness on recrudescence of stroke or TIA in the setting of midazolam administration is crucial.

Clinical Summary of case:

56-year-old woman presented to our hospital for syncope in the setting of supraventricular tachycardia (Atrioventricular nodal reentrant tachycardia vs. other reentry tachycardia); SVT was terminated with vagal maneuvers. Patient underwent electrophysiology study utilizing minimal sedation with midazolam and had no inducible tachyarrhythmia. Towards the end of the electrophysiology procedure, the patient started shivering and her mental status changed, she stopped talking and answering questions. In the initial exam, her mouth looked drooped to the right side. A stroke code was called, and the patient was taken for a head and neck CT scan and MRI which were unremarkable. Neurology consultation found no evidence of recent ischemia, the patient was diagnosed with conversion disorder and admitted to medicine for monitoring. The patient's focal neurologic deficits post-benzodiazepine administration resolved after a few hours. The clinical evolution of the case following the exposure to midazolam is consistent with previously published studies. In a study done by Lazar et al. (2003) three patients with previously diagnosed TIA demonstrated recrudescence after midazolam challenge. These findings provide support for the notion that a functional challenge with midazolam could prove helpful in the identification of brain injury beyond the belief symptomatic period. The recognition of the re-emergence of previous stroke-related deficits prevented a misdiagnosis (conversion disorder) and unnecessary Neurology referral.

Farhan Kashem,

University Hospital at Downstate

Hidden Waters: Unraveling a Case of Urinothorax from Prostatomegaly-Induced Urinary Retention and Renal Complications

Background:

Urinothorax is a form of pleural effusion caused by urinary fluid within pleural fields, due to urinary obstruction or trauma to the ureteral organs. Urine leakage can accumulate in the peritoneal cavity and subsequently leak into the pleural space through lymphatic connections or diaphragmatic pores. The resulting pleural effusion, often accompanied by atelectasis, typically develops on the ipsilateral side of the urinary leakage.

Case Presentation:

A 72-year-old male with hypertension and hyperlipidemia was brought to the emergency room with three weeks of dyspnea, abdominal distention, bilateral flank pain, and constipation. During this period, he experienced urinary urgency but only managed small amounts. His abdomen had become progressively distended, and he hadn't had a bowel movement in eight days. This distention caused discomfort and dyspnea, especially when lying down. The physical exam showed a distended abdomen without peritoneal signs, positive costovertebral angle (CVA) tenderness, and decreased breath sounds at the right lung base.

Investigation:

A chest X-ray and CT of the abdomen and pelvis were ordered. The X-ray revealed a right-sided pleural effusion with adjacent atelectasis. The CT scan highlighted a bladder obstruction due to prostatomegaly causing significant urinary retention, leading to right kidney fornix rupture and perinephric urine accumulation. Abdominal urine collection subsequently leaked into the pleural space, causing the effusion. The distended bladder also compressed the bowels, causing constipation.

Interventions:

A 16Fr Foley catheter was inserted, draining 2 liters of urine and alleviating the abdominal distention and dyspnea. After eight days with no bowel movements, the patient had six bowel movements overnight. He was managed for post-obstructive diuresis, a polyuric state involving rapid water and electrolyte elimination, with potential dehydration and electrolyte imbalances. Patient received maintenance fluids at 150 cc/hr of 0.45% normal saline, with close monitoring of serum electrolytes and fluid status. Upon discharge, he retained the Foley catheter and was referred to urology for further management of prostatomegaly-induced urinary obstruction and evaluation for possible prostate cancer.

Discussion:

Urinothorax, a rare form of pleural effusion, is caused by urinary fluid within the pleural space, migrating from urine collections in the abdominal cavity. Due to poor recognition, urinothorax is underreported. Diagnostic evaluation include a chest X-ray to reveal pleural effusion. A CT scan of the abdomen and

pelvis or ultrasonography supports the diagnosis by identifying the underlying genitourinary tract pathology and urine collections. A definite diagnosis can be achieved by thoracentesis and pleural fluid analysis. A pleural fluid to serum creatinine ratio greater than 1 is suggestive of urinothorax.

Conclusion:

Urinothorax should be included in the differential in patients with obstructive uropathy or recent genitourinary trauma who develop dyspnea or chest pain. Early diagnosis and appropriate intervention are crucial to prevent complications and ensure effective management.

David Kim,

Peter Zhang, MD

NYU Grossman School of Medicine

CNS Histoplasmosis: the Importance of Early Diagnosis and Treatment

A 35-year-old man with untreated HIV and related AIDS presented with several weeks of progressive right hip pain and malaise. He was managed conservatively for pain until day four of admission when he experienced new onset lower extremity weakness and urinary retention. These symptoms prompted urgent transfer for evaluation of possible spinal cord compression. Upon transfer, his neurological exam revealed bilateral CN VI palsy, normal upper extremities, 3/5 bilateral lower extremity strength, absent patellar and achilles reflexes, suprapubic tenderness, and absent rectal tone; bladder scan revealed two liters of urine. No photophobia or meningeal signs were present. He was afebrile, and labs were notable only for a white blood cell count of 2.17 x 103 cells/uL and CD4 count of 46 cells/uL. MRI brain and spine revealed patchy enhancement of the brainstem, as well as diffuse enhancement of nerve roots and pia mater of the spinal cord without compressive etiology. Lumbar puncture subsequently showed a hazy fluid with opening pressure of 40 cm H2O, glucose of 31 mg/dl, protein of 457 mg/dl, and a white cell count of 91 cells/mcl with 77% lymphocytes. Further infectious workup was notable for a cerebrospinal fluid histoplasma antigen above the limit of quantification and a urine histoplasma antigen of 10.1 ng/mL. Spinal fluid analysis for other pathogens including cryptococcus, syphilis, TB, cytomegalovirus, and JC virus were negative. Cerebrospinal ganglioside antibodies were also negative. Patient's course was complicated by worsening mixed hypoxic and hypercapnic respiratory failure requiring intubation secondary to diaphragmatic paralysis appreciated on bedside ultrasound. Induction therapy with liposomal amphotericin B was initiated. Antiretroviral therapy was also restarted after one week of induction therapy. Over the following weeks, the patient experienced partial neuromuscular recovery. By week two of induction therapy, he regained voluntary movement of his left lower extremity and demonstrated a strong diaphragmatic excursion elicited with voluntary cough. He was successfully extubated and began his recovery outside of the intensive care unit to complete his treatment course for central nervous system (CNS) histoplasmosis.

Diagnosing CNS histoplasmosis is often delayed because CNS involvement is under-recognized, even in disseminated disease. Further complicating the diagnosis, its clinical presentation is highly variable in acuity and presentation. This case illustrates how it can present with rapidly progressive neurological symptoms (without frank meningeal signs) that correspond to the location of its CNS involvement. It also demonstrates how symptoms can be isolated to the CNS, lacking the other extrapulmonary features commonly seen in disseminated histoplasmosis. We hope that this case emphasizes the importance of including disseminated histoplasmosis into the differential diagnosis when immunocompromised patients present with new neurologic signs or symptoms. Ultimately, the prognosis and functional recovery depends on early initiation of induction treatment, highlighting the importance of early diagnosis.

Samer Mahmoud,

Amauri Gomez, M.S., Alexis Rivera, Alan Tusher, M.D., Ph.D.

SUNY Downstate/ Kings University Hospital

Heart and Mind: Unraveling the Cardiomyopathy Conundrum of Clozapine

Introduction: Clozapine, an antipsychotic medication used for treatment-resistant schizophrenia and schizoaffective disorder, has the potential to induce myocarditis, a rare but potentially fatal complication that can lead to life-threatening cardiogenic shock. The exact mechanism is not fully understood, but it may involve direct myocardial toxicity, hypersensitivity reactions, or autoimmune responses. One proposed theory is an IgE-mediated hypersensitivity, as a study found eosinophilia in 66% of clozapine-induced myocarditis cases (Datta and Solomon, 2020). Early recognition of the pathogenesis of clozapine-induced myocarditis and prompt intervention are critical to prevent severe outcomes such as cardiomyopathy and improve the prognosis for patients who need to take clozapine, especially those who have limited alternative medication options.

Case Presentation: A 42-year-old woman with a history of schizoaffective disorder, bipolar type, presented to the psychiatric emergency department. Initial psychiatric evaluation revealed disorganized behavior, grandiosity, and paranoia, indicative of decompensated schizoaffective disorder. Following admission, she was started on clozapine. On Day 84 of clozapine treatment, she developed a fever (102°F), altered mental status, and hypotension (BP 70s/40s) and the clozapine was stopped. Laboratory tests showed elevated troponin 51 ng/L (normal 0 - 0.04 ng/mL) and BNP 2,353 pg/mL (normal <100 pg/mL) levels. An echocardiogram revealed a severely reduced ejection fraction (EF) of 5%, suggesting clozapine-induced myocarditis. Initial management included discontinuing clozapine titration, broad-spectrum antibiotics (vancomycin and piperacillin-tazobactam), and intravenous fluids, but her condition worsened, necessitating advanced heart failure treatment. She was transferred to the Critical Care Unit (CCU) for management of cardiogenic shock. Treatment included milrinone infusion, vasopressor support (norepinephrine and dobutamine), and diuretics. An endomyocardial biopsy confirmed clozapine-induced myocarditis.

During her CCU stay, her cardiac function gradually improved. By Day 93, a repeat echocardiogram showed an EF improvement to 40%. She was weaned off vasopressors, extubated, and transitioned to Invega Sustenna (234 mg IM q4wk) and Depakote ER (1000 mg q24h) for her psychiatric management.

Discussion: This case underscores the importance of regular monitoring of cardiac and inflammatory markers in patients undergoing clozapine therapy, particularly in the early stages of treatment. Our patient's eosinophil count data highlight the potential role of eosinophilia in the pathogenesis of clozapine-induced myocarditis. Specifically, we observed a mean absolute eosinophil (MAE) count of 0.068 (SD 0.019) and a mean eosinophil percentage (MEP) of 1.4% (SD 0.415) before stopping clozapine. After discontinuing clozapine, the MAE count decreased to 0.026 (SD 0.030), and the MEP to 0.30% (SD 0.314). This reduction in eosinophil count following clozapine cessation supports the hypothesis of eosinophilia as a contributing factor in clozapine-induced myocarditis. Further research is needed to better understand the mechanisms underlying this adverse effect and to develop strategies for prevention and management.

Daryn Nguyen, BS

Hannah Miksenas, BA, Raya Alrasham, MD, Sumbal Wajid, MBBS, and Abigail Belasen, MD

Albany Medical College

TESTOSTERONE AND TRENBOLONE POST-INJECTION MYOSITIS IN AN AMATEUR BODYBUILDER

Introduction

Anabolic steroid use poses significant health risks. This case highlights a rare complication associated with such misuse.

Case Description

A 40-year-old male bodybuilder with a history of illicit anabolic steroid use presented with two days of pain and edema in his right thigh and calf, causing difficulty walking. He had been self-injecting testosterone and trenbolone obtained from a street vendor weekly for 12 months. Seven days prior, he felt he had improperly injected it into his right thigh. He experienced soreness the next day.

On examination, the patient was afebrile with BP 188/104 and with edema to the right anterior calf and tenderness to palpation. There was no erythema or warmth. Initial laboratory workup revealed WBC 6.8, creatinine 1.67, ESR 63, CRP 39, and CK 504. Bilateral lower extremity venous duplex ultrasound was negative for deep vein thrombosis. Radiographic imaging of the femur showed no foreign bodies, bony abnormalities, or soft tissue gas.

A diagnosis of post-injection myositis was made. The patient improved with rest and intravenous fluids. He was advised to discontinue the use of injectable testosterone and trenbolone and to maintain adequate hydration.

Impact/Discussion

Growing use of anabolic steroids among athletes and non-athletes has become a major public health concern. Common complications include cardiovascular disease, hepatotoxicity, psychological disorders, reproductive dysfunctions, and infection from contaminated needles. Post-injection myositis is a rare complication. The underlying mechanism is unknown, but it is hypothesized that muscle inflammation and damage occur from improper injection and sterile technique, as well as the innate immune response to steroid ester crystals.

At the time of presentation, differential diagnoses included pyomyositis, deep vein thrombosis, and hematoma. Imaging and the lack of systemic signs of infection made these diagnoses less likely.

Management of post-injection myositis is with supportive care, rest, hydration, and cessation of the offending agent. Patients should be counseled on the adverse side effects of anabolic steroid use and advised to stop.

Conclusion

Post-injection site myositis is a rare complication of anabolic steroid use. Evaluating patients for other causes of acute muscular pain and edema including rhabdomyolysis, skin and soft tissue infection, DVT and hematoma is crucial. Patients should be advised of complications of anabolic steroid use and provided cessation counseling.

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Medical Student Research

Poster Presentations

Farhan Kashem

SUNY Downstate Medical Center

Enhancing Transarterial Chemoembolization (TACE) Efficacy in Hepatocellular Carcinoma (HCC) Using Caffeic Acid: A Woodchuck Model Study

Introduction: Many hepatocellular carcinoma (HCC) patients cannot undergo liver transplants or surgery, necessitating alternative treatments like transarterial chemoembolization (TACE). TACE aims to block the tumor's blood supply, causing hypoxia, but often falls short of being curative, with high rates of tumor recurrence. Research shows HCC cells survive hypoxia through glycolytic metabolism, which produces lactate that must be exported from the cell. Our study explores the use of caffeic acid (CA), a natural compound that inhibits lactate export, combined with TACE to enhance tumor regression. This study investigates the effectiveness of this combined treatment in a woodchuck model of HCC.

Materials and Methods: Woodchucks with HCC resulting from hepatitis infection were divided into three groups: Control group (n=9, 1 mL of normal saline, NS), bland transarterial embolization (TAE) (n=10, 1 mL of ethiodized oil), and transarterial chemoembolization (TACE) with caffeic acid (n=7, 0.5 mL ethiodized oil + 0.5 mL CA in NaOH (total 10 mg CA)). Embolization to angiographic stasis was performed through a microcatheter at the segmental level. Tumor volume was measured by magnetic resonance imaging (MRI) before treatment and once a month for 6 months. Tumor perfusion was quantified by sequential contrast-enhanced MRI images obtained every 15 seconds for a duration of 150 seconds. Using a semi-automated tumor region of interest (ROI), intensity values were measured at representative axial slices at each time point. The area under the curve was then calculated to represent overall tumor perfusion. After 6 months, animals were euthanized, and the tumors underwent histopathologic analysis.

Results: There was no significant difference in the initial tumor sizes. The control group and the ethiodized oil TAE group both showed rapid growth with volumes that were 2,130% larger and 712% larger, respectively. The ethiodized oil + CA TACE group showed a 10.2% decrease in volume compared with baseline ($p < 0.05$). The TACE group also demonstrated a statistically significant reduction in tumor perfusion between the pre-operative and immediate post-operative time points when compared with the NS controls (125%, $p < 0.05$). Histopathologic analysis revealed a marked reduction in viable tumor tissue comparing TACE to TAE and control groups.

Conclusion: Antimetabolic transarterial chemoembolization (TACE) therapy, utilizing ethiodized oil combined with caffeic acid (CA), demonstrates significant efficacy in treating hepatocellular carcinoma (HCC) in a woodchuck animal model. Our study showcases substantial tumor response, marked by significant reductions in tumor volume and viability. These promising results highlight the potential of this combined therapeutic approach to improve clinical outcomes for HCC patients, warranting further investigation in clinical trials. The findings underscore the real-life applicability of this study, suggesting that integrating antimetabolic strategies with traditional TACE could offer a more effective treatment paradigm for HCC patients who are ineligible for surgical interventions.

Samuel Soff

Yun Jae Yoo, Margaret Hall, M.S., Rachel Wong, M.D, M.P.H, M.B.A, Richard A. Moffitt, Ph.D; on behalf of the N3C Consortium

Stony Brook University, Emory University

Different Definitions of Long COVID Identify Different Cohorts

Introduction: Post Acute Sequelae of COVID-19 (PASC), or Long COVID, is a heterogeneous syndrome, defined by persistent long term symptoms occurring more than 4 weeks after COVID-19. However, the reported prevalence of PASC among COVID-19 patients varies significantly between studies, with rates ranging anywhere from 20%-100%. The methods for defining PASC in research studies differ considerably; investigators have defined cohorts with PASC using the ICD-10 code U09.9 â€œPost COVID-19 condition, unspecifiedâ€, diagnosis codes for symptoms such as â€œcoughâ€, symptoms extracted from clinical notes, and predictions based on machine learning models. There has yet to be a consensus for a standardized approach for defining and diagnosing PASC in research using electronic health record (EHR) data.

Objective: To compare the outcomes of defining PASC using four methods: U09.9, symptom diagnosis codes, clinical notes symptoms, and a machine learning model.

Methods: A retrospective cohort study was done using EHR data from the National COVID Cohort Collaborative (N3C) Enclave, a nationwide database containing over 8 million COVID patients. We included patients with â‰¥3 post-COVID healthcare visits, from sites where the U09.9 code was used and for which keywords from clinical notes had been extracted using natural language processing (NLP). PASC was diagnosed within 30 to 300 days following COVID-19 infection, by four methods: 1) U09.9: patients diagnosed with the U09.9 code, 2) diagnosis code symptoms: patients with â‰¥3 instances of a new-onset Long COVID symptom (respiratory, cough, brain fog, fatigue, loss of smell/taste, musculoskeletal, and/or cardiovascular symptoms) via diagnosis codes, 3) clinical notes symptoms (NLP): patients with â‰¥3 instances of a new-onset Long COVID symptom extracted from clinical notes using NLP 4) Machine Learning (ML) PASC: patients predicted to have PASC via a machine learning model, trained on patients diagnosed with U09.9. PASC rates were compared between the four groups, and a secondary analysis compared the detection of each PASC symptom between the clinical notes and diagnosis code methods.

Results: There were 88,930 patients from 5 sites eligible for inclusion, with 31% of patients (N = 27,917) diagnosed with PASC by any method. The prevalence of PASC was 20.0%, 14.5%, 8.8% and 2.0% via NLP, ML, symptom diagnosis codes and U09.9 codes respectively. The precision and recall of NLP, assuming true positives were U09.9, diagnosis code symptoms, or ML positives, was 39% and 41% respectively. The overall trend of NLP detecting more instances of PASC was also true on a symptom by symptom basis when compared to symptom diagnosis codes.

Conclusion: PASC defined by clinical note (NLP) symptoms captured more patients than other methods, but using multiple methods identified many more patients than any method individually. Future PASC studies should leverage clinical notes rather than relying on diagnostic codes alone.

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Resident/Fellow Clinical Vignette

Poster Presentations

Alan Abboud, MD

Alan Abboud, MD1; Kazi Ullah, MD2: Leslie Klyachman, MD2; Rasan Cherala, MD1
1 Department of Medicine, Stony Brook University, Stony Brook, NY
2 Division of Gastroenterology, Department of Medicine, Stony Brook University, Stony Brook, NY
Stony Brook University Hospital

REPERCUSSIONS OF HERBAL SUPPLEMENTS: A CASE OF TURMERIC-INDUCED LIVER INJURY

Turmeric and its active compound, curcumin, have been shown to have anti-inflammatory and antioxidant effects in vitro. Recent small-scale clinical trials demonstrate possible benefits of turmeric use for different diseases including arthritis and digestive disorders. However, the exact side effects of turmeric supplements are unclear. Here, we report a case of turmeric-associated drug-induced liver injury (DILI).

A 53-year-old woman with Behçet disease and depression was sent to the emergency department by her PCP for elevated liver function tests (LFTs). The patient reported new-onset dark-colored urine despite maintaining adequate hydration. Outpatient urinalysis was negative for any signs of a urinary tract infection, but liver enzymes were markedly elevated. The patient reported having mild fatigue for the past month, but otherwise denied abdominal pain, nausea, vomiting, jaundice, itching or confusion. On medication review, she reported taking a turmeric supplement daily for four months, and Sertraline 200 mg daily for years. She did endorse drinking 3-4 beers on the weekends.

On exam, the patient was alert and oriented to person, place, time, and situation. She did not have any scleral icterus, jaundice, rash, asterixis, abdominal tenderness, or hepatosplenomegaly. On admission, labs were notable for elevated AST/ALT (1045/1560, respectively), elevated GGT (159), mildly elevated alkaline phosphatase (149), but normal bilirubin, INR, and platelet count. Upon initial assessment, the patient presented with hepatocellular liver injury with concern for DILI, however, differential diagnoses included viral hepatitis, autoimmune hepatitis, and vascular causes such as Budd-Chiari Syndrome in the sitting of ‘Behçet ;et disease.

Negative workup included: liver ultrasound (U/S), portal vein U/S, CT of the abdomen, urine toxicology, serum acetaminophen and ethanol level, viral serology, autoimmune serology, and hereditary causes. Within 24 hours of admission, the patient was started on a N-acetyl cystine (NAC) protocol but did not tolerate treatment. Her LFTs continued to rise prompting a liver biopsy for etiology. Histology showed moderate to marked lobular, portal and interface hepatitis, without any hepatocyte collapse consistent with DILI. The patient’s LFTs peaked six days into her admission, and she was subsequently discharged with indefinite discontinuation of turmeric supplements.

This case demonstrates the importance of maintaining a broad differential in the workup of any pattern of liver injury. Anchoring bias remains a common cause of delayed diagnosis in medicine. The patient’s history of ‘Behçet ;et disease prompted a thorough workup to rule out autoimmune and ischemic causes before considering DILI. A thorough review of medications and herbal supplements is essential to conduct in all cases of liver injury. On careful examination of the Costco-branded turmeric supplement, black pepper is used as an active ingredient to maximize absorption of curcuminoid compounds. Therefore, higher regulatory standards may be needed to further examine the therapeutic and toxic dosing of commercially available herbal supplements.

Kenney Abraham, DO

Phillip Key, MD; Camilla Kemppainen, MD; Ryan Heslin, MD

Stony Brook University Hospital

Fulminant Influenza Myocarditis Requiring ECMO Support

Viral infection may lead to myocarditis, or inflammation of the myocardium. This inflammation, when severe enough, can result in left ventricular dysfunction and potentially reduce the left ventricular ejection fraction. Rarely, the impact the inflammation has on the contractile function of the heart can result in hemodynamic changes that can be life threatening. After an episode of syncope, a woman in her 30s who was recently diagnosed with influenza A (H3 subtype) presented to an academic hospital's emergency department for evaluation. Initial vitals were reassuring with a heart rate of 87 bpm, and blood pressure of 105/66 mmHg. Examination demonstrated regular rhythm, no lower extremity edema, and her lungs were clear to auscultation. She was found to have an elevated pro-B type natriuretic peptide level of 6152 pg/mL and a positive influenza A PCR test. A transthoracic echocardiogram was obtained and demonstrated globally reduced left ventricular systolic function with an estimated ejection fraction of 28% as well as reduced right ventricular systolic function. Over the next six hours, she became progressively tachycardic to 135 bpm then hypotensive, with systolic blood pressure measured at 65 mmHg. She was initially admitted to the cardiovascular intensive care unit and was started on dobutamine and vasopressin. Pulmonary artery catheterization was completed for better evaluation of suspected cardiogenic shock and it demonstrated a severely reduced cardiac index at 0.9 L/min/m2. Due to the concern for worsening cardiogenic shock and impending circulatory collapse, mechano-circulatory support was initiated via veno-arterial extracorporeal membrane oxygenation (ECMO) and she was admitted to the cardiothoracic surgery intensive care unit. Several days later, a biventricular assist device (BiVAD) was implanted with the goal of being able to discontinue ECMO. Shortly afterwards, repeat echocardiogram demonstrated normal left and right ventricular systolic function, and the BiVAD was removed. Ten days after initiation of ECMO, it was able to be discontinued, and the patient was decannulated. The patient was then able to be discharged home. This case exemplifies how, when it is identified early and aggressively treated, most patients with fulminant myocarditis can have exceptional outcomes.

Abena Agyekum,

Nana Osei, Emir Ekim, Stefy Clinton, Jordan Mukisa, Maureen Masara

SUNY Downstate Health Sciences University

Osteomyelitis of the Pelvis: A Stealthy Presentation and a Treatment Challenge

Osteomyelitis is a severe bone infection characterized by progressive inflammation and local bone destruction. It commonly arises from contiguous spread from an adjacent infectious focus, or compromised vascular integrity. Patients with prostate cancer undergoing radiation therapy (RT) can experience a range of complications including pelvic osteomyelitis, albeit uncommon. This rare case explores the diagnosis, investigations and treatment challenge of pelvic osteomyelitis (PO) in a patient with a history of prostate cancer post-RT.

A 74-year-old male with a history of diabetes mellitus, hypertension, and prostate cancer post-RT, presented with a 3-day history of dysuria, inner thigh pain, and groin swelling. Urinalysis was positive for infection and serology was positive for high inflammatory markers. Computed tomography and magnetic resonance imaging revealed a pubovesical fistula with small retropubic abscesses measuring up to 2.7cm, a large pneumaturia and findings concerning for PO. Extensive chart review revealed the patient had similar abscesses that were drained some months ago at a different facility where urine cultures were positive for extended broad-spectrum beta-lactamase Klebsiella pneumonia and Candida glabrata. Previous imaging confirmed interval reduction in sizes of abscesses. Foley catheterization was recommended for urinary diversion which the patient refused. He was started on a 6-week course of Ertapenem and Caspofungin, with marked clinical improvement and negative repeat cultures. The patient was eventually discharged and recommended for close follow-up with serial imaging and possible surgical intervention.

Although osteomyelitis predominantly affects long bones, pelvic involvement is relatively uncommon and constitutes 2-11% of all osteomyelitis cases. PO is often insidious, chronic and debilitating, requiring a high clinical index of suspicion for timely diagnosis and intervention. This patient presented with elusive symptoms not immediately suggestive of severe infection but the previous history of prostate cancer with previous RT are major risk factors. Timely, advanced imaging played a crucial role, revealing findings consistent with acute osteomyelitis of the pubic body, pubic rami, and bilateral ischial tuberosities, an atypical location for such infection. Patients with PO usually benefit from a multi-disciplinary treatment team involving infectious disease, urology, general surgery and IR. However, surgical intervention was not indicated in this patient due to the small abscess size. The patient was treated with a 6-week course of antibiotics based on cultures with clinical improvement. It is important to note that conservative management with antibiotics often fails and surgical intervention with urinary diversion and abscess drainage is necessary in the long run.

This case delves into the importance of considering pelvic osteomyelitis in the differentials for patients with relevant risk factors and the critical role of advanced imaging in diagnosis. Early intervention, multi-disciplinary approach, and close follow-up are essential for treating this rare and complex infection.

Zohaib Ahmad, D.O.

Jonathan Ma, DO; Jorgio Auguste, MD; Mario Mekhail, MD; Deepinder Osahan, MD

NYU Langone Health at Long Island Community Hospital

A CASE OF SUGGESTED CRYPTOGENIC ORGANIZING PNEUMONIA IN A PATIENT ON IMMUNOSUPPRESSIVE THERAPY

Cryptogenic organizing pneumonia (COP), although relatively rare, presents similarly to community-acquired pneumonia. We present a case of a 57-year-old male with high clinical suspicion for COP to raise clinician awareness.

A 57-year-old male with PMH multiple sclerosis on ocrelizumab and HTN presented with 6-day history of non-productive cough, intermittent fever and chills without improvement on outpatient antibiotics. He denied any sick contacts. On initial exam, BP 166/83, HR 92, RR 28, T 102.7 F, 100% on RA with faint, bilateral respiratory crackles. Labs demonstrated WBC 7.0; CT-chest visualized bilateral lower-lobe and right upper-lobe ground glass opacities consistent with pneumonitis. He was admitted for sepsis likely secondary to pneumonia; blood cultures were collected and he was started on broad-spectrum antibiotics. On day 2, respiratory panel including adenovirus, coronavirus, SARS-COV-2, human metapneumovirus, rhinovirus, enterovirus, influenza, parainfluenza, RSV, Bordetella pertussis, Bordetella parapertussis, Chlamydophila pneumonia, Mycoplasma pneumonia, MRSA, urine Legionella antigen resulted negative. On day 3, blood-cultures and sputum-culture resulted negative. The patient continued to have intermittent high-grade fevers and repeat CT-chest demonstrated progressing, bilateral multi-lobar ground-glass-opacities. Coverage was expanded to anti-fungal, PCP prophylaxis and IV methylprednisolone. ANA, C-ANCA, rheumatoid factor, HIV, PJP PCR and fungal cultures were obtained and resulted negative. On day 6, he had marked improvement and resolution of fever; coverage was de-escalated to broad-spectrum antibiotics, PCP prophylaxis and oral prednisone. Surgical lung biopsy was ultimately deferred due to shared-decision making. Repeat CT-chest visualized improvement; He was discharged with an extended prednisone and TMP-SMX course with complete resolution of symptoms on outpatient follow-up.

COP, formerly â€œbronchiolitis obliterans organizing pneumonia,â€ is a sub-category of interstitial lung disease with a specific pattern of lung-tissue repair after an unknown cause of lung injury. It is broadly understood to be the result of cellular injury resulting in leakage of plasma proteins and proinflammatory cells with a reversible inflammatory and fibroproliferative response to immunosuppressive and anti-inflammatory agents. In the US, the specific epidemiology remains unknown, however a study in Iceland discovered the epidemiology to be 1.10 cases per 100,000. COP typically presents with dry cough, dyspnea, fever and flu-like symptoms over weeks to months. The most common physical exam finding is inspiratory crackles. It's often suspected in patients with pneumonia-like findings unresponsive to antimicrobial therapy. Risk factors include underlying collagen vascular disorders and exposure to toxins. On imaging, HRCT is preferred with most common findings including consolidative ground glass opacities or nodules. The gold standard of diagnosis is surgical biopsy and systemic glucocorticoid therapy is often utilized. COP has an overall good prognosis with the 5-year survival rate exceeding 90%.

Although COP remains relatively rare, clinicians should keep it in mind when evaluating patients with pneumonia unresponsive to antimicrobial therapy.

Iyad Al-bustami, MD, MPH(c)

1. Iyad Al-Bustami 2. Saira Shah 3. Salman Haider 4. Abu Baker 5. Moazzam Hussain 6. Fatima Zohra 7. Amin Shah 8. Kiran Zaman

1,2,3,7,8: The Brooklyn Hospital Center, Brooklyn, NY, USA

4,5. Khyber Medical College, Peshawar, Pakistan

6: Khyber Girls Medical College, Peshawar, Pakistan

The Brooklyn Hospital Center

Subacute Combined Degeneration Caused by Nitrous Oxide-Induced Vitamin B12 Deficiency in Whippet Users

Introduction

An estimated 800,000 young adults abuse inhalants annually, with nitrous oxide, commonly found in "whippet" canisters, becoming increasingly popular for its euphoric effects. This trend has led to a rise in adverse effects, particularly neurological issues linked to vitamin B12 deficiency. Since nitrous oxide does not show up on routine drug screens, a thorough patient history is crucial for diagnosis. We present a case of subacute combined degeneration due to vitamin B12 deficiency caused by prolonged nitrous oxide use.

Case Presentation

A 31-year-old male with no significant medical history presented with worsening bilateral upper and lower extremity paresthesia, including numbness, tingling, and burning, over several weeks. He also experienced walking difficulties, lower extremity weakness, and loss of motor control. He denied systemic symptoms, head trauma, and substance abuse but admitted to inhaling 20-30 nitrous oxide canisters daily for the past year. Examination revealed normal vital signs, fluent speech, intact cranial nerves, normal muscle strength, and tone, but impaired vibration and proprioception, hyperreflexia, spasticity in lower extremities, ataxic gait, and a positive Romberg's test. Sensory testing for pain and temperature was normal. Laboratory tests showed low vitamin B12 (128 pg/ml), normal hemoglobin (13.9 g/dl), MCV (98 fL), elevated homocysteine (159.3 umol/liter), and methylmalonic acid (9110 nmol/liter). Folate, hemoglobin A1C, HIV, syphilis, and urine drug screenings were normal. The diagnosis was nitrous oxide-induced B12 deficiency with myeloneuropathy. Treatment included intramuscular cyanocobalamin 1000 µg daily for five days, followed by oral supplementation, and counseling against nitrous oxide use. At a three-month follow-up, the patient showed near-complete symptom resolution, with minimal residual paresthesia. Further testing for other B12 deficiency causes was not performed due to significant improvement after stopping nitrous oxide use.

Discussion

Nitrous oxide exposure can cause vitamin B12 deficiency by oxidatively inactivating cobalamin, a crucial coenzyme in converting methylmalonyl CoA to succinyl-CoA. This inactivation leads to the accumulation of methylmalonyl CoA, integrating abnormal fatty acids into neural lipids and resulting in demyelination in the peripheral and central nervous systems. Cobalamin deficiency primarily affects the spinal cord,

causing subacute combined degeneration (SCD), characterized by loss of position and vibration sense and damage to the corticospinal tracts, resulting in weakness and spasticity. Neurological dysfunction due to nitrous oxide typically presents with low serum B12 and elevated homocysteine and methylmalonic acid levels. MRI is unnecessary if clinical and laboratory evidence is clear. Treatment involves intramuscular cyanocobalamin 1000 µg daily for at least five days, followed by intermittent dosing. Early intervention is crucial, as treatment success correlates with the duration and severity of pre-treatment symptoms, underscoring the importance of early detection and understanding the link between nitrous oxide use and vitamin B12 deficiency.

Farishta Ali, MD

Malik W.Z. Khan Yale University School of Medicine, New Haven, USA malik.khan@yale.edu

Muhammad Ahmad Khyber Medical College, Peshawar, Pakistan. muhammadahmad.mail44@gmail.com

Salma Qudrat Khyber Medical College, Peshawar, Pakistan. salmaqd19@gmail.com â

Long H. Tu Yale University School of Medicine, New Haven, USA

long.tu@yale.edu

Shandana Ali Hayatabad Medical Complex, Peshawar, Pakistan. shandana.ali98@gmail.com

Samra Iftikhar Yale University School of Medicine, New Haven, USA samra.iftikhar@yale.edu

Montefiore New Rochelle Hospital

FAILURE OF THE TYROSINE KINASE INHIBITORS OSIMERTINIB AND ERLOTINIB TO MANAGE A PATIENT WITH EGFR-MUTANT LUNG ADENOCARCINOMA

Background: Lung adenocarcinoma, a type of NSCLC, is the most common type of lung cancer among non-smokers. Lung Adenocarcinoma in E19del mutation-positive cases responds well to treatment with tyrosine kinase inhibitors (TKIs). Our case demonstrates the development of resistance to first- and third-generation TKIs in a 48-year-old woman with EGFR mutation-positive advanced NSLC.

Case Description: A 48-year-old woman with no smoking history and no family history of cancer was diagnosed with EGFR mutation-positive advanced lung adenocarcinoma. Molecular analysis indicated a positive EGFR E19del mutation, a positive T790M mutation, and a negative TP53 mutation. After two rounds of chemotherapy, the patient was treated with Osimertinib for two years. However, the patient started to experience recurring chest discomfort, dyspnoea, insomnia, and bone pain while being treated. A whole-body CT scan at that time revealed metastasis of the tumor to the paraaortic lymph nodes and lumbar spine.

A repeat analysis revealed that the T790M mutation had disappeared while other mutations remained unchanged, and she was switched to erlotinib as per the evidence for the use of erlotinib in Osimertinib-resistant lung cancer. The patient developed cutaneous adverse reactions and, although her symptoms subsided initially for six months, she developed morning headaches and worsening insomnia. A repeat MRI revealed metastasis to the frontal and occipital lobes of her brain, indicating failure of Erlotinib treatment.

Conclusions: Resistance development to TKIs poses a significant challenge to the treatment of EGFR mutation-positive advanced lung adenocarcinoma, owing to the scarce availability of further pharmacological agents post-TKIs. This case illustrates the significance of prompt recognition of resistance to Erlotinib and Osimertinib and highlights the importance of further research to prevent treatment failure and hence, to deter metastatic progression of the tumor in patients with advanced NSLC.

KEYWORDS: Erlotinib; Osimertinib; Epidermal growth factor receptor; Lung adenocarcinoma;

Raiyan Ali, DO

Shahan Haseeb MD, Eric Gehres MD, Taha Siddiqui MD, Rajat Goyal MD

Mather Hospital Northwell Health

Syncope Secondary to Wolf Parkinson White Syndrome after Marijuana Use

Introduction: Wolf-Parkinson-White (WPW) syndrome is a congenital cardiac anomaly characterized by an accessory pathway between the atria and ventricles, known as the bundle of Kent. This pathway can participate in supraventricular tachycardia (SVT) and increase the risk of syncope or sudden cardiac arrest; the risk of which may be augmented in the setting of marijuana use.

Case Description: A 29-year-old female with daily recreational marijuana use, anxiety, and depression presented to the Emergency Department following a syncopal episode in the setting of marijuana use. A few hours prior to arrival, she had been smoking marijuana and felt dizzy in the bathroom, losing consciousness and hitting her head on the tub. After regaining consciousness, she experienced palpitations and anxiety. The patient had prior episodes of palpitations without syncope or near syncope but noted having heart rates of up to 200 beats per minute as recorded by her Apple Watch. She had no prior cardiac evaluation. Of note, one week prior to presentation, she started Fluoxetine 20 mg daily as per her psychiatrist.

Initial evaluation in the ED included an electrocardiogram (ECG) which revealed sinus rhythm with preexcitation. Subsequent echocardiography was normal. Electrophysiologic consultation recommended electrophysiologic (EP) study for pathway risk stratification in the setting of pre- excitation with syncope. During EP study, the pathway demonstrated high risk features on isoproterenol infusion with a short effective refractory period (220 msec) and so underwent successful ablation of a right anterior free wall accessory pathway. The patient was recommended to cut down on marijuana intake upon discharge and in follow up, she had improvement in palpitations without recurrent syncope.

Discussion: Syncope in patients with WPW is a concerning finding which may be secondary to rapid atrioventricular reentrant tachycardia (AVRT) or ventricular fibrillation secondary to rapid conduction of atrial arrhythmias. Marijuana use may have contributed to the development either rapid pre-excited atrial fibrillation or AVRT. Cannabis is known to have varying cardiac effects including both sympathetic and parasympathetic activation. In our patient, high risk features of the accessory pathway were only seen during Isoproterenol infusion, which may be analogous to elevated sympathetic activation in the setting of marijuana use. Although there is limited data regarding the risk of marijuana use in the setting of WPW, the potential for complications exists and should be carefully considered.

Shaza Almardini, MD

Oscar Morey Vargas, MD

Academic Department of Internal medicine, Staten Island University Hospital, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell

Tirzepatide and lifestyle changes - A powerful combination for weight loss

Background:
Tirzepatide is a novel glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 receptor agonist developed for the treatment of obesity. In one study, tirzepatide provided substantial reductions in body weight compared to placebo, with mean weight reductions of 15.0%, 19.5%, and 20.9% in the 5 mg, 10 mg, and 15 mg, respectively, versus 3.1% in the placebo group1. In clinical trials SURPASS 1-5, tirzepatide at 5-15 mg weekly reduced HbA1c by 1.24-2.58% and body weight by 5.4-11.7 kg, respectively2-6. We report a case of remarkable glucose control and weight loss with tirzepatide (Mounjaro) in the setting of lifestyle changes.

Case:
A 55-year-old male with a history of T2DM (diagnosed in early 30s), obesity class III (BMI: 44), hypertension, hyperlipidemia and coronary artery disease presented to a weight management clinic for weight loss. His diabetes was poorly controlled (HbA1c: 9.5%) and was using 100U of glargine daily, 4U + scale lispro with meals, glipizide 10 mg twice daily, and empagliflozin 10 mg daily. He monitored his glucose with a continuous glucose monitor. Tirzepatide (Mounjaro) was initiated at 2.5 mg and titrated up every 4 weeks to reach 15 mg.

After 1 month, his glucose was within target range 76% of the time (up from 14%), glargine was decreased to 90U, and lispro was discontinued. After 2 months, his glucose was within target range 98% of the time, glargine was decreased to 62U, and glipizide was discontinued. Glargine was stopped completely after 10 months of starting tirzepatide. His glucose was withing target range 100% of the time and his Hba1c reached 5.7%. During this period, he counted calories and exercised 4 days a week (CrossFit), and lost a total of 103 pounds, equaling 30% of his total body weight. His only reported side effect from tirzepatide was occasional loose stools.

Discussion:
Clinical trials on tirzepatide showed up to 15% body weight reduction in participants with T2DM and up to 21% body weight reduction in participants without T2DM7. Our patient lost significantly more than expected (30% of body weight) and achieved excellent diabetes control while discontinuing several antidiabetic agents. His adherence to a healthy diet and exercise regimen reinforces the importance of advising patients about lifestyle modifications in addition to medication.

Conclusion:
This case exemplifies the remarkable efficacy of tirzepatide, a dual GIP and GLP-1RA, in the management of T2DM and obesity, especially when combined with healthy lifestyle changes. Physicians should advocate for healthy eating and resistance training in patients on weight loss medications to achieve optimal results and minimize muscle loss. Continued research and clinical experience with this novel therapy will likely expand its role and solidify its position as a game-changing advancement in the care of individuals with T2DM and obesity.

Faryal Altaf

Faryal Altaf, Nismat Javed, Mohit Sekhon, Rachana Allena,Abdullah Masood, Misbahuddin Khaja

BronxCare Health System

Post-Embolization Syndrome and Thrombocytosis Following Uterine Artery Embolization for Necrotizing Leiomyoma: A Case Report

Introduction: Uterine artery embolization (UAE) is a leading non-surgical intervention for managing uterine leiomyomas (fibroids), benign tumors originating from the uterus's smooth muscle cells. Fibroids vary in size and location, often causing symptoms such as heavy menstrual bleeding, pelvic pain, and reproductive issues. UAE offers a minimally invasive alternative, providing symptom relief while preserving the uterus and avoiding potential surgical complications. During UAE, blood vessels supplying fibroids are selectively blocked, inducing ischemia in the fibroids, leading to their shrinkage and alleviating symptoms. While the procedure is associated with a shallow risk of complications, extension of ischemia and possible sepsis remain life-threatening risks.

Case Presentation: We report the case of a 45-year-old African female with a history of hypertension, uterine fibroids, and depression who presented with a 10-day history of fatigue and generalized weakness following uterine artery embolization (UAE) for necrotizing leiomyoma. She experienced right lower quadrant abdominal pain, nausea, vomiting, and a fever of 103°F. On admission, her vitals were stable, but physical examination revealed mild abdominal tenderness and an enlarged uterus. Lab results indicated leukocytosis, thrombocytosis, anemia, hyponatremia, acute renal failure, and lactic acidosis. Imaging showed gas within a sizeable uterine leiomyoma and mild pneumoperitoneum. In the ICU, she developed septic encephalopathy and worsening septic shock, requiring broad-spectrum antibiotics, vasopressor support, and mechanical ventilation. Hematology evaluation revealed thrombocytosis and a leukemoid reaction. She underwent total abdominal hysterectomy, oophorectomy, drainage of a peritoneal abscess, right-sided hemicolectomy, and enterolysis. Post-operatively, she experienced severe thrombocytosis and splenic infarcts. Despite complications, her renal failure resolved, and she was transferred out of the ICU. Persistent thrombocytosis was managed with anticoagulation therapy. The patient was discharged after 14 days with follow-up appointments for hematology, surgery, and OB/GYN. This case underscores the potential severe complications following UAE, emphasizing the need for careful monitoring and management.

Discussion: UAE, initially used for postpartum hemorrhage, has become a preferred method for managing symptomatic uterine fibroids due to its lower risk of intra-operative complications and shorter recovery time compared to surgical interventions. However, complications such as sepsis and post-embolization syndrome (PES) can occur. This case highlights the importance of careful patient selection, consistent follow-up, and adequate patient education to effectively manage and mitigate potential complications. This case report underscores the rare but severe complication of post-embolization syndrome following UAE. As UAE becomes more popular and is increasingly performed in outpatient settings, the potential for PES underscores the need for vigilant post-procedural monitoring and patient education. Physicians should be aware of PES and cautiously manage patients undergoing UAE, ensuring timely intervention for any arising complications.

Anandu Anto, MD

Anandu Anto, Department of Medicine, Bronxcare Health System

Rachna Allena, Department of Medicine, Bronxcare Health System

Muhammad Hammad Ashraf, Department of Medicine, Bronxcare Health System

Franklin Sosa, Department of Medicine, Bronxcare Health System

Neelanjana Pandey, Department of Medicine, Bronxcare Health System

Sridhar Chilimuri, Department of Medicine, Bronxcare Health System

Bronxcare Health System

Bleed But Not Bleed

Cerebral venous thrombosis (CVT) is characterized by thrombosis of cerebral veins, the dural venous sinus, or both. With the occlusion of the venous drainage, the stasis causes backpressure and rupture of the fragile and valveless bridging veins. Bleeding in the parasagittal frontal and parietal lobes may occur in superior sagittal sinus thrombosis cases. In contrast, hemorrhage in the temporal or occipital lobes is more typical of transverse sinus occlusion. However, it can be frequently overlooked due to the vague nature of its clinical and radiological presentation.

A 46-year-old female with PMH of migraine presented to emergency with c/o gradual onset, submaximal intensity headache for three days with associated vomiting. Ct head done in ED revealed a stable small 3mm acute subdural hematoma on the left side of the falx extending along the left tentorium. The patient was not on anticoagulation and denied any history of trauma. Neurosurgery and neurology recommended that the patient be started on Keppra for seizure prophylaxis. Ct Angio head and neck were done, which revealed stable bleed like the admission CT scan. The patient was admitted to the ICU for hourly neuro checks. MRI head revealed Small punctate and linear areas of restricted diffusion, and T2 and FLAIR hyperintensities are seen in the right frontal lobe anteriorly and posterior right frontal lobe. These could represent small areas of shearing injury and/or recent infarction. MR venography of the head without contrast shows non-filling of the left transverse sinus and only partial filling of the distal right transverse sinus. There is non-filling of the straight sinus and of the proximal right sigmoid sinus. These findings could represent dural sinus thrombosis. The superior sagittal sinus is patent. The patient's home medication reconciliation did not reveal any oral contraceptive pills, no h/o lupus, spontaneous abortions, or thrombosis anytime else in the past. The patient was started on Apixaban 5mg BID. Hypercoagulable workup turned up negative. The patient was discharged with apixaban and given a neurology OP appointment, ensuring continued care and monitoring of the patient's condition.

Nontraumatic acute SDH is commonly due to microaneurysm rupture. However, this case serves as a stark reminder of the need for a high degree of suspicion to diagnose cerebral vein thrombosis in a patient who presents with a localized nontraumatic subdural hematoma. This uncommon presentation underscores the paramount importance of diagnosing this condition early, as treatment is with anticoagulation, irrespective of the presence of an intracranial bleed.

Sebastian Arruarana,

Carla Isabella Miret Durazo, Ernesto CalderÃ³n Martinez, Ajay Kumar, Rafael Pinto-Colmenarez, Palvi Mroke, Zishan Rahman, Manuel Quiroz Flores, Valentina Milani, Ahmad Hammoud, MarÃ-a Fernanda Trujillo RodrÃ-guez, Marcela Garzon Olave, Imran Baig

Brookdale University Hospital Medical Center

Echocardiography versus Cardiac Magnetic Resonance Imaging for the Diagnosis of Left Ventricular Thrombus: A Systematic Review and Meta-Analysis

Background: Left Ventricular Thrombus (LVT) is a significant complication of myocardial infarction (MI), linked to higher morbidity and mortality due to the risk of systemic embolization and stroke. Early detection of LVT is crucial for prompt initiation of anticoagulation therapy. This meta-analysis compares the diagnostic accuracy of Cardiac Magnetic Resonance (CMR) with Transthoracic Echocardiogram (TTE) in identifying LVT.

Methods: Following PRISMA guidelines, we conducted a systematic review and meta-analysis. Databases searched included PubMed, Cochrane Central Register of Controlled Trials, ICTRP, CNKI, Scopus, LILACS, Clinical Trials, Web of Science, Google Scholar, EMBASE, and CINDAHL.

Results: Fifteen studies involving 3,098 participants met inclusion criteria. CMR demonstrated significantly higher sensitivity (74%, 95% CI: 0.58 to 0.85) and specificity (99%, 95% CI: 0.98 to 0.99) in detecting LVT compared to TTE, which showed sensitivity (44%, 95% CI: 0.28 to 0.62) and specificity (98%, 95% CI: 0.95 to 0.99). The area under the curve (AUC) for CMR was 0.99, indicating superior diagnostic performance over TTE, which had an AUC of 0.867. Heterogeneity was significant for TTE (I² = 67.6%) but low for CMR (I² = 0.0%), highlighting the consistency of CMR's diagnostic accuracy. Publication bias was assessed using funnel plots, showing a low likelihood of bias in the included studies.

Conclusion: CMR demonstrates superior diagnostic accuracy compared to TTE in detecting LVT, suggesting it should be considered the gold standard, particularly in high-risk patients. Future research should explore the impact of anticoagulation therapy and myocardial remodeling on LVT detection to optimize diagnostic strategies.

Mahnoor Arshad,

Zoraize Moeez Athar, MD, Jacob Epperson, MS, Bethany Babinsky, Pharm D, Arlene Tieng, MD

Bronxcare Health System

AZATHIOPRINE-INDUCED LIVER INJURY IN A LUPUS PATIENT HETEROZYGOUS FOR TPMT

Background: Azathioprine is a steroid-sparing immunosuppressive agent used to treat systemic lupus erythematosus (SLE). Because severe hematologic toxicity can occur in patients with thiopurine S-methyltransferase (TPMT) deficiency, testing for this enzyme before beginning a low dose of azathioprine may be considered.

Objective: To report a case of azathioprine-induced liver injury in a SLE patient carrying a TPMT heterozygous mutant allele.

Case Report: A 24-year-old woman presented to the emergency department with a 1-week history of jaundice. The patient had been in her usual state of health until 13 months before the current presentation when she developed bone and muscle pain after starting Depo-Provera. Nine months later, she was found to have elevated anti-double-stranded DNA (deoxyribonucleic acid) antibodies and anti-Smith antibodies. Two months later, she had thinning hair. She sought evaluation in a rheumatology clinic for joint pain and a positive antinuclear antibody. She reported photosensitivity and was found to have hypocomplementemia and proteinuria. SLE was diagnosed. Hydroxychloroquine and prednisone were started but she still reported joint pain. The patient's TPMT activity level was not homozygote deficient but she was a low metabolizer. Thus, azathioprine 50mg daily was started. Eighteen days later, yellow discoloration was seen at her conjunctivae. She reported abdominal pain, nausea, and vomiting. The decision was made to withhold azathioprine. Laboratory results included leukopenia and her liver tests were elevated: alanine aminotransferase 1460 U/l (5-40 U/l), aspartate transaminase 991 U/l (9-36 U/l), and total bilirubin 6.7 mg/dl (0.2-1.2 mg/dl). These laboratory tests had been normal before the azathioprine. The patient was afebrile, and she was admitted to the ICU (intensive care unit). Abdominal ultrasound demonstrated an unremarkable liver with no cholelithiasis or cholecystitis. MRCP (Magnetic resonance cholangiopancreatopgraphy) showed no choledocholithiasis or biliary ductal dilatation. Viral hepatitis serologies for A, B, and C were negative. Smooth muscle and mitochondrial antibodies were also negative. Acetaminophen, acetylsalicylic acid, and ethanol levels were undetectable, and a urine drug screen was negative. Although her EBV (Epstein-Barr Virus) DNA using PCR (Polymerase chain reaction) of peripheral blood showed 347 copies/ml, the presumed diagnosis was azathioprine-induced liver injury. After discontinuation of azathioprine, laboratory values improved at a 12-day follow-up visit.

Discussion: Only 0.3% of the population has absent TPMT activity (1). In general, TPMT deficiency would preclude one from prescribing azathioprine to avoid any hematologic toxicity. However, our patient was not homozygote deficient and she still developed azathioprine-induced liver injury. Her TPMT activity level indicated, though, that she was a low metabolizer. Nonetheless, a meta-analysis had shown that TPMT polymorphisms were not associated with azathioprine-induced hepatotoxicity (2). Based on this case, we can suggest that liver tests be carried out a week after beginning even low-dose azathioprine in a patient without TPMT deficiency.

Htun Aung, MD

Belinda Jim, MD; Kisra Anis, MD

Jacobi Medical Center

Spontaneous bilateral subcapsular renal hematomas due to severe urinary retention

Introduction

Spontaneous subcapsular renal hematoma has been described as a rare phenomenon associated with trauma, bleeding from renal neoplasm, vasculitis, infection, and hemodialysis. Patients usually present with severe abdominal pain, hematuria, and potentially hemorrhagic shock. Based on hemodynamic parameters, treatment options include renal artery embolization, nephrectomy, or conservative management. Here, we present a patient with spontaneous bilateral subcapsular renal hematomas thought to be secondary to severe urinary retention due to diabetic neuropathy.

Case Presentation

A 59-year-old male patient with a history of hypertension, diabetes mellitus, schizophrenia, and lumbar radiculopathy presented from a nursing home to the hospital with the chief complaint of fatigue and a hemoglobin of 7 g/dL (from 13 g/dL two months earlier) found in the nursing home. On presentation, his blood pressure was 156/90 mmHg with a heart rate of 85 beats per minute. He had 2+ bilateral lower extremity edema. His initial serum creatinine was 1.3 mg/dL which was increased from his baseline of 0.6 mg/dL two months prior. A bladder scan study revealed a post-void residual volume of 1.5 liters which was treated with Foley catheter placement which resulted in gross hematuria. Two days later, the patient developed bilateral flank tenderness. A CT scan of the abdomen and pelvis with contrast demonstrated bilateral subcapsular renal hematomas with evidence of multiple stages of chronicity without active extravasation, along with findings of bilateral hydroureters, cystitis, and urethritis. He was empirically started on intravenous ampicillin-sulbactam for the treatment of cystitis though his urine culture eventually returned a negative result. Given the lack of active hemorrhage in a hemodynamically stable patient, we pursued a conservative approach. However, the patient subsequently developed non-oliguric acute kidney injury due to multiple insults: contrast exposure, volume depletion from the post-obstructive diuresis, nursing home medications such as captopril, spironolactone, and furosemide which were held. A serologic evaluation for glomerulonephritis was performed due to acute kidney injury with hematuria which was unrevealing (normal or negative C3, C4, ANA titer, P-ANCA, and C-ANCA titers). As he failed the trial of void, the patient was discharged back to the nursing home with an indwelling Foley catheter. A follow-up CT scan of the abdomen and pelvis without contrast two months later showed resolved bilateral subcapsular renal hematomas with bilateral mild hydronephrosis and hydroureters.

Discussion

Subcapsular renal hematoma due to bilateral hydronephrosis is a rare phenomenon. The mechanism may be due to increased tensile stiffness due to damage to the renal veins in the setting of chronic obstruction leading to vascular congestion. Treatment is to relieve the pressure with a Foley catheter which resolved the subcapsular hematomas in our patient.

Madison Baker, DO

Jose Isaac Reyes, MD; Natasha Singh, MBBS; Samir Shah, DO; Rohail Baig, MBBS; Justin Nistico, DO

Arnot Ogden Medical Center

E. Coli Endocarditis

Purpose:

This vignette describes an 81-year-old woman in sepsis secondary to E. coli urinary tract infection which was complicated by multivalvular infective endocarditis of the aortic and tricuspid native valves.

Background:

Despite its prevalence, E. coli has been infrequently linked to native valve endocarditis (Cohen, 1980). One review found it responsible for 0.51% of cases (Morpeth, 2007). The causative organisms are not significantly different between single and multiple valve endocarditis (Lopez, 2011). E. coli endocarditis typically presents in elderly females, and the most common portal of entry is the urinary tract (Micol, 2006). E. coli's infrequent implication in endocarditis could be due to the absence of virulence factors that give other bacteria the ability to bind well to heart valves (Menon, 2017). However, there is diversity within the species as extraintestinal E. coli may have enhanced virulence compared to commensal strains (Russo, 2000). Beyond inability to adhere to the endocardium, the serum sensitivity of most E. coli also likely plays a role (Watanakunakorn, 1992). Urinary tract infection (UTI) has been identified as a risk factor for E. coli endocarditis (Benaissa, 2021). This should be considered, particularly in patients with underlying valvular disease (Soma, 2005). While there are reports of single valve E. coli endocarditis, literature review did not yield prior cases of multivalvular endocarditis caused by E. coli.

Clinical Vignette:

This report describes infectious endocarditis of two native valves caused by E. coli. The patient, an 81-year-old woman, who has aortic stenosis and recurrent UTIs, presented with sepsis secondary to E. coli UTI and bacteremia. A transthoracic echocardiogram revealed a mobile mass on the tricuspid valve. Subsequent transesophageal echocardiogram revealed mobile structures suggestive of vegetation on both the aortic and tricuspid valves. The patient was managed medically, and she was discharged on ceftriaxone with a plan to monitor the vegetations and consider the role of cardiothoracic surgery. Six weeks later, a repeat transesophageal echocardiogram was negative for vegetations. The patient had no signs of systemic inflammation at that time, the blood cultures remained negative, and the ceftriaxone was discontinued.

Statement of Conclusions:

In this case of endocarditis, the causative agent was unique in a relatively low-risk patient, especially as multiple valves were involved. It is possible that this organism had enhanced virulence compared to other strains of E. coli, which typically lack necessary virulence factors. While their fimbriae can attach to the bladder wall, they are less adept at endocardial adhesion. This patient's recurrent E. coli UTIs may suggest an organism with enhanced virulence. When E. coli does cause endocarditis, it typically affects a single valve in an elderly woman with a UTI. Although uncommon, this endocarditis may also be multivalvular, particularly in patients with a known valvular disease.

Daniel Basta, MD

Wei Tang, MD

Christopher Nabors, MD

Westchester Medical Center

FEVER OF UNKNOWN ORIGIN WITH SEVERE HEPATOSPLENOMEGALY IN AN IMMUNOCOMPETENT FEMALE

Case: A 46-year-old female with diabetes mellitus who lives in the New England area was admitted for influenza pneumonia. She had a prolonged hospital course complicated by 8 weeks of recurrent fever (100 to 103 °F) despite continuous, uninterrupted broad-spectrum antibiotics coverage including Piperacillin- Tazobactam, Vancomycin, and Linezolid. She is HIV negative; multiple blood, respiratory, and urine cultures as well as repeat gastrointestinal multiplex and respiratory infection panels were consistently negative.

Physical examination was unremarkable except for mild pallor. Laboratory findings included normocytic anemia (Hb 8.7 g/dL) with normal white blood cell and platelet count. Her liver and kidney function tests were also normal.

CT abdomen and pelvis revealed severe hepatosplenomegaly (HSM) with no focal lesions. CT thorax with contrast showed left lower lobe and upper lobe bronchial inflammation, and reactive mediastinal lymphadenopathy but no evidence of pulmonary emboli.

Rheumatological workup was only notable for high-titer antinuclear antibody (1:160) in speckled pattern without any other positive autoimmune markers.

A bone marrow biopsy was pursued and showed normocellular marrow with trilineage hematopoiesis without acute leukemia or lymphoma; the corresponding flow cytometry showed no evidence of lymphoproliferative disorders.

Additionally, a liver biopsy was performed to investigate HSM and found a grossly normal liver with only mild steatosis.

Further infectious disease investigation excluded viral hepatitis, EBV or CMV infection, and tick-borne illness. The Fungitell assay was negative. Interestingly, the urine histoplasmosis antigen returned strongly positive while the serum histoplasmosis antigen and antibody were negative.

Disseminated histoplasmosis was diagnosed based on positive urine antigen and exclusion of other causes. The patient was started on liposomal amphotericin B and her fever resolved within 3 days of treatment. She was switched to oral itraconazole therapy after 2 weeks and there has been no recurrence of fever.

A retrospective history review identified a recent endemic outbreak of histoplasmosis in her living area due to construction activities.

Discussion: We presented an extremely rare case of disseminated histoplasmosis characterized by fever of unknown origin and HSM without significant pulmonary involvement. Our case also featured the

discordance between serum and urine histoplasmosis antigen, which accounts for only 2% of cases reported in the literature. Urine Histoplasma antigen has a high sensitivity of 94%. Activities that disturb the soil and bird droppings is the major environmental risk factor in patients from non- endemic areas.

Conclusion: HSM is found in nearly 50% of patients with disseminated histoplasmosis and gives an early clue for diagnosis.

Clinicians should have high suspicion for histoplasmosis in patients with both fever of unknown origin and HSM. Thorough history-taking should include exposure to soil and bird droppings.

Alberto Busmail Haylock, MD

Hannah Hugo, MD; Julie Kanevsky, MD

Department of Medicine, NYC Health + Hospitals / Elmhurst, Icahn School of Medicine at Mount Sinaint

Clot Attack: Phlegmasia Cerulea Dolens as Initial Presentation of Malignancy

INTRODUCTION

Phlegmasia cerulea dolens (PCD) is a dreaded complication of acute extensive venous thrombosis affecting the extremities. PCD can advance to arterial ischemia and gangrene in 40-60% of cases, posing a significant risk of limb amputation (20-50%) and mortality (20-40%).

CASE REPORT

An 81-year-old woman with a history of dementia and cystic bronchiectasis was found minimally responsive at home. On arrival to the ED, she had a blood pressure of 91/52 and heart rate of 126. Physical examination revealed cool, tender, and edematous left lower extremity with skin mottling and absent pulses. Laboratory findings were significant for WBC 14 ×10^9/L, hemoglobin 7.0 g/dL (with a prior baseline of 12), and a lactate of 12.74 mmol/L. Bedside venous duplex ultrasound showed acute left deep venous thrombosis and right chronic-appearing organized DVT which confirmed clinical suspicion of PCD. Computed tomography (CT) scan with contrast confirmed extensive venous thrombosis involving both iliac vein systems and extending into the inferior vena cava,along with an area of indeterminate soft tissue in the rectosigmoid colon raising concern for malignancy. The patient was started on heparin infusion and underwent thrombectomy, achieving significant clot removal and reperfusion in the left extremity. The procedure was complicated by severe hypotension, leading to termination of the procedure with residual clot burden in the right lower extremity.

The patient was intubated and started on two vasopressors. Patient initially improved with successful extubation and hemodynamic stability. However, her hospital course was complicated by aspiration pneumonia which led to her passing on hospital day 17.

DISCUSSION

Phlegmasia cerulea dolens is characterized by near-complete occlusion of the iliofemoral venous system leading to compromised venous outflow and ultimately arterial insufficiency. The classical triad of symptoms includes severe extremity edema, cyanosis, and intense pain. Risk factors include older age, prolonged immobilization, and malignancy. Prompt recognition is crucial to prevent irreversible ischemic damage and limb loss. While optimal treatment remains uncertain, studies recommend the initiation of anticoagulation followed by mechanical thrombectomy where thrombolysis is deferred due to bleeding risk and chronic clot presentation.

A severe complication of reperfusion of the ischemic limb is ischemia-reperfusion injury (IRI). Oxidative stress and toxic metabolites lead to systemic inflammatory response during reperfusion phase. Systemic effects of IRI include multi-organ failure and shock as seen in this patient. Her risk factors for IRI included the prolonged time of ischemia, her advanced age, and decreased functional status. Since there are often no low-risk treatment options, assessing the risks and benefits of each option becomes challenging yet crucial.

Steven Chacko, MD

Dr. Michael Jorgensen, Dr. Mandeep Kainth

Stony Brook University Hospital

MASSIVE SAPHENOUS VEIN GRAFT ANEURYSM PRESENTING AS STEMI

Introduction

Saphenous vein graft aneurysms (SVGA) are linked to a wide degree of patient presentations including shock, arrythmia, heart failure and ischemic disease. The dreaded complication of SVGA rupture is rarely described in the literature. Here we report a case of massive SVGA contained rupture presenting as ST elevation myocardial infarction (STEMI).

Case Description

Male in his 60s with history of three-vessel coronary-artery-bypass graft 10 years previous (LIMA-LAD, SVG-RCA, SVG-D1), atrial fibrillation and known SVG-PDA aneurysm of six months duration presented to our sister hospital for one hour of substernal chest pain. Of note, he was undergoing outside workup for surgical revision of his SVG-PDA aneurysm. EKG revealed inferior wall STEMI. High sensitivity cardiac troponin was 3000 ng/L. Emergent cardiac catheterization revealed occluded saphenous vein grafts to the first diagonal and RCA, with suspected thrombosed pseudoaneurysm. The native LAD had chronic total occlusion. The LIMA to LAD was patent with backflow into a large diagonal and left to right collaterals to the PDA. There were no target vessels for revascularization. The patient's PA saturation was 45% with cardiac output of 2.4 L/min. He had two episodes of V-fib arrest and received six defibrillations before returning to normal sinus rhythm. Intra-aortic balloon pump and ionotropic support were initiated, and patient was transferred to our tertiary care center for continued management.

On admission the patient’s labs revealed creatinine 1.48 mg/dL, N-terminal proBNP 5545 pg/ml, and lactic acid 3.0 mmol/L. Transthoracic echocardiogram revealed an ejection fraction of 18% with a large mass abutting the base of the RV and RA. CT showed a large, contained proximal aneurysm rupture of the SVG-RCA (aneurysm 8.2 cm, with hematoma 5.4cm) with no distal graft patency. Outside imaging revealed aneurysm size was unchanged, however the hematoma was new suggesting a rupture. The patient was trialed off anticoagulation, with surveillance imaging performed twice with stable hematoma. After an interdisciplinary meeting coiling and surgical interventions were deferred as patient was on anticoagulation at the time of hematoma formation and repeat imaging was stable. The patient was discharged with close follow up with his CT surgeon. Goal directed medical therapy was optimized. Amiodarone was continued for ventricular arrhythmia management, with single chamber ICD placed for secondary prevention.

Discussion/Conclusion

In this case, SVGA and contained rupture likely led to the patients’ inferior STEMI. Management of SVGA and rupture is currently unclear. Further review is needed to describe the best management for this complex sequela of CABG and coronary disease. This case demonstrates the importance of consideration of prior cardiac history and intervention with patients presenting with symptoms of cardiac chest pain. Prior venous bypass graft defects or rupture as seen in our patient should be considered before starting systemic anticoagulation therapy.

Steven Chacko, MD

Dr. Rahul Tripathi MD, Dr. Shivani Gupta MD,Dr. Lisa Fisher MD

Northport Veteran Affairs Medical Center

PROMOTING MULTI-MODAL SMOKING CESSATION STRATEGIES FOR VETERANS IN A RESIDENT-RUN PRIMARY CLINIC: A QUALITY IMPROVEMENT INITIATIVE

Background:
Smoking is a leading cause of preventable disease, contributing to health issues such as cardiovascular disease, respiratory conditions, and cancer. Smoking cessation has a proven profound benefit for health, reducing the risk of these diseases. Over the past two decades, the prevalence of smoking among veterans has decreased, largely due to the programs offered by the Veterans Affairs (VA) healthcare system. These programs offer counseling, support groups, medications, and other resources for smoking cessation. Despite the success of these programs, there appeared to be a knowledge gap among residents in the resident-run primary clinic regarding services and medications available to aid in smoking cessation.

Objective:
To educate residents on the available treatment modalities the VA provides for smoking cessation to encourage increased utilization for smoking cessation strategies in veterans.

Methods:
An anonymous pre-survey was distributed to 47 residents to get a better understanding of what the residents knew about smoking cessation and how comfortable they felt guiding patients through smoking cessation. A guide detailing treatment options and services for smoking cessation was created and distributed to all residents. The guide included information of motivational interviewing, behavioral counseling, acupuncture, and pharmacotherapy options. This guide was distributed via email, digital announcement, and posted in each exam room. After this intervention, the residents were re-surveyed to assess for any change in their understanding and confidence regarding smoking cessation.

Results:
46 of 47 (98%) residents completed the pre-intervention survey, and 43 of 47 (91%) completed the post-intervention survey. Pre-intervention, 74% of residents felt comfortable discussing smoking cessation with their patients. However, only 15% of residents felt very familiar with the behavioral counseling offered by the VA and only 58% of residents were aware of the medications offered. Post-intervention, 98% of residents felt comfortable with discussing smoking cessation, 63% were at least very familiar with the behavioral counseling offered, and 95% knew what medications the VA offered.

Discussion/Conclusion:
In our resident-run primary care clinic, we saw that there was a knowledge gap which may have resulted in a lack of comfortability in utilizing VA resources to achieve smoking cessation goals. A simple intervention of educating residents on resourcing that are readily available at the VA was successful in improving resident comfortability regarding smoking cessation in their patients

and may result in increased uptake of services offered to and accepted by veterans. Some of the limitations of this project are that it was restricted to the resident-run primary care clinic and is targeted towards VA health facilities only. We plan to disseminate the educational guide to non-resident primary care clinics to further promote multi-modal smoking cessation strategies in the veteran population.

Robert Chanthavongsa, MD

Kishan Patel, MD Nuvance Health VBMC Poughkeepsie, NY

Bryan Rubio, MD Nuvance Health VBMC Poughkeepsie, NY

Nuvance Health

An Atypical Presentation of Disseminated VZV Infection & Posterior Reversible Encephalopathy Syndrome (PRES)

In patients who are immunocompromised, there is a high chance of mortality in those patients who develop VZV pneumonitis even with prompt initiation of intravenous anti-retroviral therapy. Further, if a patient is undergoing immunosuppressive therapy of any kind, extensive medication reconciliation and review is always recommended.

Our case involves a 65-year-old female who presented to the ED with the chief complaint of diffuse abdominal pain that lasted one week prior. The patient had a relevant history of diffuse large B-cell lymphoma for which she underwent chimeric antigen receptor (CAR) T-cell therapy and finished six months prior to her presentation. The patient was found to have elevated LFTs and lipase with associated electrolyte abnormalities along with thrombocytopenia. Abdominal imaging at the time showed suspected acute cholecystitis/cholangitis/pancreatitis. Further work-up with HIDA scan showed no abnormalities and an MRCP was negative. The patient was initially treated for sepsis secondary to suspected cholangitis, of which a cholecystectomy tube was placed. During her hospital course, she developed scattered hemorrhagic lesions notably around her chest and abdomen but could be seen throughout the rest of her body. Chest radiograph revealed diffuse bilateral pulmonary infiltrates. The patient's respiratory status worsened while developing septic shock, requiring emergent intubation and vasopressor support. Respiratory pathogen PCR panel showed no positive findings. CMV PCR was positive. A VZV PCR from vesicular fluid was also positive. Additional history and medication reconciliation obtained and showed a questionable history of compliance with outpatient Acyclovir prophylactic therapy a few months prior. The patient was initially on broad-spectrum antibiotics which were discontinued and placed on intravenous Acyclovir therapy for 21 days. She was also placed on Atovaquone for PCP prophylaxis as the patient was receiving high dose glucocorticoid therapy. Her hospital course was complicated with encephalopathy. CT and MRI imaging was suggestive of atypical posterior reversible encephalopathy syndrome (PRES). EEG further revealed right temporal sharps and anti-convulsive therapy was started. The patient was unable to be extubated and eventually underwent tracheostomy after 18 days. Her respiratory status slowly improved over the next couple of weeks and was eventually able to undergo decannulation, 45 days after tracheostomy. Her mental status also improved with a repeat MRI that showed no changes. Her overall clinical status improved, and she was discharged from the hospital.

This case illustrates the potentially fatal complications of VZV pneumonitis in patients who are immunocompromised on a novel therapy such as CAR-T cell therapy. The mortality rate can reach up to 50% in some cases. The case also revisits the foundational importance of history taking with a proper medication reconciliation, as the consequences of overlooking these processes can be severe.

Volha Chapiolkina, MD

Volha Chapiolkina (first author), Yemesrach Mekonen, Nelson Barrera, Nehemias Guevara, Iurii Statnii, Ilmana Fulger

St Barnabas Hospital

The Enigma of Recurrent Hypoglycemia in Metastatic Cancer

Introduction:

Tumor-induced hypoglycemia is a rare phenomenon, particularly in individuals without a history of pancreatic disorders or post-bariatric surgery. This case report highlights a non-islet cell tumor hypoglycemia caused by the tumor burden of malignant pheochromocytoma.

Case Presentation:

A 52-year-old male with a past medical history of pheochromocytoma with metastases to lungs, post-status radical left adrenalectomy four months ago, left nephrectomy, and splenectomy presented to the emergency department (ED) after being found with altered mental status at home by a family member. The emergency medical services reported a glucose of 11mg/dl, and two ampules of dextrose were given with blood glucose improvement to 185. Physical exam was significant for a cachectic, unresponsive male with dry skin. Initial blood work revealed leukocytosis of 19.7 × 10^3/uL, procalcitonin: 60 ng/ml. Computer tomography (CT) of the chest without contrast showed a 7.6 cm mass of the right lung apex with the erosion of the first rib with suspicion of Pancoast tumor and masses throughout the right lung concerning the metastatic disease. The patient was started on broad-spectrum antibiotics for possible sepsis, hydrocortisone, and dextrose drip. The hospital course was complicated, with recurrent episodes of hypotension and hypoglycemia. Therefore, an endocrinology service was consulted and recommended additional blood work and showed a plasma metanephrine serum of 252.4 pg/mL, normetanephrine urine of 6717 ug/L, normetanephrine plasma of more than 10000.0 pg/mL, and a metanephrine/creatinine ratio 65.7 ug/mg. The Hypothalamic-Pituitary-Adrenal axis (HPA) was intact given a normal 8 AM cortisol of 32.1 units, adrenocorticotrophic hormone of 18.5 units, and normal cosyntropin (250 mcg) stimulation test: Cortisol of 13.6 units (30 mins) and 13.9 units (60 mins). Hypoglycemia workup showed normal insulin, c-peptide, proinsulin, insulin antibodies, beta-hydroxybutyrate, and insulin-like growth factors 1 and 2. With the consideration of refractory hypoglycemia, likely related to tumor burden in the setting of recurrent pheochromocytoma, the patient was continued on hydrocortisone. Hypoglycemia was optimized, and the patient was discharged with a follow-up with his primary oncologist.

Discussion:
Hypoglycemia is an uncommon complication associated with pheochromocytoma resection. Pheochromocytomas secrete catecholamines that induce glucose intolerance and diabetes mellitus through Î²-receptor stimulation and Î±-2 receptor-mediated insulin release inhibition. Post-resection, reactive hypoglycemia can occur due to sudden catecholamine withdrawal, reduced glucagon secretion, and hepatic glucose production. The complex interplay of Î± and Î²-adrenergic receptors in catecholamine physiology underscores the challenge in managing such cases. Non-selective Î±-blockers like phentolamine can contribute to hypoglycemia, although documented evidence remains limited.

Conclusion:
The diverse presentation of pheochromocytoma underscores the necessity for prompt recognition and management. This case highlights the critical importance of vigilant perioperative and postoperative monitoring to prevent severe hypoglycemia and improve patient outcomes.

Muhammad Cheema,

Muhammad Cheema MD, Himani Patel MD, Jonathan Vanmanen DO, Mubdiul Imtiaz Ali MD, Haggerty, Gregory D

Mather Hospital Northwell Health

A CASE REPORT: INCIDENTAL FINDING OF ASYMPTOMATIC PROLONGED SINUS PAUSE ON SLEEP STUDY

Introduction:

Increased vagal tone is common during rapid eye movement (REM) sleep in a healthy patient without underlying cardiac comorbidities. Periods of sinus pauses and bradyarrhythmia have been reported during REM sleep are likely due to increased parasympathetic activity. We report a case of frequent episodes of asymptomatic sinus pauses predominantly during REM sleep in a patient with obstructive sleep apnea (OSA).

Report of case:

A 24-year-old male with obesity with BMI of 47 and asthma presented to the sleep medicine clinic for snoring. The home sleep test was consistent with moderate OSA (Apnea- hypopnea Index (AHI) of 23). Polysomnography for positive airway pressure (PAP) titration exhibited successful titration with AHI 0.3 central apneas. Electrocardiogram (ECG) showed 14 premature ventricular contractions and no sinus pause. ZIO Patch prior to PAP treatment had 58 pauses all during sleep (longest 9.3 seconds). Transthoracic echocardiogram was negative for systolic heart failure and revealed no significant structural pathology. A repeat polysomnogram was performed and showed successful titration with 18 cm H20 with residual AHI of 1, no central apnea, and ECG with several sinus pauses, predominantly during REM sleep (longest pause of 5 seconds). Repeat ZIO patch, while on PAP treatment, revealed 151 pauses (longest being 9.6 seconds) occurring at night. The patient had normal sinus rhythm to sinus bradycardia to Sinus Pause, P-P prolongation noted prior to the pause, which is consistent with increased vagal tone. Later, the electrophysiologist and sleep medicine specialist made a shared decision and finally recommended close monitoring and no pacemaker placement.

Discussion:

REM sleep- related sinus pause has been rarely reported in the literature, and this condition prevalence and natural course remain unclear. Daytime cardiac evaluations were almost universally normal, including ECGs, transthoracic echocardiograms, diagnostic electrophysiology studies, cardiac catheterizations, and tilt table tests. Usually patients diagnosed with REM-related asystole via a sleep study obtained in response to nocturnal pauses detected on prolonged cardiac monitoring. The longest pauses in these patients during sleep studies ranged from 5 to 19.5 seconds. Genetic testing could be done to identify overlap between REM-related asystole and sinus node dysfunction; however, it is not recommended by ACC/AHA/HRS guidelines.

Conclusion:

Asymptomatic sinus pauses related to OSA was an incidental finding. However, the increased vagal tone during REM sleep leading to prolonged sinus pause and atrioventricular node conduction could lead to ventricular arrhythmias. We found limited reporting of this in the literature, which raises the question of underdiagnosing.

Reference:

Sampognaro JR, Barth AS, Jun JC, Chrispin J, Berger RD, Love CJ, et al. Prolonged asystole during REM sleep: A case report and review of the literature. Heart Rhythm O2 2022; 3:613â€“9

Eunhee Choi, MD

Jung-hyun Lee MD, Monica Reddy Muppidi MD

Lincoln Medical Center

Spur Cell Anemia in Nonalcoholic Steatohepatitis Cirrhosis: A Marker of Severe Disease Progression

Background: Spur cell anemia (SCA) is a hemolytic anemia associated with severe liver disease, characterized by acanthocytes on peripheral blood smear. It's typically defined by an acanthocyte rate of â‰¥5% and considered a poor prognostic indicator.

Case Presentation: A 48-year-old female with Child-Pugh class C nonalcoholic steatohepatitis (NASH) cirrhosis presented with worsening shortness of breath, chest pain, diarrhea, and vomiting. Her medical history included obesity (BMI 52), hypertension, and bronchial asthma.

Clinical Findings: The patient had stable vital signs and was alert and oriented. Physical examination revealed scleral icterus, generalized jaundice, abdominal distension, right flank tenderness, and bilateral leg edema.

Laboratory and Imaging Results: Laboratory investigations showed hemoglobin of 10.3 g/dL, mean corpuscular volume of 107.6 fL, and platelet count of 75 x 10^9/L. Liver function tests revealed total bilirubin of 14.8 mg/dL, direct bilirubin of 6.6 mg/dL, and INR of 2.5. Additional tests included fibrinogen of 62 mg/dL, haptoglobin < 20 mg/dL, LDH of 361 U/L, and D-dimer of 1307 ng/mL. Coombs test was negative, and Factor VIII was elevated at 251% which ruled out DIC. Peripheral blood smear showed >90% acanthocytes and increased reticulocytes, confirming severe SCA. Imaging studies demonstrated cirrhosis with mesenteric edema and ascites.

Treatment and Outcome: The patient received aggressive diuresis and albumin infusions. Liver transplantation was initially considered but delayed due to hemodynamic instability and subsequent pneumonia. Despite interventions, the patient died on hospital day 10.

Discussion: SCA in liver cirrhosis indicates advanced liver damage and high mortality risk. Alexopoulou et al. reported that 31% of patients with decompensated liver cirrhosis had SCA, with a median survival of 1.9 months. It results from alterations in erythrocyte membrane lipid composition, leading to increased red blood cell destruction. The pathogenesis involves impaired lipid metabolism, specifically altered ratios of cholesterol to protein and cholesterol to phospholipids in red blood cell membranes.

While SCA is typically defined by an acanthocyte rate of â‰¥5%, our patient's exceptionally high acanthocyte count of >90% likely indicates a more severe form of the condition. This extreme elevation in acanthocytes may correlate with an even poorer prognosis, as the degree of acanthocytosis potentially reflects the severity of underlying liver dysfunction and the extent of erythrocyte membrane disruption.

Maria Colorado, MD

Maria Colorado MD (1), Zohyra Zabala MD (1), Wendy Garzon MD (1), Mark Fallorina MD (2) , Bobak Moazzami MD (3), Michelle Dahdouh MD (1), Victoria Bengualid MD (1).

(1) SBH Health System, Bronx, NY.

(2) South Brooklyn Health Hospital, Brooklyn, NY.

(3) Northside Hospital Gwinnett, GA.

SBH Health System

PYOGENIC LIVER ABSCESS AND INFECTIVE ENDOCARDITIS DUE TO STREPTOCOCCUS ANGINOSUS IN A 66-YEAR-OLD MALE: A CASE REPORT

INTRODUCTION

Streptococcus anginosus is part of the normal human flora in the oropharynx, gastrointestinal, and urogenital tract. It is often associated with abscess formation but only rarely causes infective endocarditis (IE). Here, we present a case of S. anginosus causing pyogenic liver abscess (PLA) and IE in an immunocompetent patient.

CASE DESCRIPTION

A 66-year-old male presented with a four-week course of shortness of breath on exertion, fever, and lightheadedness. Also, two weeks of right upper quadrant abdominal pain and unintentional weight loss of 30 lbs in the preceding three months. He denied recent travel, animal exposures, or any prior surgeries. On admission, the patient was tachycardic but afebrile and normotensive. The examination revealed severe periodontal disease and tenderness in the right upper quadrant of the abdomen. The rest of the physical exam was unremarkable. Initial laboratory findings showed elevated WBC 19.6 K/uL (neutrophils 83.7%), ALT 138 U/L, AST 149 U/L, ALP 449 U/L, and mildly elevated bilirubin (total bilirubin 1.9 mg/dL, bilirubin direct 1.0 mg/dL).

Abdominal ultrasound revealed multiple complex liver lesions. CT scan confirmed two liver abscesses in the right lobe, the largest measuring 10 cm. MRCP was performed, and biliary ductal dilatation was ruled out. Empiric broad-spectrum antibiotics were initiated, including vancomycin, ceftriaxone, and metronidazole. Ultrasound-guided percutaneous drainage obtained 255 ml of purulent fluid. Gram stain revealed numerous white blood cells and clusters of Gram-positive cocci, and the culture grew Streptococcus anginosus susceptible to ceftriaxone. Two sets of blood cultures demonstrated no growth.

Transthoracic echocardiography was negative for vegetation; transesophageal echocardiography was subsequently done and identified a 1.8 cm mass, possibly vegetation, on the tricuspid valve. A multidisciplinary team advised extended antibiotics and close follow-up as an outpatient. The patient was discharged after 17 days of antibiotics with resolved symptoms and normalized labs to complete a six-week course of therapy with ceftriaxone and metronidazole in another state, as per his preference.

DISCUSSION

S. anginosus is an unusual causative agent of IE. Additionally, cases of IE whose presentation includes liver abscesses are exceptionally rare. This case is particularly interesting due to the patient's immunocompetent status and lack of typical risk factors for IE and PLA. The only identified risk factor was periodontal disease, strongly suggesting an oropharyngeal source for the infection. While a positive blood culture remains the cornerstone of diagnosing IE, prior antibiotic use can sometimes lead to negative cultures; we took this into consideration for our patient's case.

Our case also highlights the importance of identifying the causative organism in PLA. While the cause is typically polymicrobial, if a single streptococcal species is isolated from a liver abscess, it suggests a potential hematogenous source, particularly IE, which warrants further investigation.

Sohini Das, M.B.B.S.

Saira Iqbal Perwaiz

Yu Shia Lin

Maimonides Medical Center

TO BE OR NOT TB! TSUKAMURELLA: A TUBERCULOSIS IMPOSTOR

Introduction:

Tsukamurella is an emerging pathogen that causes pulmonary, ocular, and catheter-related infections. Tsukamurella lung infections are uncommon in healthy adults. We present an immunocompetent woman with Tsukamurella lung infection.

Case Description:

A 22-year-old schoolteacher was admitted to the hospital with suspected pulmonary tuberculosis after her chest X-ray showed left upper lobe infiltrate. She reported night sweats for several weeks, a dry cough for a day, and had tested positive for purified protein derivative at her primary care provider's office. She had no prior history of tuberculosis (TB) or nontuberculous mycobacterial (NTM) infection. On examination, she had normal vital signs. Chest auscultation revealed vesicular breath sounds with no rhonchi/crackles.

CT chest showed left upper lobe fibrosis around a mass (1.1*3.4*2 cm). Multiple sputum samples tested negative for Gene Xpert MTB/RIF assay, acid-fast bacilli (AFB) smear and cultures. Workup for HIV, hepatitis B and C, and diabetes mellitus were negative. Bronchoalveolar lavage (BAL) fluid from her left lung grew Streptococcus pyogenes, for which she received three weeks of amoxicillin-clavulanate. Repeat CT chest after one month showed an increase in size of soft tissue mass in the left major fissure. She underwent CT-guided biopsy of lung mass and pathology showed normal lung tissue. Bacterial and fungal tissue cultures were reported negative after six weeks.

Two months later, the AFB culture from BAL grew an unidentifiable organism. The specimen was sent to the New York State Department of Health, Wadsworth Center, and DNA sequence analysis identified it as Tsukamurella species. Our patient was initiated on minocycline and ciprofloxacin. At her 3-week follow-up visit, she reported gastrointestinal symptoms due to which she had stopped taking minocycline. Therefore, monotherapy with ciprofloxacin was continued. A repeat CT scan after 6 weeks showed decrease in size of the left upper lobe mass and formation of a new cavity. The patient has been treated with three months of ciprofloxacin, with complete resolution in her systemic and respiratory symptoms. Further radiological improvement is awaited.

Discussion:

Tsukamurella are gram-positive, partially acid-fast saprophytes which are difficult to identify by biochemical methods. Tsukamurella are slow growers, and the diagnosis can be missed if cultures are not held for a sufficient duration. 16S RNA gene sequencing is an effective tool for diagnosing Tsukamurella and ruling out partially acid-fast pathogens like Rhodococcus and Corynebacterium.

There is paucity of literature on Tsukamurella lung infections in immunocompetent individuals. Tsukamurella can cause cavitary lung lesions, frequently misdiagnosed as TB or NTM infections, resulting in delay in initiation of therapy. Tsukamurella can lead to complications like septic pulmonary emboli and pyopneumothorax.

Maintaining a high level of suspicion for Tsukamurella is crucial in patients exhibiting TB-like syndromes. Though rare, Tsukamurella can cause lung infections in otherwise healthy individuals.

Sohini Das, M.B.B.S.

Saira Iqbal Perwaiz, Vyoma Patel,Barbara Alvarez

Maimonides Medical Center

AN UNUSUAL CAUSE OF GASTROINTESTINAL BLEED: CYTOMEGALOVIRUS COLITIS IN AN IMMUNOCOMPETENT ELDERLY PATIENT

Introduction:

Diverticulitis, colorectal cancer, angiodysplasia and ischemic colitis are common causes of lower gastrointestinal bleeding in the elderly. While CMV colitis is a rare cause of hematochezia in immunocompetent individuals, we present a case of an elderly, immunocompetent man with gastrointestinal bleeding secondary to Cytomegalovirus (CMV) colitis.

Case Description:

An 82-year-old man presented with three days of rectal bleeding. His history included eight months of unintentional weight loss, alternating diarrhea and constipation, and occasional fecal incontinence. There was no personal or family history of cancer, use of corticosteroid or immunosuppressant use. Two prior colonoscopies were negative. Physical examination revealed a frail, pale man with distended and tender abdomen. Rectal examination showed an external hemorrhoid without active bleeding. Laboratory findings revealed anemia (hemoglobin 7 g/dL), leukocytosis with left shift (WBC 12,000/mm3, 90% neutrophils), and controlled blood glucose (HbA1c 5%). Testing negative were HIV and stool PCR for common pathogens.

Abdominal CT revealed sigmoid colon thickening, a pericolonic collection, and a fistula. Pelvic MRI confirmed an anorectal fistula with a 2.5 x 1.8 cm abscess. The patient was initiated on ciprofloxacin and metronidazole for suspected secondary bacterial infection. Colorectal surgery was consulted and recommended against surgical debridement.

Gastroenterology was consulted, colonoscopy was performed and demonstrated a clean-based, friable rectal ulcer. Inadequate bowel preparation precluded evaluation beyond the rectum during this session. Biopsy revealed acute inflammation with CMV inclusions. Repeat colonoscopy with adequate preparation revealed an additional sigmoid colon ulcer, alongside the previously identified rectal ulcer. Biopsy of the sigmoid ulcer confirmed CMV inclusions. Serologic studies showed negative CMV IgM, elevated CMV IgG, and detectable CMV PCR in the blood. Given these findings, IV ganciclovir was initiated. Ciprofloxacin and metronidazole were continued for two weeks. Outpatient follow-up revealed significant symptom improvement with no recurrent rectal bleeding.

Discussion:

While uncommon, CMV colitis can cause lower gastrointestinal bleeding in elderly, immunocompetent individuals. Severe complications such as colonic perforation, abscess, and toxic megacolon may arise. Early diagnosis through colonoscopy and biopsy is crucial for initiating timely antiviral therapy and preventing these potentially devastating outcomes.

Sharmila Dass, DO

Anderson Ariaga MD, Hector I. Ojeda-Martinez MD

Vassar Brothers Medical Center

Progressive Multifocal Leukoencephalopathy Following Rituximab Immunotherapy: A Case Report

Introduction

Rituximab, a monoclonal antibody targeting CD20-positive B cells, is widely used in treating various conditions including autoimmune diseases. Despite its therapeutic benefits, rituximab has been linked to an increased risk of opportunistic infections, including PML.

This case describes a patient with Waldenström's Macroglobulinemia (WM), a rare, indolent lymphoproliferative disorder characterized by the presence of monoclonal IgM paraprotein and lymphoplasmacytic infiltration of the bone marrow, treated effectively with a combination of rituximab and Bendamustine with consequent hypogammaglobulinemia managed with intravenous immunoglobulin (IVIG) therapy. Although the patient responded positively with improved clinical symptoms, his management was complicated by development of neurologic symptoms with a subsequent diagnosis of PML.

Case Report

The patient is a 58-year-old male with no known medical history who initially presented in June 2022 with abdominal pain and fever. He was subsequently diagnosed with Waldenström's macroglobulinemia with significant bone marrow involvement in July 2022. He started on a treatment regimen of Bendamustine and rituximab. His treatment course was complicated by non-specific fevers, headache, and cough in December which resolved with supportive care. Treatment was completed in February 2023, but monthly intravenous immunoglobulin (IVIG) therapy was initiated for management of hypogammaglobulinemia.

In July 2023, the patient developed persistent sinus pressure, word-finding difficulty, worsening unsteady gait, and forgetfulness. Neurological examination was significant for hemiparesis, dysarthria, and impaired coordination. CT head showed multifocal areas of parenchymal hypodensity suggestive of vasogenic edema. Steroids were initiated for management of the edema, but it was subsequently discontinued after a brain MRI demonstrated patchy areas of T2 hyperintense and FLAIR hyperintense regions in multiple locations of the brain parenchyma as well as the brainstem consistent with progressive multifocal leukoencephalopathy. Lumbar puncture revealed mild elevation in protein and mild pleocytosis. The cerebrospinal fluid analysis confirmed the presence of JC virus DNA, confirming the diagnosis of PML. The patient was transferred to a tertiary care center for further management, where there was consideration in pursuing recombinant IL-7 therapy.

Discussion

Rituximab, through its B-cell depleting mechanism, has shown efficacy in the treatment of WM by reducing monoclonal IgM production. IVIG therapy is employed to address hypogammaglobulinemia

associated with WM and reduce risk of infectious complications. The risk of JC virus reactivation and PML is increased in patients with prolonged immunosuppression, and rituximab-induced B-cell depletion may contribute to impaired immune surveillance against virus reactivation. It is debatable whether JC virus infection is also latent in the CNS or whether PML results from hematogenous dissemination of infection to the brain resulting in subsequent PML lesion development within months of entry to the CNS. This case underscores the importance of considering PML in the differential diagnosis of neurological symptoms in patients undergoing rituximab therapy.

Simo Du,

Bao Han, MD,MA

Elham Azimi-Nekoo, MD

Fabreena Napier,MD

Peter Mabie,MD

Anusha Bapatla, MD

Abhishek Kumar, MD

Jacobi-Albert Einstein College of Medicine

Diagnostic Pitfalls: POEMS Syndrome's GBS Mimicry

Background

POEMS syndrome (Polyneuropathy, Organomegaly, Endocrinopathy, Monoclonal gammopathy, and Skin changes) is a rare condition first described in 19561. It is characterized by clonal plasma cell proliferation and peripheral neuropathy due to increased inflammatory and angiogenic mediators. Misdiagnosis as Acute or Chronic Inflammatory Demyelinating Polyneuropathy (AIDP/CIDP) often occurs due to overlapping neuropathic features. We present a rare case of POEMS syndrome initially misdiagnosed as Guillain-Barre syndrome(GBS), highlighting diagnostic challenges of this rare condition.

Case Presentation

A 44-year-old male presented with fatigue, lower extremity weakness, numbness, and tingling for 1-2 months. Previously, he experienced abdominal pain and tested positive for enteroaggregative E. coli (EAEC) diarrhea. Lumbar puncture revealed elevated protein and normal cell count in cerebrospinal fluid (CSF), leading to a presumptive diagnosis of GBS. Intravenous immunoglobulin (IVIG) was administered with mild improvement. However, after discharge, his lower extremity numbness and weakness worsened and developed numbness and weakness of the upper extremities. Additionally, he exhibited hyperpigmentation on both hands and feet and double vision without papilledema. He was admitted to the hospital with a tentative diagnosis of CIDP and was treated with intravenous solumedrol and plasmapheresis without improvement.

Further tests and imaging were conducted: Thyroid function test indicated hypothyroidism, blood tests revealed normocytic anemia, thrombocytosis, negative HIV and hepatitis B/C panels. Vascular endothelial growth factor (VEGF) was elevated to 929 pg/mL.Immunofixation detected an M spike with IgA lambda and kappa monoclonal proteins. Abdominal CT showed splenomegaly, and a skeletal survey was negative for any bone lesions. Bone marrow biopsy revealed 10-15% plasma cell myeloma with plasmablastic features and atypical megakaryocytic hyperplasia. A formal diagnosis of POEMS syndrome was confirmed. Genomic pathology shows a missense mutation of exon 17 of CSF3R at amino acid position 755, converting wild-type arginine to glutamine.

Following the diagnosis, weekly treatment with daratumumab, cyclophosphamide, bortezomib, and dexamethasone (CyBorD) was initiated, leading to improvement. The patient’s VEGF decreased to 226

pg/mL(not normalized), thrombocytosis resolved, and lower extremity weakness improved. Despite the improvement, he remained unable to ambulate and was discharged to acute rehabilitation for further functional recovery.

Discussion

This case illustrates classic signs of POEMS syndrome initially mimicking GBS, diagnosed months after symptoms onset. POEMS syndrome should be considered in differential diagnoses for patients presenting with peripheral neuropathy and monoclonal gammopathy, especially when unresponsive to IVIG and steroids. Early recognition is crucial, as treatment for POEMS differs significantly from AIDP/CIDP, and delayed treatment can lead to progressive, debilitating neuropathy, paralysis, and ultimately, cardiorespiratory failure2.

Reference

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Junaid Ebrahim, MD

1) Akash Gupte, DO

2)Ojeda Martinez Hector, MD

Nuvance health - Vassar Brothers Medical Center

A Rare Case of Infrarenal Aortitis Secondary to Chronic Q fever

Introduction:

Chronic Q fever is a zoonosis caused by Coxiella Burnetti, an intracellular gram-negative pleomorphic bacterium.We present a unique case of isolated infrarenal aortitis secondary to chronic Q fever.

Case presentation:

A 72-year-old male immigrant from Jamaica, with past medical history of smoking (> 20 pack years), presented with lower abdominal pain over the past two months. On evaluation, vitals were stable and physical exam only revealed mild right lower quadrant tenderness.CTA abdomen showed infrarenal aortitis and dissection of the right common iliac artery extending to the proximal segment of the right external iliac artery. Autoimmune testing for various vasculitis and autoimmune conditions was negative, including a temporal artery biopsy for giant cell arteritis.

Testing for infectious causes resulted in a positive syphilis screen. RPR syphilis was negative, but the FTA antibody level was weakly reactive. Treatment for Tertiary syphilis with Benzathine penicillin G was commenced after an L.P. that ruled out neurosyphilis.

The patient returned to the hospital a few months later for treatment of his subdural hemorrhage, and a repeat CTA abdomen showed worsening aortitis despite completing treatment. He eventually underwent endovascular repair by vascular surgery.

On gaining more history, we discovered that he grew up on a cattle farm in Jamaica. That prompted us to test for Coxiella, and surprisingly, serology showed phase 1 IGg antibody titer > 1: 4096 and phase 2 > 1: 2048, consistent with chronic Q fever. The echocardiogram was negative for endocarditis. We initiated treatment with doxycycline and hydroxychloroquine to complete 18 months.

Discussion:

Infectious aortitis secondary to chronic Q fever is a potentially severe and fatal disorder with high rates of rupture that necessitates quick evaluation and treatment.

C. burnetti is a gram-negative bacteria, with its main reservoirs being cattle and sheep, and transmission is primarily through the inhalation of aerosolized bacteria.

Our patient likely had exposure growing up on a farm in Jamaica.

In the Caribbean states like Jamaica data is sparse on Q fever, but in French Guiana incidence between 2010 and 2017 was around 25â€“30 cases per 100,000 inhabitants per year. C. burnetti endocarditis and vascular infections most commonly occur in the setting of existing valvular disorders and vascular grafts. Our patient did not have existing coronary disease or valvular pathology. Usually, serologic testing is

used for diagnosis, where phase I IgG titers are typically >1:1024 and are generally higher than phase II IgG titers. PCR and IHC are alternatives. However, culture is not recommended due to difficulty and safety issues. Treatment of chronic q fever involves doxycycline and hydroxychloroquine. In those with endocarditis or vascular infection, current guidelines suggest at least 18 months of treatment.

Panisara Fangsaard, MD

1 Panisara Fangsaard, MD, 2 Suprita Shrestha, MBBS, 3 Edward Bischof, MD

1,2,3 Department of Internal Medicine, Bassett Medical Center, Cooperstown, NY, 13326

Bassett Medical Center

BILATERAL HEARING LOSS FROM PACHYMENINGITIS ASSOCIATED WITH HERPES SIMPLEX VIRUS 1 (HSV-1)

Introduction

Pachymeningitis is an uncommon condition of focal or diffuse thickening of the dura mater, the outer layer of the brain and spinal cord. Symptoms vary depending on the affected area. The treatment is guided by etiology, including viral infections.

Case description

A 65-year-old woman with a history of hypertension presented with acute-onset persistent bilateral hearing loss for three months. She denied facial or ear pain, ear discharge, rash, trauma, or any recent respiratory tract infection. Additionally, she reported no fever, chills, sweats, headache, light sensitivity, vision changes, tinnitus, weakness, numbness, or gait disturbance. She was seen in an otolaryngology clinic where an audiogram revealed bilateral sensorineural hearing loss. Magnetic resonance imaging (MRI) of the brain demonstrated diffuse linear abnormal pachymeningeal thickening in supratentorial and infratentorial compartments, extending in bilateral internal auditory canal and measuring up to 4 mm in thickness. The patient was admitted for further investigation, including cerebrospinal fluid (CSF) analysis. On admission, vitals were normal. The physical examination, including a complete neurological examination and otoscopy, was unremarkable. Lumbar puncture showed a clear colorless CSF with normal opening and closing pressure. The CSF profile revealed white cells 4 cells/uL in tube 1 and 5 cells/uL in tube 4, red cells less than 2000 cells/uL in all tubes, normal protein, and glucose (68 and 67 mg/dL, respectively). The patient remained stable without signs of meningoencephalitis. On the following day, an urgent alarm was received due to a positive polymerase chain reaction (PCR) for herpes simplex virus 1 (HSV-1) in CSF. Other CSF results were negative, including bacterial and tuberculosis cultures, acid-fast bacteria staining, and cytology. Extensive investigation for alternative causes, including infection, malignancy, autoimmune, and rheumatologic disorders, was unremarkable. At this point, the presumptive cause of her bilateral hearing loss was pachymeningitis from HSV-1 infection. Central nervous system dosing acyclovir was given intravenously for 2 weeks, followed by high dose prednisone at 60 mg oral daily for 10 days with a taper regimen. Despite no improvement on audiogram testing, brain MRIs over the subsequent year showed consistent improvement in dural thickening.

Discussion

This case illustrates an atypical presentation of HSV-1-related pachymeningitis with auditory disturbance. According to our literature review, this is the first report of HSV-1 associated with dural thickening. Determining the etiology of pachymeningitis is essential for treatment, although some patients may still experience long-term neurological sequelae.

Stefanie Clinton Fotso Simo,

Nana Osei, MD

Abena Korwaa Agyekum, MD

Mohan Preet, MD

SUNY Downstate Health Sciences University

UNVEILING THE UNCOMMON: MULTIPLE MYELOMA MASQUERADING AS A HIP FRACTURE IN A YOUNG ADULT

Introduction:

Multiple myeloma (MM) is a rare form of cancer, constituting approximately 1-2% of all malignancies. While typically diagnosed in older adults, its occurrence in younger individuals is rare and can pose diagnostic hurdles. A unique case of MM manifesting as a hip fracture in a previously healthy 50-year-old male is presented here.

Case presentation:

A 50-year-old male with no significant past medical history presented with acute right hip pain following a fall on the stairs. Upon evaluation, the patient remained hemodynamically stable with decreased range of motion of the right leg. Radiographic imaging revealed a right intertrochanteric fracture with surrounding lucency, suggesting a pathologic fracture. Subsequent computed tomography arterial portography demonstrated a lytic lesion in the right intertrochanteric area, as well as additional lytic lesions at vertebral levels T5, T7, and L3. Whole-body scanning revealed increased tracer uptake in the right proximal femur, mild uptake in bilateral shoulders, and increased uptake in bilateral T7. Further investigations unveiled abnormal serum protein electrophoresis, characterized by a high M spike and a low kappa/lambda ratio of 0.14. Creatinine and calcium levels were otherwise normal. A biopsy of the right hip lesion confirmed the presence of sheets of monoclonal plasma cells, exhibiting positivity for CD138 and lambda immunohistochemical staining, while testing negative for kappa staining. These findings were consistent with a diagnosis of multiple myeloma. The patient subsequently underwent internal fixation of the right femur fracture. While chemotherapy was recommended, the patient opted to seek a second opinion.

Discussion:

The atypical presentation of a hip fracture in a previously healthy patient highlights the importance of considering systemic bone diseases, such as MM, in the differential diagnosis, particularly in younger individuals. Hip fractures are typically associated with advanced age, osteoporosis, or traumatic injury. However, in this context, the absence of predisposing factors and a pathologic fracture necessitate a thorough investigation of underlying pathology. Although hip fractures are rare in the setting of MM, they can serve as a presenting feature of the disease, highlighting the need for a comprehensive skeletal evaluation in patients with atypical fracture presentations. Finally, the presence of a hip fracture may have prognostic implications in patients with MM. Hip fractures are associated with increased morbidity and mortality, particularly in the elderly population. Therefore, the identification of a hip fracture in a

younger patient with MM may warrant closer monitoring and aggressive treatment strategies to mitigate the risk of disease progression and skeletal-related complications.

Conclusion:

This case underscores the importance of maintaining a high index of suspicion for MM, even in younger adults presenting with skeletal abnormalities. Further research and awareness are warranted to define additional presentations of this disease and optimize diagnostic strategies, especially in less typical demographic groups.

Saira Iqbal, MBBS

Monica Ghitan, MD,

Edward Chapnick, MD, FACP, FIDSA,

Yu Shia Lin, MD.

Maimonides Medical Center, Infectious Disease division

UNRAVELING A PUZZLE: A CHALLENGING CASE OF AUTOIMMUNE GLIAL FIBRILLARY ACIDIC PROTEIN (GFAP) ASTROCYTOPATHY MENINGOENCEPHALITIS LINKED TO HUMAN BOCAVIRUS

Introduction

Autoimmune GFAP astrocytopathy is a nervous system inflammation affecting nerve cells of any site, optic nerve to the spinal cord, and can manifest as meningo-encephalomyelitis. While the exact etiology is unknown, it is believed to be associated with neoplasms or viral infections, including HIV, herpes and dengue virus. We report a case of GFAP astrocytopathy in a healthy young woman that is linked to the Human Bocavirus.

Case

A previously healthy 23-year-old woman presented with fever, vomiting, urinary retention, bilateral lower extremity weakness, and difficulty in ambulation for one week. She had returned from China three days ago, where she was exposed to young children with flu symptoms. On exam, she had a fever, neck stiffness, bilateral sixth nerve palsy, tremors, and reduced power in lower limbs (2/5) with no sensory deficit.

CT head was normal. Lumbar puncture revealed cloudy CSF, increased opening pressure (>30 cm H2O), WBC 300 cells with 90% lymphocytes, low CSF glucose (37 mg/dl), and high CSF protein (154 mg/dl). There were no oligoclonal bands. She was started on intravenous acyclovir, vancomycin, and ceftriaxone empirically. MRI scans of the brain and spine showed signal hyperintensities and leptomeningeal enhancement suggestive of radiculitis and leptomeningitis.

The patient's condition improved after receiving high-dose intravenous steroids, but the fever returned and her limb weakness worsened after the steroids were tapered. Blood, urine, sputum, and CSF cultures and PCR were negative. The rheumatological workup was negative. Her serum GD1a antibodies IgG/IgM and CSF GFAP IFA results were positive. She was diagnosed with autoimmune GFAP astrocytopathy, and antibiotics were discontinued.

Further workup showed no malignancy, but a KARIUS® microbial cell-free DNA test on the serum detected Human Bocavirus. A respiratory pathogen panel from Quest Diagnostics also detected Human Bocavirus with no other pathogens.

The patient received intravenous methylprednisolone and immunoglobulins for five days, resulting in significant improvement. She then had a slow-tapering course of oral prednisone for many months, along with physical therapy and follow-up care.

Discussion

Human Bocavirus is a DNA virus from the Parvoviridae family. Its role in human disease is not fully understood. Symptomatic disease is primarily reported in children between 6 and 24 months of age. Premature infants, those with underlying lung diseases and impaired immune systems, appear to be at greater risk of severe infection. There have been no reported cases of Bocavirus-associated meningoencephalitis in adult patients. The index patient likely contracted the Bocavirus virus during her trip to China, possibly triggering GFAP antibody production leading to severe autoimmune meningoencephalitis.

Conclusion

This case emphasizes the importance of considering severe autoimmune meningoencephalitis as a potential diagnosis in patients with recent viral infections. Early recognition and appropriate management can help prevent disabling neurological effects and poor outcomes.

Hafsa Jawaid, MD

Sheza Malik, Suzan Saber, Nagesh Jadhav

Rochester General Hospital

Beyond the Cure: Unveiling the hidden risks of Gluten free diet in Celiac Disease

Background

Celiac Disease (CD) is an autoimmune disorder characterized by gluten sensitivity in genetically susceptible individuals. It is one of the most common autoimmune disorders, with a prevalence of 0.5-1% of the general population. The mainstay of treatment is gluten free diet (GFD) which is thought to reverse the intestinal inflammation.The influence of resolution of intestinal inflammation on absorption of dietary nutrients and drugs is unclear.

Clinical case

63-year-old female with past medical history of postsurgical hypothyroidism and hypoparathyroidism due to total thyroidectomy, GERD and celiac disease presented with complains of generalized malaise, weakness, dizziness and excessive thirst. She reported taking 800 mg calcium+ 50 mcg vitamin D four times a day and 250 mcg levothyroxine daily for the past two years with no recent dosage modifications. History was notable for diagnosis of celiac disease 4 months prior to presentation which was managed with gluten free diet. She also had a long history of GERD with chronic PPI use. PPI was discontinued 2 months before presentation due to resolution of GERD symptoms. On examination, she appeared ill, frail and dehydrated. Mucous membranes were dry. Lab workup showed hypercalcemia, hyperthyroidism and elevated creatinine. A diagnosis of acute kidney injury due to volume depletion related to hypercalcemia and hyperthyroidism was made. She was treated with IV fluids and her calcium, calcitriol and levothyroxine supplements were held. Serial BMP levels were monitored along with telemetry monitoring. She was discharged with lower adjusted levothyroxine dose and advised to keep calcitriol and calcium on hold until a follow up BMP a couple days later. Patient followed up with her endocrinologist.

Discussion

The reversal of intestinal inflammation and regrowth of intestinal villi by strict adherence to GFD results in increased absorption of nutritional and hormonal supplements. However, evidence regarding revision of prescribed thyroxine and calcium supplementation dosages after initiation of GFD is lacking. Infrequent follow up and continuation of high pre-treatment dosages can have adverse clinical outcomes. Hence, it is crucial to closely monitor CD patients from the time of diagnosis and the initiation of GFD. Regular monitoring of calcium and thyroid hormone levels is essential for the timely adjustment of supplementation after the reversal of intestinal inflammatory lesions in these patients. In addition, long term use of PPI resulting in complex variations of gastrointestinal physiology such as variation in gastric mucus viscosity and gastric and small intestinal bacterial overgrowth can affect levothyroxine pharmacokinetics. We believe that the hypercalcemia and hyperthyroidism observed in this case were related to the restoration of intestinal mucosa and improved absorption as a result of GFD. Additionally, there was likely an effect from the discontinuation of PPIs, also leading to improved absorption of calcium and thyroid hormone supplements.

Palvi Jindal, MD

Shaurya Sharma MD, Yevgeniya Margulis MD, Matthew Syed Kodilinye MD, Tharun Shyam MD

Maimonides Medical Center

THE GHOST OF STATIN PASTâ€“ STATIN-INDUCED HMGCR AUTOIMMUNE MYOPATHY

Introduction

Statin-induced autoimmune myopathy can occur at any time after initiation of statins and is characterised by proximal muscle weakness and raised creatine kinase (CPK) levels. We report a case of a 70-year-old male on statins presenting with upper and lower extremity proximal muscle weakness and elevated CPK levels.

Case Presentation

A 70-year-old male with NSTEMI, CAD, who had 2 stents placed in February 2023, presented to the ED with proximal muscle weakness, and elevated CPK levels on lab work. The patient came around 2 months ago with similar complaints where his CPK was elevated to 20,000 IU/L and his liver transaminases were elevated. Further history revealed the patient was on high-dose atorvastatin 80mg for 8 months which was decreased to 40 mg for the last 6 months. This led to the suspicion of rhabdomyolysis on previous presentation and the patient was given IV fluids and was discharged off statin. The patient returned this time with progressed proximal muscle weakness and high CPK (28,000 IU/L) with elevated aldolase, myoglobin and liver transaminases although he was off statin for 2 months. He also had hoarseness and difficulty swallowing. He denied a history of rashes, Raynaud's phenomenon, joint pains and family history of autoimmune disease. There was no history of malignancy or hereditary disease. He also denied any history of ptosis, and diplopia and the lab work for Neuromuscular Junction (NMJ) disorders came out negative. The differential diagnosis of anti-HMGCR myopathy was proven by his elevated anti-HMGCR antibodies (115 Units). His muscle biopsy revealed non-specific mild myofiber atrophy. As his muscle weakness was progressing the patient was started on prednisone 60mg once a day and was given 1 course of IVG treatment which led to notable improvement in his voice, and swallowing. However, progress in addressing proximal muscle weakness remained gradual. The patient was discharged with a rheumatology follow-up where they assessed the patient after 3 days and asked to continue steroids with 3 courses of IVIG treatment once a month. On further follow-ups, after he finished 3 courses of IVIG his muscle weakness improved significantly with CPK levels down-trended to normal range.

Discussion

Statin-associated autoimmune myopathy can manifest at any time in people with a present or past history of statin use where their symptoms do not resolve with discontinuation of the offending agent. The persistence of antibody generation even after discontinuing the offending agent makes treating anti-HMGCR myopathy challenging.

Conclusion

Even though statin-associated autoimmune myopathy is an extremely uncommon side effect of statin use, patients who present with proximal muscle weakness and a history of statin use should be evaluated for all kinds of inflammatory myopathies including statin-induced necrotising autoimmune myopathy as it was serologically proven in the above case.

Puja K C, Dr.

Dr. Arlene Tieng, MD

Bronx Care Health System

NXP2 AMYOPATHIC DERMATOMYOSITIS COMPLICATED BY ANTIPHOSPHOLIPID SYNDROME

Background: Classic dermatomyositis involves cutaneous and muscle findings. However, amyopathic dermatomyositis can present with heliotrope eruption on the eyelid and V-sign without proximal muscle weakness. The myositis-specific autoantibody against the anti-nuclear matrix protein 2 (NXP-2) is associated with dermatomyositis.

Objective: To report a rare case of NXP-2 clinically amyopathic dermatomyositis complicated by deep vein thrombosis and anticardiolipin antibodies

Case Report: Our patient is a 52-year-old woman who presented to the dermatology clinic with a 5-month history of a rash on her neck. The patient sought evaluation at her primary care clinic with periorbital swelling and pruritic erythematous papules on her neck. Empiric hydroxyzine and hydrocortisone ointment were administered. Three months later, she developed macules and papules on her elbows. There were no complaints of dysphagia, dyspnea, or muscle weakness. She had a history of IgA lambda monoclonal gammopathy and hypertension. Her only medication was hydrochlorothiazide. She never smoked cigarettes. Skin examination revealed erythema of the upper eyelids, erythematous nonblanching slightly scaly patches on the anterior and lateral neck, and hypopigmented macules on the upper chest. No Gottron papules were observed. She had normal levels of serum muscle enzymes including creatine kinase and aldolase. Antinuclear, anti-SSA, and anti-SSB antibodies were negative. Skin biopsy of the neck revealed superficial perivascular and interface dermatitis, and it was lymphocytic. Mometasone ointment and sunscreen led to significant improvement of the rash. The patient presented to the rheumatology clinic and the myositis panel returned positive for the NXP-2 antibody. She was diagnosed with anti-NXP2 antibody-associated amyopathic dermatomyositis. Malignancy workup was performed with Pap test, mammography, breast ultrasound, colonoscopy, chest radiography, and bone survey, but all proved unremarkable. Three years later, she developed a deep vein thrombosis (DVT) of her right leg, which was confirmed via Doppler ultrasound. IgM anticardiolipin antibodies were present in moderate titer on two occasions more than 12 weeks apart. She received warfarin followed by rivaroxaban. A diagnosis of antiphospholipid syndrome was made. No malignancy was detected up to 11 year follow-up.

Discussion: A vigilant investigation for malignancy was done because the NXP-2 antibody can be seen in cancer-associated dermatomyositis (1). Although dermatomyositis can be associated with malignancy and patients with cancer can have a hypercoagulable state, we describe a patient with anti-NXP-2 amyopathic dermatomyositis who eventually developed a DVT from antiphospholipid syndrome, not

from a malignancy. When antiphospholipid syndrome is secondary to an autoimmune disease, it is more common to occur in the setting of systemic lupus erythematous as opposed to another entity (2). Thus, it was highly unexpected that our patient would have developed antiphospholipid syndrome after amyopathic dermatomyositis. Perhaps the same process that would have increased her risk for malignancy had increased her risk for thrombosis.

Resident/Fellow Clinical Vignette

Phillip Key, MD

Alan Abboud, MD

Stony Brook University Hospital

The Identification and Management of Wellens Syndrome

Wellens Syndrome represents an under-recognized electrocardiographic pattern that can be predictive of significant atherosclerotic disease in the proximal left anterior descending coronary artery. In this case we present an asymptomatic man in his 60s who presented to emergent medical attention after his primary care physician informed him that his outpatient electrocardiogram was abnormal. High-sensitivity troponin was trended and remained within normal limits. A repeat electrocardiogram was taken in the emergency room and demonstrated biphasic T waves in leads in V2 and V3 concerning for Wellens Syndrome. After transthoracic echocardiography demonstrated segmental wall motion abnormalities, the patient underwent a cardiac catheterization that was notable for a 95% stenosis of the proximal left anterior descending coronary artery, which was amenable to percutaneous coronary intervention. This case underlines how the characteristic electrocardiogram findings in Wellens Syndrome can help identify if a patient is at high risk for a large territory infarction in the anterior wall of the heart. The identification of this characteristic pattern is meaningful in different clinical settings, from the primary care office to guiding a interventional cardiologist in identification of the culprit lesion.

Phillip Key, MD

Kenney Abraham, DO

John Wallis, MD

Ryan Heslin, MD

Tahmid Rahman, MD

Stony Brook University Hospital

Dehiscence of the Aortic Valve

Dehiscence of a prosthetic aortic valve is a rare complication of a transcatheter aortic valve replacement, and can occur within months of replacement. The most common cause of this dehiscence is endocarditis. We present a case of a woman in her fifties with a past medical history of renal transplantation on immunosuppressive therapy and severe aortic stenosis with aortic valve replacement two months prior, who presented to the emergency department with two days of shortness of breath and exertional intolerance. Transthoracic echocardiography depicted dehiscence of the bioprosthetic valve, and the patient quickly began to decompensate clinically. She was taken for emergent intervention, with intraoperative findings consistent with annular abscess formation near the prosthetic valve. Despite successful valve replacement and increasing vasopressor support, the patient could not maintain hemodynamic stability, and ultimately expired post-operatively in the cardiothoracic intensive care unit. This case illustrates how dehiscence of the prosthetic aortic valve represents a rare and life-threatening complication, and early identification and intervention is essential.

Vahe Khachatryan, MD

Krista Goodman 1, Anjali Bakshi, MD 2

1. St. George's University, West Indies, Grenada

2. Flushing Hospital Medical Center, Flushing, NY

Flushing Hospital Medical Center

Behind the Mask: A Unique Presentation of Cocaine-Induced Midline Destructive Lesion (CIMDL) Concealed as Orbital Cellulitis

Learning objectives: This case report aims to increase the awareness of Cocaine-Induced Midline Destructive Lesion (CIMDL) as a serious sequela of chronic cocaine use and to recognize the importance of drug testing even if drugs appear to be noncontributory to the case.

Case: A 44-year-old man presented to the hospital with orbital cellulitis. He reported one week of left eyelid swelling, pain 5/10 in intensity exacerbated by extraocular movements, and nasal congestion. Three days prior, he reported hitting his face on a table that resulted in swelling. He had a history of sinonasal surgery twenty years prior for traumatic removal of a nasal ring. He denied drug use.

Initial workup revealed moderate microcytic anemia Hgb 9.4 g/dL and MCV 66.9 fL, CRP of 12.9 mg/dL and ESR of 105 mm/hr. Despite self-report, the patient's urine toxicology was positive for cocaine. Blood and urine cultures, nasal swab for Methicillin-resistant Staphylococcus aureus (MRSA), and human immunodeficiency virus (HIV) tests were negative.

A contrast-enhanced CT scan showed destructive lesion of the left inferior and medial orbital wall. An MRI confirmed pre-septal edema of the inferior and medial aspects of the left orbit, consistent with orbital cellulitis with postsurgical changes, as well as signs indicative of osteomyelitis. He was treated with ceftriaxone, metronidazole, and vancomycin, along with a 4-day course of dexamethasone.

Nasal endoscopic debridement revealed purulent debris and eschars on the maxillary and ethmoid sinuses, and bony erosions, indicating chronic cocaine use. Patient was discharged from the hospital to continue treatment with Trimethoprim /Sulfamethoxazole, levofloxacin and metronidazole for one month. Tissue cultures were positive for MRSA and Aspergillus versicolor, for which voriconazole was added for 1 month. Bone biopsies showed acute inflammation with abscess formation, as well as chronic ulcers with focal necrosis and inflammation.

Cellulitis and osteomyelitis improved significantly with 1 month of antimicrobials. He was lost to long-term follow-up.

Discussion: This case illustrates the long-term, non-reversible, local effects of chronic cocaine abuse. This patient's orbital cellulitis likely developed because of CIMDL and subsequent ascending infection from the nasal contaminants in the setting of ischemia and immunosuppressed status. Differential diagnosis of CIMDL includes infectious, autoimmune, and neoplastic diseases. Ideally, CIMDL should be a diagnosis of exclusion. It is known that cocaine itself causes autoimmunity, whether triggered by Staphylococcus aureus carrier status or common contamination of cocaine powder with levamisole and levamisole-induced vasculitis. Many studies have reported positive autoantibodies against

Antineutrophilic cytoplasmic antibody (ANCA) (predominantly c-ANCA) in patients with CIMDL, which needs to be differentiated from granulomatosis with polyangiitis.

Conclusion: CIDML can present as orbital cellulitis as a sequela of an ascending infection from the nasal cavity. Absence of external findings suggestive for cocaine use may mask the diagnosis of CIMDL.

Muhammad Hashim Khan, MBBS

Marlon Rivera Boadla MD, Asiya Batool MD, Kalyana C. Janga MD

Maimonides Medical Center

Levofloxacin-induced SIADH: â€œWhen helpful might also mean harmfulâ€

Introduction:

SIADH is characterized by excessive ADH secretion, leading to low serum sodium and high urine osmolality despite a normal plasma volume. Dysregulation of ADH is often due to a primary issue, and addressing this usually resolves the problem. We present the case of a 66-year-old woman who developed hyponatremia due to levofloxacin use, which was resolved after discontinuing the medication.

Case Presentation:

A 66-year-old woman with a history of hypertension, anemia, type 2 diabetes, and COPD was hospitalized for septic shock from pneumonia and renal failure. On admission, the temperature was 97.7 F, HR was 120 bpm, BP was 66/51 mmHg, RR was 20, and saturation was 94% on room air. A sodium level of 122 from past diuretic use was managed with IV fluids, and the patient was started on vasopressors and broad-spectrum antibiotics. Septic shock resolved on Day 2, and sodium was normal (137) by Day 9. Following blood cultures, the antibiotic coverage was narrowed to Levofloxacin and Daptomycin, after which the patient developed euvolemic hypo-osmolar hyponatremia, with sodium levels falling from 137 mEq/L to 119 mEq/L, indicating SIADH. Further workup ruled out all other medical causes of SIADH and hyponatremia e.g. adrenal insufficiency and hyperthyroidism. Despite fluid restriction and sodium chloride tablets, sodium continued to drop. Levofloxacin-induced SIADH, a diagnosis of exclusion, was suspected and levofloxacin was stopped. Sodium levels began rising after 48 hours, resolving hyponatremia. The patient had an uneventful course on minocycline and meropenem.

Discussion:

Hyponatremia, with serum sodium levels below 135 mEq/L, is the most common electrolyte imbalance in clinical settings. Severe cases (sodium <125 mEq/L) are linked to a 28% in-hospital mortality rate, compared to 9% in patients with normal sodium levels. Symptoms of hyponatremia can range from mild (anorexia, nausea) to severe (confusion, seizures, coma) due to cerebral edema, though mild cases may be asymptomatic. Besides malignancies, SIADH can be caused by CNS disorders, pulmonary conditions, HIV, and medications. Risk factors include old age, drug combinations, and excessive fluid intake. A suggested mechanism is that fluoroquinolones cross the blood-brain barrier and stimulate GABA and NMDA receptors, leading to the synthesis and release of ADH. Drug-induced SIADH resolves after stopping the offending drug. For symptomatic cases, fluid restriction and IV sodium chloride or furosemide are needed, with careful monitoring. Correcting sodium is challenging due to the risks of overcorrection. Minocycline protects against sodium overcorrection and osmotic demyelination.

Conclusion:

Resident/Fellow Clinical Vignette

Internists often encounter patients with electrolyte imbalances and are expected to have a thorough understanding of these conditions. A broad understanding of the causes behind such abnormalities and the ability to formulate a wide range of differential diagnoses is essential for optimal management.

Muhammad Hashim Khan, MBBS

Marlon Rivera Boadla MD, Michael Marcelin, MD

Maimonides Medical Center

Cold Agglutinin Syndrome Unmasked: Legionella and G6PD as Stealthy Contributors

Introduction:

While Cold Agglutinin Syndrome (CAS) is generally associated with Mycoplasma species, it is important to maintain a broad perspective on this condition's potential causes and consider a wide range of differential diagnoses for optimal management. We present the case of a patient with atypical pneumonia and new-onset anemia who was ultimately diagnosed with CAS secondary to very rare causes: Legionella pneumonia and Glucose-6-Phosphate Dehydrogenase (G6PD) deficiency.

Case Presentation:

A 66-year-old woman with a past medical history of morbid obesity, hypothyroidism, type 2 diabetes, and unexplained anemia was hospitalized for hematuria and a two-week cough. The cough was productive and worsened at night. On arrival, the patient was tachycardic, tachypneic, and had crackles on lung auscultation. Admission labs showed a WBC of 16.3 K/UL, Hb of 6.6 gm/dL, PLTs of 342 K/UL, total bilirubin of 5.9 mg/dL, direct bilirubin of 7 mg/dL, and indirect bilirubin of 4.2 mg/dL. A CT scan of the chest revealed bilateral lower lobe bronchiolitis and consolidations. The patient was transfused two units of blood and was started on empiric antibiotics. Hematology was consulted due to concerns about indirect hyperbilirubinemia. Further workup came back positive for cold agglutinin (titer 1:1280), Mycoplasma IgG and IgM, direct antiglobulin test IgG, and C3, and low G6PD levels. She also tested positive for urinary Legionella antigen. Serological testing for viral hepatitis, Epstein-Barr virus, and HIV was negative. The patient was diagnosed with cold agglutinin autoimmune hemolytic anemia (AIHA) secondary to Mycoplasma and Legionella pneumonia, in the setting of G6PD deficiency. The patient was started on steroids along with instructions to keep her warm. She responded well to treatment, and her hemolysis resolved with improvement in her hemoglobin and bilirubin levels.

Discussion:

AIHA is a rare disorder that results from the immune system targeting red blood cell antigens, categorized as either warm or cold. Cold agglutinin antibodies, linked to IgM, activate at around 3-4°C. Secondary AIHA, associated with infections, autoimmune diseases, and lymphomas, often involves Mycoplasma pneumonia. Primary cases are idiopathic. AIHA caused by Legionella pneumonia is very rare, with only five reported cases in the literature and only one causing cold agglutinins. For diagnosing new Legionella-related anemia, it is recommended to test LDH, haptoglobin, and perform a peripheral smear. If hemolysis is evident, including the presence of microspherocytes, a Coombs test should be ordered. Recognizing G6PD deficiency in AIHA cases is crucial as it affects management. Management of CAS revolves around treating the underlying cause.

Conclusion:

This case highlights the need for a holistic evaluation and diagnostic approach when identifying rare causes in patients with atypical conditions. Prioritizing warm transfusions and judicious antibiotic selection is essential for CAS management.

Akua Kordieh, DO

Muhammad Khan, MD

Department of Medicine, Mount Sinai South Nassau, NY

Icahn School of Medicine at Mount Sinai, Mount Sinai South Nassau

KILT syndrome incidentally found in a 31-year-old male with herniated disc

KILT syndrome refers to Kidney and Inferior vena cava (IVC) abnormalities with Leg Thrombosis. KILT syndrome is an uncommon finding.

We report the case of a 31-year-old male who presented to an Emergency Department with complaint of left lower extremity (LE) pain for three weeks. He described the pain as constant, 7 out of 10, sharp, left-sided lower back and buttock pain that radiated to his LLE. His workup, which included an LLE ultrasound and radiograph of the lumbar spine were negative for acute pathology. His pain was treated with prescriptions for Percocet, Prednisone, and methocarbamol. He returned six months later with complaints of lower back pain, lower back muscle stiffness and LE pain which was worsened with ambulation. Again, his physical exam was reassuring, so he was discharged with prescriptions for Prednisone, methocarbamol and topical Lidoderm, and advised to follow up with an orthopedic provider. However, he returned five days later with worsening pain. Vital signs were within normal limits. His exam was significant for edema in his bilateral LE. LE venous duplex showed occlusive and nonocclusive thrombi along both common femoral, greater saphenous, profunda and superficial femoral veins, left popliteal and left posterior tibial veins. A Computed Tomography (CT) Angiography of the pulmonary arteries was negative for pulmonary embolus and suspicious lesions. MRI of the lumbar spine showed left hydronephrosis, left retroperitoneal adenopathy, heterogeneity in the right retroperitoneum without visualization of the right kidney and extensive thrombosis of the IVC, bilateral iliac veins and right internal iliac vein. The bladder was distended. At L5-S1, there was a large superiorly extruded disc herniation, resulting in severe narrowing of the thecal sac. CT urogram revealed what was initially thought to be a right nephrectomy with irregularly enhancing soft tissue tethered to the IVC, resulting in severe stenosis with downstream dilation of the venous structures and extensive thrombus as noted in prior imaging. When imaging findings were reviewed with patient, he denied having had a nephrectomy, and he had no surgical scars on exam; suggesting a possible aplastic right kidney. Management included full-dose anticoagulation. Laminectomy for his disc herniation was postponed, in the setting of acute DVT requiring full dose anticoagulation and a normal motor exam. When he was medically stable, he was discharged with prescription for Rivaroxaban, and advised to follow up with Hematologist, Orthopedic and Vascular surgeons and Urologist.

This case report adds to the literature on KILT syndrome. IVC anomalies, which may be accompanied by aplastic or hypoplastic kidneys, are a risk factor for thrombosis. Thus, unprovoked thrombosis should warrant further investigation to rule out IVC anomaly and hypoplastic or aplastic kidney, as patients who have this syndrome may require long-term anticoagulation to prevent further thrombosis.

pyae kyaw, chief resident

Kyaw, P (MBBS), Abaza, K (MD), Narh, J (MD), Sharma, N (MBBS), Nanda, S (MBBS),

Soe, K (MBBS), Moskovits, N (MD)

Maimonides medical center

The importance of anticoagulation in left ventricular noncompaction for preventing left ventricular thrombus.

Introduction: Left Ventricular Noncompaction (LVNC) is a rare myocardial disorder characterized by prominent trabeculations and deep intertrabecular recesses within the left ventricle. In adults, prevalence is lower (4.1% to 5%), with men being three times more affected than women, and it has a familial incidence of about 40%. LVNC results from arrested myocardial compaction during fetal development, leading to persistent embryonic myocardial structures. Clinically, it manifests with heart failure, arrhythmias, thromboembolic events, and sudden cardiac death.

Case-Presentation: A 40-year-old male with a history of untreated hypertension and recurrent skin abscesses presented initially with a six-month history of cough and exertional dyspnea following his second dose of the COVID-19 vaccine. He reported orthopnea necessitating four pillows at night and chest congestion with white sputum production. Physical examination revealed bibasilar crackles, normal cardiac exam, and no pedal edema. CT angiogram was negative for pulmonary embolism. He developed chest pain with new T-wave inversions and elevated troponin levels, prompting urgent left heart catheterization.

Cardiac catheterization revealed severe myocardial bridging in the distal left anterior descending artery (LAD) with no significant coronary artery disease. Left ventriculography demonstrated severely depressed global left ventricular function. Subsequent investigations, including echocardiography and cardiac MRI, confirmed severely dilated left atrium and ventricle with an ejection fraction (EF) of 16-20%. Evidence of noncompaction cardiomyopathy with marked fibrosis and trabeculations was noted. The patient was initiated on IV heparin, aspirin, clopidogrel, statin, metoprolol and Xarelto

During follow-up, the patient reported overall improvement but presented two years later with recurrent chest pain, testing positive for COVID-19 and subsequently treated with remdesivir. Post-discharge, he developed hemoptysis and Xarelto was held. A few days later, the patient was admitted for worsening right back pain worse on inspiration.

CT angiogram revealed acute pulmonary embolism extending through the right lung arterial tree and left lower lobe and Echocardiogram revealed a non-mobile apical-lateral thrombus measuring 2.7 x 1.4 cm.

Therapeutic anticoagulation with a heparin drip was started, later transitioned to Apixaban 10 mg BID for seven days and 5 mg BID thereafter. The patient's condition improved, allowing discharge with outpatient management.

Discussion: The patient developed pulmonary embolism and LV thrombus a few days after stopping the anticoagulation. This case underscores the importance of anticoagulation in a patient with LVNC with low ejection fraction.

Conclusion: This case highlights the critical need for vigilant management and continuous anticoagulation therapy in patients with Left Ventricular Noncompaction (LVNC) and reduced ejection fraction. The development of thromboembolic complications, such as pulmonary embolism and left ventricular thrombus, shortly after cessation of anticoagulation, underscores the high thrombotic risk associated with LVNC.

Gabrielle Librizzi, MD

Sonia Yu, MD, Thomas Jandl, MD, Tarneem Darwish, MBBsh, Tahneema Ahmed MBBS

Stony Brook Medicine

IgA Multiple Myeloma In a Young Patient: A Case Of Hyperviscosity Causing Hypertension, Flash Pulmonary Edema, And Cardiac Arrest

Introduction: Multiple myeloma (MM) has a median age of onset of 65 years. Hyperviscosity syndrome is a rare complication of MM, most often seen with IgM type. This patient had hyperviscosity syndrome with IgA type causing cardiac arrest.

Case presentation: Our patient is a 43-year-old male with a history of chronic back pain who presented with one week of shortness of breath, cough, fever, and worsening back pain. In the Emergency Department (ED), he was found to be afebrile, tachycardic to 111 bpm, hypertensive to 162/93 mmHg with an oxygen saturation of 91-97% on room air. Laboratory studies were notable for creatinine 1.61 mg/dl (no baseline comparison), corrected calcium of 14.7 mg/dl, hemoglobin of 7.4 g/dl (in 2023, hemoglobin was 16), albumin 2.2 g/dl, and total protein of 14.4 g/dl. Radiologic studies showed lytic lesions involving the entire skeleton and linear opacification of the right lower lobe. He was treated for community-acquired pneumonia and admitted to Medicine with a hematology consult for concern of MM.

Two days later, a rapid response was called. He had systolic blood pressure > 220 mmHg, tachycardia with a heart rate to 150 bpm, and hypoxia with O2 saturations to 70%. Point of care ultrasound demonstrated diffuse B-lines. Labetalol and furosemide were ordered and the patient was placed on non-invasive ventilation. He went into Pulseless Electrical Activity arrest and was intubated. Return of Spontaneous Circulation was achieved in 10 minutes. The patient was brought to the Medical Intensive Care Unit for further care.

Bone marrow biopsy showed sheets of plasma cells consistent with MM. Further laboratory data showed an M-spike of 9.4 g/dl, a kappa/lambda ratio of 14.7, immunoglobulin A (IgA) of 7,510 mg/dl, immunoglobulin M (IgM) 5 mg/dl, immunoglobulin G (IgG) 254 mg/dl. Serum protein electrophoresis indicated a monoclonal peak in the gamma region. Serum immunofixation demonstrated a restriction in IgA kappa. Haptoglobin was undetectable, LDH was 102 IU/l. No schistocytes were seen on the peripheral smear. He had an elevated serum viscosity of 7.2. He underwent plasmapheresis followed by initiation of cyclophosphamide - bortezomib - dexamethasone chemotherapy (CyBorD). He was subsequently extubated. He underwent plasmapheresis two additional times, with an improvement in viscosity to less than 3. He was discharged with outpatient follow-up. He has received a total of 4 cycles of CyBorD chemotherapy with stringent complete response per International Myeloma Working Group criteria. He has been referred for autologous stem cell transplant (ASCT).

Conclusion: The teaching point is IgA MM can cause hyperviscosity syndrome leading to cardiac arrest. This case is unique as this patient is younger than the stereotypical MM patient. He does not exhibit any neurologic deficits as a consequence of cardiac arrest and is pending consolidation with an ASCT.

Katie Luc,

Jessica Chung, MD, Yu Shia Lin, MD

Maimonides Medical Center, Division of Infectious Diseases

â€‹â€‹Beyond Skin Deep: Exploring the Impact of Flesh-Eating Organisms on Colitis

Introduction

Group A streptococci (GAS), also known as Streptococcus pyogenes, are widely recognized for causing pharyngitis, mild skin and soft tissue infections, to severe necrotizing fasciitis, earning the bacterium the nickname "flesh-eating organism.â€ However, gastrointestinal infections caused by GAS, particularly in adults, are rare. We present a case of GAS-associated colitis in an adult patient with liver cirrhosis.

Case Presentation

A 48-year-old man presented with two days of abdominal pain, watery diarrhea, and chills. He has a history of alcoholic cirrhosis complicated by variceal hemorrhage requiring both coil-assisted retrograde transvenous obliteration (CARTO) and transjugular intrahepatic portosystemic shunt (TIPS) and recurrent cholecystitis due to cholelithiasis status post cholecystectomy. On admission, the patient was tachycardic and hypotensive, which improved with fluid resuscitation. Exams revealed a distended abdomen with epigastric tenderness and splenomegaly. No oropharyngeal erythema or rash was present. Initial laboratory findings showed thrombocytopenia, significant lactic acidosis, mild transaminitis, hyperbilirubinemia, and elevated INR. Computed tomography of the abdomen and pelvis with intravenous contrast revealed a cirrhotic liver with portal hypertension, wall thickening at the proximal descending duodenum, and colonic fluid, suggestive of colitis. The patient was empirically started on ceftriaxone and metronidazole. Four bottles in two different sets of blood cultures grew GAS. Throat culture, rapid strep A antigen, stool Clostridium difficile PCR, stool GI PCR, chest X-ray, and transthoracic echocardiogram were negative for other sources of bacteremia. The patient was discharged home with amoxicillin.

Discussion

GAS is a bacterial pathogen commonly associated with respiratory and skin infections but has the potential to infect the gastrointestinal tract as streptococcal colitis, particularly in patients with liver cirrhosis. Cirrhotic patients have impaired intestinal functions and altered gut microbiome, allowing translocation of gut bacteria to the systemic circulation. TIPS or CARTO increases the likelihood of atypical pathogens colonizing and invading local tissues by introducing a foreign stent, serving as a nidus for bacterial colonization. These procedures can alter the hemodynamic parameters of the liver over time, resulting in blood stasis, promoting bacterial growth. Various virulence factors, such as M protein, streptolysins, and hyaluronidase promote the GAS’s ability to adhere to surfaces, evade immune response, and invade tissues, causing mucosal damage and inflammation. GAS infection symptoms

include high fever, chills, severe pain, swelling, redness, rash, gastrointestinal symptoms, hypotension, tachycardia, and altered mental status. Recognizing GAS colitis is crucial as delayed diagnosis can lead to severe complications. Cirrhosis heightens the risk of invasive infections, emphasizing the need for early recognition and prompt, appropriate antibiotic management.

Conclusion:

This case report underscores GAS as a potential causative agent in colitis beyond the common gastrointestinal flora, especially in cirrhotic patients who may present with non-specific symptoms. Rapid identification and management are vital to improve outcomes and prevent systemic spread.

Xinmiao Luo, MD

Halley C. Yung, BS

Pooja Mange, MD

Bronson Joseph Raja, MD, FACP

New York City Health and Hospitals Corporation/Jacobi

Pleuroperitoneal Fistula in Continuous Ambulatory Peritoneal Dialysis: A Case Report and Review of Management Strategies

Background: A pleuroperitoneal communication, also known as a pleuroperitoneal fistula (PPF), is a rarely observed complication (<2% incidence) in patients undergoing continuous ambulatory peritoneal dialysis (CAPD). The etiology of PPF is unclear, but it can cause hydrothorax due to peritoneal dialysate migration through the fistula. This complication often necessitates the patient's transition from CAPD to hemodialysis (HD). If the PPF does not resolve with conservative measures, surgical intervention is often required to prevent further complications.

Clinical Case: We present the case of a 38-year-old woman on CAPD for 16 months due to end-stage renal disease from chronic IgA nephropathy. She presented with dyspnea for 3 days and inadequate CAPD drainage, missing 500 mL of fluid. Physical examination revealed decreased breath sounds at the right lung base and mid-lung field. A chest X-ray showed a moderate right-sided hydrothorax. CT peritoneography revealed a pleuroperitoneal defect with intraperitoneal contrast leaking into the right pleural space. She was transitioned to HD with a tunneled dialysis catheter. Her dyspnea significantly improved after two sessions of HD. A repeat chest X-ray showed improvement in the size of her pleural effusion. The plan was to use HD for 3-4 weeks, then return to CAPD with repeat chest X-rays to monitor PPF recurrence. The patient was encouraged to follow up as an outpatient with thoracic surgery for definitive repair of the PPF and return to CAPD.

Conclusion: PPF should be considered when pleural effusion occurs in CAPD patients. Typical symptoms include pleuritic chest pain and breathlessness. CT peritoneography and peritoneal scintigraphy (with approximately 50% sensitivity) aid in diagnosis. Reports suggest a higher incidence in women and conditions like polycystic kidney disease, predominantly affecting the right side. This may be due to an embryonic remnant facilitating fluid passage to the right pleural space, which can be exacerbated by increased peritoneal pressure in CAPD patients. There are no standard guidelines for managing CAPD-related hydrothorax. Experts recommend transitioning to temporary HD to allow spontaneous hydrothorax resolution and diaphragmatic connection, as seen in this case. However, success is suboptimal with frequent recurrences. Pleural fluid removal through an intercostal catheter should be reserved for patients with respiratory distress. If conservative measures fail, chemical pleurodesis is the next step. Surgical correction is highly effective, with over 90% success in resuming PD without recurrence, though its invasiveness may lead some patients to opt for permanent hemodialysis.

Constangela Matos Noboa, MD

Joseph J. Hong, MD

Kristin Swedish, MD

Montefiore Medical Center - Wakefield Campus

FROM HEAD TO TOE - A CASE OF METASTATIC SQUAMOUS CELL CARCINOMA

Introduction:

Patients with oral squamous cell carcinoma have a 5-15% risk of developing distant metastases. Distant metastases typically manifest themselves in the lung, liver, and skin. Rarely, metastasis present in the peripheral skeletal bones, adjacent soft tissues, and heart. We report a case of a patient with localized oral cavity squamous cell carcinoma found to have advanced disease metastatic to peripheral skeletal bone and heart only three months after treatment.

Case Description:

A 83-year old woman with oral cavity squamous cell carcinoma of the mandible T4aN0M0 (diagnosed April 2023) status post resection and radiation therapy July 2023, who presented October 2023 with right great toe pain for one month. She reported hitting her great toe on the wall, then developed constant worsening pain associated with intermittent minimal bleeding. On examination, her right great toe had an open wound displacing the nail bed. X-ray of the revealed bone loss highly suspicious for osteomyelitis. MRI subsequently revealed an aggressive, destructive lesion involving the distal phalanx of the great toe, concerning for metastatic lesion vs primary neoplastic mass. Biopsy of the lesion revealed squamous cell carcinoma which was determined to be metastatic squamous cell carcinoma. Staging imaging also revealed extensive metastatic lesions including a 1.5 cm echogenic mass in the interventricular septum, lung nodules, hepatic hypodensities, supraspinatus muscle mass, and osseous metastases in the parietal skull with soft tissue extension. Localized radiotherapy to the toe and immunotherapy was offered to the patient.

Discussion:

In the case presented, a patient with intermediate risk for distant metastasis developed advanced metastatic disease only three months after appropriate treatment. Patients in this risk category with negative sentinel lymph node biopsy merit active imaging surveillance and clinical examinations at least every three months to detect metastases, if not sooner. In this patient, advanced metastatic squamous cell carcinoma presented itself as a wound in a peripheral skeletal bone of an otherwise asymptomatic patient. A high index of suspicion is necessary to promptly diagnose such cases, as overlooking these wounds as infections can cause significant delays in treatment. Patients who currently have or have had squamous cell carcinoma of the oral cavity and develop masses in their lower extremities of unknown origin require careful evaluation for potential metastases. During tumor staging and oncologic follow-up, clinicians should consider the potential spread to the peripheral skeletal muscles, bones, and soft tissues if suspicious lesions are detected. Conducting thorough examinations to detect such findings should be a routine part of the follow-up care for these patients.

Tarig Mohamed, internal medicine resident, MD

Mostafa Najim, Zeinab Mohamed, Farooq Chaudhary1, Keerthi Renjith1, Waddah K. Abd El-Radi1.

Rochester Regional Health, Unity Hospital

Hepatopulmonary Syndrome, challenges in diagnosis and management, case report

Introduction: Hepatopulmonary syndrome (HPS) is a severe pulmonary complication associated with liver disease, characterized by liver dysfunction, pulmonary vascular dilation, and a high alveolar-arterial oxygen gradient. Diagnosing HPS in patients with underlying lung conditions requires high clinical suspicion.

Case Presentation: A 59-year-old female with hepatic cirrhosis due to metabolic dysfunctionâ€“associated fatty liver disease, chronic respiratory failure secondary to nonspecific interstitial pneumonia, and chronic obstructive pulmonary disease on continuous oxygen therapy (4 liters) presented with cough, worsening dyspnea, and increased oxygen requirement.

Physical examination revealed spider nevi on the chest wall and bilateral crackles. Laboratory investigations showed normal WBC and hemoglobin, platelets 79 x10³/µL (baseline), normal electrolytes and liver enzymes, total bilirubin of 2 mg/dl, INR 1.6, and a MELD-Na score of 14. ABG showed hypoxemia with PO2 49 mmHg. CT scan revealed bilateral coarse interstitial opacities, indicating progression of interstitial lung disease with new multifocal consolidations.

She was treated with broad-spectrum antibiotics, bronchodilators, corticosteroids, and high-flow oxygen (FiO2 of 80% at 40L/minute). Despite initial therapy, oxygen requirements increased, necessitating BiPAP and ICU admission. On day five, she was intubated due to respiratory compromise. Platelet count dropped to 7 x10³/µL likely due to antibiotics, sepsis, and underlying hepatic cirrhosis. Heparin-induced thrombocytopenia (HIT) evaluation was negative. Bronchoscopy was unremarkable, and transesophageal echocardiogram (TEE) demonstrated late microbubbles entering the left atrium via the pulmonary veins, consistent with HPS. Given the diagnosis of HPS, her candidacy for liver transplantation was discussed with the hepatology team; however, due to her respiratory failure (on mechanical ventilation with FiO2 of 100%, SpO2 < 85%) and severe thrombocytopenia, the risk of surgical intervention was too high. Family discussions were held, her code status was transitioned to comfort measures only, and she ultimately passed away.

Discussion: This case highlights the diagnostic challenges and complexities associated with HPS. Chronic lung disease obscured the clinical picture, leading to a delayed diagnosis and progression to respiratory failure, limiting liver transplantation possibilities. Early recognition and intervention are crucial, as the definitive treatment for HPS is liver transplantation. The 5-year survival rate is 76% for those who undergo transplantation, compared to 23% for those who do not. Our patient could have needed a dual organ transplant; however, limited data support combined lung-liver transplantation (LLT) for dual organ failure. A study from 2000 to 2016 reported patient survival rates of 91.6% at 1 year and 71.3% at 3 years after LLT. These interventions were not performed in emergency settings, and the study sample size was 12 patients, limiting their generalizability.

Conclusion: Increased awareness of HPS among clinicians is essential for timely diagnosis and management. This could alter the course of the disease and improve outcomes, especially in patients with concurrent liver and pulmonary pathology.

Jiya Mulayamkuzhiyil, MD

Justeena Joseph MD, Mario Mekhail MD, Ivan Kharchenko MD, Michael Brian Lim MD, Nadia Khan MBBS, Papiya Begum MD, Neeru Kumar MD
Long Island Community Hospital

PRIMUM NON NOCERE: A RARE CASE OF ACUTE HEPATORENAL INJURY FROM CONCURRENT USE OF DAPTOMYCIN AND STATIN

Background
Daptomycin is an antibiotic commonly used to treat skin and soft tissue infections, osteomyelitis, and infective endocarditis. It can increase creatine phosphokinase (CPK) levels in some patients, although rhabdomyolysis and acute hepatorenal injury seldom occur. We present a rare case of acute hepatorenal injury from concomitant daptomycin and statin use.

Case Presentation
A 67-year-old male with a medical history of Type 2 diabetes mellitus, coronary artery disease (CAD) s/p nine stents, hypertension, peripheral arterial disease(PAD) presented with fatigue, nausea, vomiting, decreased oral intake and altered mental status. Of note, he was being treated for left foot osteomyelitis with daptomycin and cefepime for the past two weeks; he was also on a statin due to his CAD and PAD. His spouse stated he did not have any fever, diarrhea, NSAID use, fall, or prolonged immobility. On examination, vitals were stable and he was alert only to self; he also had bilateral chronic diabetic foot ulcers. Labs were significant for creatinine 4.0 mg/dL (Cr 0.9 two weeks prior); potassium 6.2 mmol/L, phosphate 5.7 mg/dL, CK 18019 U/L, AST 947 U/L, ALT 356 U/L, Aldolase 159 U/L, HCO3 16. Urinalysis showed large blood, protein 100, RBC 0-5, WBC 0-5, negative leukocyte esterase, nitrite and bacteria. CT abdomen was negative for kidney pathology; CT brain and hepatitis panel were unremarkable. The patient was admitted for acute kidney injury (AKI), and transaminitis due to daptomycin-induced rhabdomyolysis exacerbated by concurrent statin use; daptomycin and statin were held. Due to worsening renal function and oliguria, hemodialysis was initiated with complete resolution of metabolic encephalopathy after two sessions. He was discharged after one week with renal function recovery and improved liver function tests.

Discussion
Rhabdomyolysis is defined as elevated CPK more than ten times upper limit of normal. Rhabdomyolysis develops in 0.8% of patients receiving daptomycin and usually occurs within 7-10 days of receiving daptomycin. Daptomycin binds to the skeletal muscle cell membrane, causing pore-like formation, inducing depolarization and cellular lysis. Laboratory results suggesting rhabdomyolysis include hyperkalemia, hyperphosphatemia, and elevated levels of CPK, urine myoglobin, uric acid, creatinine, AST, ALT, aldolase, and urinalysis showing positive blood with absent or few RBC. Abnormal liver enzymes are noted only in 3% of patients receiving daptomycin in clinical trials. There is limited data on hepatic injury caused by concurrent administration of daptomycin and statin. Observational studies and metanalysis have noted that concurrent administration of daptomycin and statin resulted in increased daptomycin-related musculoskeletal adverse events including rhabdomyolysis. There are no clear-cut clinical guidelines dictating management in scenarios where statin is indispensable such as in our patient with previous extensive cardiac history. Clinicians should consider daptomycin-induced hepatorenal injury for patients with elevated renal and liver tests while on the antibiotic.

Carlos Munoz, MD

Nicole Villa MD, Bhavreet Singh MD, Gajendra Bham MD, Nirupa Mohandas MD.

Metropolitan Hospital Center

Unmasking Kikuchi Disease: A Surprising Case Mimicking Lupus and SIRS - A Case Report.

Introduction:
Kikuchi-Fujimoto disease is a rare cause of lymphadenopathy, the majority of those affected are typically women. Weight loss, fever, rash, night sweats, tender lymphadenopathy, and malaise are some of the common symptoms of the illness. Although the prognosis is generally good, some patients can have the risk of developing autoimmune disease in the future, especially systemic lupus erythematous (SLE).

Case presentation:
A 20-year-old female with history of left ovarian cyst visited the ED complaining of myalgias, weight loss, loss of appetite, and dyspnea. Vital signs were remarkable for fever, and tachycardia. On physical exam she was diaphoretic with tender with axillar and cervical lymphadenopathy. Initial laboratory results revealed anemia, transaminitis and, and elevated D-dimer. CT-Angio was negative for thrombosis, however it showed axillary lymph node necrosis 2.3 x 2.0 cm, mediastinal lymph nodes, subsegmental atelectasis, and a small pleural and pericardial effusion. During hospitalization broad spectrum antibiotics were started however, the patient spiked fevers and reported arthralgias during the night. Extensive infectious workup was negative, and antibiotics were discontinued. The patient was evaluated for autoimmune disorders with remarkable findings of ANA 1:1280, anti-dsDNA: 12, ESR: 80, CRP: 65.1, DAT C3 and DAT IGG were positive. Other tests such as anti-smith antibodies, rheumatoid factor, anti-CCP, anti-RO, and anti-LA were negative. Given left ovarian cyst history Ob-Gyn was consulted for possible paraneoplastic syndrome, transvaginal ultrasound was consistent with simple vs. hemorrhagic cyst, tumor markers CA 125 and AFP were negative. CT guided lymph node was done based on rheumatology and oncology recommendations. The biopsy was consistent Kikuchi disease showing necrotizing lymphadenitis majority necrotizing type, focal xanthomatous and proliferative, confirmed by immunohistochemistry.

The patient was started on hydroxychloroquine and prednisone. Follow-up showed improvement of her condition with resolution of symptoms.

Discussion:
Kikuchi disease is a rare inflammatory disease characterized by cervical lymphadenitis with systemic symptoms as fever, fatigue, malaise, weight loss and skin changes. It can be confused with other conditions such as infections, lymphoma and SLE. It should be considered as a a differential diagnosis in patients with cervical lymphadenopathy, considering that its definitive diagnosis is achieved by excisional biopsy with immunohistochemistry. The mechanism of this disease is not well understood, it can be post-infectious or associated with autoimmune disorders. Kikuchi disease is self-limited, patients receive supportive treatment and, in some cases, a steroid taper. Follow up after its resolution is fundamental as these patients are at risk for recurrence and development of autoimmune conditions.

Resident/Fellow Clinical Vignette

This case highlights the diagnostic challenge when facing a patient with lymphadenopathy, a proper diagnostic workup can avoid unnecessary testing and prevent erroneous treatment.

Aiswarya Nair,

Montefiore St Luke's Cornwall Hospital

Acute Basilar Artery Occlusion: A fatal seizure mimic

Introduction

Acute Basilar Artery Occlusion (BAO) is a potentially fatal yet treatable medical condition, accounting for approximately 1% of all strokes. BAO is often misdiagnosed as seizures, particularly when seizures, a rare presenting symptom of BAO, initially manifest. Increased awareness of this entity is essential for early diagnosis and improved patient outcomes. We report a case of an acute BAO presenting with a depressed level of consciousness and seizure-like activity.

Case

A 44-year-old male without a significant past medical history presented with unresponsiveness. His last known well was 9:30 pm and he was found unresponsive the next morning at 11:30 am, with sonorous respirations and generalized body twitching. Emergency Medical Services (EMS) administered naloxone and midazolam on arrival, following which additional naloxone was administered in the emergency department (ED) without effect, necessitating prompt endotracheal intubation. The initial neurological examination on presentation was limited due to the acuity of presentation. Serology and non-contrast computed tomography (CT) head were unremarkable for acute pathologies. Urine toxicology however was positive for cocaine and benzodiazepines. He was then admitted to the Intensive Care Unit (ICU) for acute neuromuscular respiratory failure and possible seizures, likely from drug intoxication, and was started on propofol and levetiracetam. Continuous video electroencephalogram (vEEG) monitoring revealed diffuse encephalopathy, likely due to sedation, but also potentially due to partial hypoxia with transient cortical hyperexcitability and myoclonus, which could not be excluded. With no epileptic activity in 24 hours, sedation was lightened for a spontaneous breathing trial. Repeat neurological examination off sedation was notable for flaccidity of right upper and lower extremities with inability to deviate eyes to the right side on command. Stat non-contrast CT head showed a new large right cerebellar infarct and a new left basal ganglia infarct. Stat computed tomography angiography (CTA) Head and neck showed findings suspicious for a small occlusion of the distal basilar artery at the confluence of the PCAs and possible occlusion of the superior right cerebellar artery. The patient was then transferred urgently to a tertiary care center for possible endovascular treatment.

Discussion

Convulsive-like movements may be the initial symptom of BAO, the mechanism of which is unclear. Early recognition can improve overall prognosis with reperfusion therapy such as intravenous thrombolysis and endovascular thrombectomy (EVT). The convulsive movements our patient manifested on presentation and the initial unremarkable CT head led to a suspicion of seizures, delaying accurate diagnosis. Awareness of this rare presentation of acute BAO would have prevented the delay in obtaining CTA head and neck which would have clinched the diagnosis, hastened endovascular intervention, and improved the patient’s overall quality of life.

Hebah Najib, DO

Ayfer Ekiz, MD

Garnet Health Medical Center

Thyroid Treatment Turned Troublesome: Methimazole Induced Agranulocytosis

Introduction:

There is an intricate interplay between autoimmune disorders and medication side effects. The recognition and management of rare but serious adverse drug reactions, such as Methimazole-induced agranulocytosis, are necessary for patient safety and outcome optimization. This case demonstrates the role of vigilant monitoring, timely intervention, and individualized treatment strategies in addressing the challenges encountered while managing Grave's Disease (GD).

Case Description:

A 35-year-old male with a past medical history of GD, primary syphilis treated 10 years ago and gonorrhea treated 3 years ago presented to the emergency department complaining of flu-like symptoms persisting for three days. He had traveled to Florida a month prior where he was diagnosed with thyroid storm of unclear etiology, leading to an increase in his Methimazole dosage from 10 mg to 30 mg daily. He then traveled to Colombia and reported self-resolving diarrheal illness. Upon returning to New York, he developed rhinorrhea, sore throat, fevers and chills. He was seen at urgent care where he was noted to be neutropenic and was started on amoxicillin. He did not improve clinically, prompting him to present to the emergency department for further evaluation

Physical examination revealed a fever (100.9°F) and tachycardia (108 bpm). Laboratory tests revealed a suppressed thyroid-stimulating hormone (TSH) (<0.01 mIU/L), elevated free thyroxine (T4) (2.82 ng/dL), a low white blood cell (WBC) count (1.8 x10^3/Î¼L) and a suppressed ANC (126/Î¼L). He was started on Cefepime and Filgrastim. Methimazole was discontinued and Propylthiouracil (PTU) was avoided due to its documented cross-reactivity with methimazole. The patient was treated with an increase in his propranolol dose and cholestyramine. An infectious disease work up ruled out various infectious etiologies including respiratory infections, HIV, syphilis, and dengue and chikungunya viruses.

Once infectious diseases were ruled out, the diagnosis of methimazole induced agranulocytosis was confirmed. Patient underwent radioactive iodine ablation (RAI) per protocol. Following treatment, his symptoms improved, with normalization of WBC count (3.4 x10^3/Î¼L) and ANC (646/Î¼L). He remained afebrile for over 72 hours and had complete resolution of symptoms at the time of discharge.

Discussion:

Recognizing and managing Methimazole-induced agranulocytosis in GD benefits significantly from an interdisciplinary approach, ensuring comprehensive care and prompt intervention, ultimately optimizing patient outcomes. While Methimazole and PTU are typically first-line treatments for GD, especially in populations where RAI is contraindicated, they must be used with caution and be closely monitored. Some studies highlight the superiority of RAI in achieving euthyroidism, especially in a younger patient population where it offers a favorable alternative, providing long-term remission with minimal side

effects. Radiation oncology should be involved early when patients experience severe adverse reactions to antithyroid drugs or when definitive treatment is required to achieve long-term remission.

Saumya Nanda,

Armando Seitllari, Tharun Shyam, Shaurya Sharma, Yu Shia Lin

Maimonides Medical Center

Unmasking Tuberculosis Pericarditis: What is the Role of Xpert MTB/RIF in Early Diagnosis and Treatment?

INTRODUCTION

Tuberculosis pericarditis (TBP) is a relatively rare disease that occurs in 1% of autopsied cases of tuberculosis. The definite diagnosis of TBP continues to pose a challenge for clinicians, resulting in significant morbidity and mortality. This case report underscores the need for higher clinical suspicion and the effectiveness of Xpert MTB/RIF in the early diagnosis and treatment of TBP.

CASE DESCRIPTION

An 80-year-old man with hypothyroidism and benign prostatic hyperplasia presented to the emergency department with intermittent fever and progressive weakness for eight days. He denied a prior history of tuberculosis, night sweats, or weight loss. He emigrated from Pakistan over 40 years ago, worked in construction, and kept a pet parrot.

Upon admission, the patient exhibited tachycardia, tachypnea, and a high-grade fever, with a BMI of 26. His oxygen saturation was 93% on ambient air. The examination was largely unremarkable, except for distant heart sounds. The leukocyte count was 10.6 K/Î¼L, hemoglobin 13.3 gm/dL, LDH 198 IU/L, C-reactive protein 37.9 mg/dL, erythrocyte sedimentation rate 93 mm/hr, and TSH 6.91 µIU/mL. A 4th generation HIV test was non-reactive. The chest X-ray showed clear lungs. A chest computed tomography demonstrated a pericardial effusion with enhancement suggestive of pericarditis with mediastinal lymphadenopathy. Echocardiography demonstrated cardiac tamponade, leading to a pericardial window and fluid drainage. Subsequently, the fever resolved, and the patient improved clinically. Pericardial fluid (PF) analysis revealed WBC 378 cells/Î¼L with 97% lymphocytes, LDH 1,543 IU/L, and glucose 20 mg/dL. Cultures and smears for acid-fast bacilli (AFB) in PF and sputum were negative. The pericardial biopsy showed chronic inflammation and granulation tissue without necrotizing granulomas, and the AFB stain was negative.

An Xpert MTB/RIF (Cepheid, Sunnyvale, California) assay was performed on the pericardial fluid, which tested positive. Treatment with isoniazid, rifampin, ethambutol, and pyrazinamide was initiated. The diagnosis was confirmed three weeks after discharge with the growth of Mycobacterium tuberculosis complex in the pericardial tissue AFB culture.

DISCUSSION & CONCLUSION

Clinicians might incorrectly attribute the symptoms to a post-viral condition influenced by the patient's swift recovery, the absence of necrotizing granulomas, and a negative AFB stain in the pericardial tissue biopsy, particularly in a patient with a BMI of 26. However, elevated LDH and low glucose levels in the pericardial fluid rendered a viral cause less probable. Due to strong clinical suspicion of Tuberculosis Pericarditis (TBP), the Xpert MTB/RIF was performed. Although its sensitivity for detecting TBP in

pericardial fluid ranges from 30% to 70%, the Xpert MTB/RIF's rapid detection of Mycobacterium tuberculosis DNA and its ability to identify rifampicin resistance make it a valuable diagnostic tool, even without FDA approval for this specific use.

Saumya Nanda,

Ilya Giverts, Pyae Hein Kyaw, Armando Seitllari, Hakob Harutyunyan, Vipluv Singh, Megi Lifa, Gregory Cunn

Maimonides Medical Center

Optimizing Anticoagulation Strategies in Left Ventricular Noncompaction Cardiomyopathy with Low Ejection Fraction: Insights from a Complex Case

Introduction

Left ventricular noncompaction (LVNC) is a heterogeneous form of cardiomyopathy with multiple phenotypes characterized by prominent trabeculations and deep intertrabecular recesses primarily within the left ventricle (LV). This structural abnormality predisposes to severe complications such as heart failure (HF), arrhythmias, and thromboembolic events, including stroke. Low LV ejection fraction (LVEF) is known to be a significant predictor of systemic embolism in LVNC.

Case Description

A 32-year-old man with hypertension, diabetes mellitus, primary hyperaldosteronism, LVNC with heart failure (LVEF 25-30%), with an implanted cardioverter-defibrillator, was transferred from another hospital for a stroke with occlusion of the right M2/M3 segment of the middle cerebral artery, potentially necessitating a thrombectomy. He had a chronic left ventricular apical thrombus and had been on rivaroxaban and aspirin for a year. On initial presentation, the patient had slurred speech, left-sided weakness, and facial droop. Intermittent episodes of tachycardia prompted testing for troponin level, which was found to be elevated to 7 ng/ml. The troponin level subsequently lateralized, suggesting type II NSTEMI.

Upon arrival at our facility, the patient underwent a repeat CT head and CTA, which led to an emergent angiogram and an attempted thrombectomy, which was unsuccessful. The patient was followed by stroke, cardiology, and hematology teams. Given no EKG changes, lateralized troponin, and normal prior left heart catheterization, aspirin was discontinued. The antiphospholipid panel was negative. Repeat echocardiogram showed a 3.5 cm highly mobile apical thrombus, LVEF 21-25%, and a noncompact-to-compact myocardium ratio > 2, consistent with LVNC criteria. Brain MRI demonstrated acute infarcts in the right occipital and frontal lobes, right gangliocapsular region, subacute to chronic infarcts in the left frontal and parietal lobes, and chronic lacunar infarcts in the right pons posing a high hemorrhagic risk with anticoagulation. However, given acute cardioembolic stroke and persistent LV thrombus in the setting of LVNC, the patient was considered a candidate for lifelong anticoagulation. Since previous therapy with rivaroxaban had failed, the patient was started on full-dose enoxaparin and bridged to warfarin with an INR goal of 2-3. He was discharged to a rehabilitation facility for residual neurological deficits on optimized guideline-directed medical therapy for heart failure.

Discussion

This case highlights the need for heightened vigilance and potentially more aggressive anticoagulation strategies in LVNC. 2019 Heart Rhythm Society consensus proposes anticoagulation for LVNC with LV thrombosis as a class I recommendation. There is limited evidence on anticoagulation strategies in LVNC. Direct oral anticoagulants (DOACs) may not provide sufficient protection against thromboembolic events in this clinical scenario, potentially requiring traditional anticoagulants like warfarin.

Conclusion

This case emphasizes the necessity for potentially more aggressive anticoagulation approaches in LVNC with low LVEF due to the increased risk of thromboembolism.

GHISLAINE NOUMI,

MICHELE HALPERN

MONTEFIORE NEW ROCHELLE

A RARE AND CHALLENGING CASE OF RAPIDLY PROGRESSIVE POEMS DISEASE ASSOCIATED WITH SYSTEMIC AL AMYLOIDOSIS

Introduction:

POEMS syndrome is an exceptionally rare (0.3/100,000) multi-system disorder characterized by polyradiculoneuropathy, organomegaly, endocrinopathies, monoclonal protein, and skin changes. It predominantly affects men in their 50s. The pathogenesis remains poorly understood but is hypothesized to be an autoinflammatory response to a monoclonal plasma cell population and elevated pro-inflammatory cytokines, including IL-6, IL-1Î², and TNF-Î±. Due to its rarity and complex presentation, POEMS is often underdiagnosed. There are no standardized treatment guidelines; management is tailored to the patient's age and disease progression.

Case presentation:

A 36-year-old previously healthy male presented with an 8 month history of anorexia, increased abdominal girth, melena, 40 pounds weight loss, dyspnea, dry cough, chills, weakness, fatigue, myalgias, edema and paresthesia of the lower extremities, leukonychia (white nails) and erectile dysfunction. Upon admission, patient was afebrile, mildly tachycardic, chronically ill appearing with a distended abdomen. Initial tests were remarkable for mild normocytic anemia, thrombocytosis- platelets 1005x 10^9/L. Alkaline phosphatase 482 IU/L, AST 68 IU/L, ALT 34 IU/L, GGT 221 IU/L, Creatinine 0.83 mg/dL, Urinalysis Protein >500 mg/dL. Urinary protein 6177 mg/24h. A CT scan of the abdomen and pelvis revealed mild hepatomegaly, moderate ascites, and bilateral pleural effusions. A multidisciplinary team was consulted: Gastroenterology: Endoscopy showed active gastritis with Helicobacter. pylori, and Hemorrhoids. Paracentesis removed 2.4L fluid, SAAG >1. Hematology: EPO 141.9 (4-26 mU), ANA ANCA and JAK-2 negative, Flow cytometry demonstrated plasma cell neoplasm. SPEP: M spike with immunofixation indicating IgA lambda monoclonal gammopathy. Bone marrow biopsy showed plasma cell dyscrasia. Endocrinology: TSH Elevated, T4 normal T3 Low, Testosterone Low, FSH Low, Cortisol normal. Neurology: EMG showed mild axonal sensorimotor polyneuropathy affecting the lower extremities. Infectious: PCT: 7.25, Hepatitis B and C, HIV, Tuberculosis were negative. Nephrology: Renal biopsy revealed amyloidosis. Cardiac MRI suggestive of cardiac amyloidosis. A diagnosis of POEMS syndrome and systemic AL amyloidosis was established. Chemotherapy (CyBorD, Daratumumab) was initiated. Complications of the treatment include neutropenia and septic shock due to multidrug-resistant Pseudomonas, E. coli, disseminated VZV, CMV, and fungemia. Despite broad spectrum antibiotic, antifungal and antiviral medications, the patient developed progressive acute kidney injury (AKI), requiring continuous veno-venous hemodialysis (CVVHD). Patient could not tolerate further chemotherapy and died 2 months after his diagnosis.

Discussion:

This case underscores the diagnostic and therapeutic complexities associated with POEMS syndrome and systemic AL amyloidosis and the many challenges facing the internist. The rarity of these conditions

necessitates a high index of suspicion and a multidisciplinary approach for effective diagnosis and management. Early diagnosis and intervention are critical to improve prognosis. Median survival with effective therapy is 14 years. While there are no standardized treatment protocols, current management strategies often include a combination of autologous stem cell transplant (ASCT), chemotherapy and radiotherapy in selected patients.

Inae Park,

Kimberly Graybeal, MS

Montefiore Medical Center

NEUROSARCOIDOSIS MIMICKING ISCHEMIC STROKE AND TUBERCULOSIS

Introduction

Neurosarcoidosis is a rare inflammatory disorder that can affect the nervous system in a variety of ways. This, along with its lack of pathognomonic lab and imaging findings, makes neurosarcoidosis difficult to diagnose. Here, we present a case of neurosarcoidosis whose initial imaging mimicked ischemic stroke and, later, central nervous system tuberculosis (CNS-TB).

Case presentation

A 30-year-old African-American man without past medical history presented to the emergency department with two weeks of a severe throbbing headache. The headache was initially localized to the occipital region but later migrated to the frontal area. He also noted associated photophobia, phonophobia, night sweats, and unintentional weight loss. He had no history of prior headaches. On presentation, the neurological exam did not reveal any focal motor or sensory deficits; cranial nerve exams were normal. Initial non-enhancing CT of the head revealed a hypodensity in the right anterior insula and subinsular regions, consistent with subacute infarct. The patient was treated with aspirin and high-intensity statin. Subsequent head and neck computed tomographic angiography (CTA) revealed no evidence of occlusion, dissection, or stenosis. However, this CTA incidentally demonstrated tree-in-bud nodularity in the bilateral upper lung lobes. Brain Magnetic Resonance Imaging (MRI) and Magnetic Resonance Angiography (MRA) did not reveal signs of acute infarction and instead showed diffuse leptomeningeal thickening and enhancement, concerning for an inflammatory or infectious process. Chest CT similarly revealed branching nodular opacities without lymphadenopathy, compatible with inflammatory or infectious processes. Cerebrospinal fluid (CSF) studies were positive for oligoclonal bands, with white blood cell count 313 cells/uL, protein >200mg/dL, and glucose 38mg/dL. The patient was placed in isolation due to concern for tuberculosis. Three mycobacterial cultures were all negative, ruling out CNS-TB. Ruling out all other infectious and inflammatory processes, the patient was diagnosed with neurosarcoidosis, and discharged with prednisone 60mg daily for 15 days.

Conclusion

In this case, our patient presented in many ways disparate to the â€˜classical' presentation, demonstrating the limitations of relying on â€˜classical' findings in such a complex pathology. Though an atypical presentation of stroke in a 30-year-old healthy male would have warranted further workup, had initial CTA not incidentally demonstrated pulmonary opacities, neurosarcoidosis may have been far lower on the differential diagnosis, illustrating the importance of having a clinical suspicion even without definitive findings or pathologic evidence. In addition, treatment options vary, as there is a lack of clinical trials to define specific medications and dosages. Prednisone 40-80mg for 2-4 weeks is first line, as with our patient here, and is sufficient for many patients. More severe disease may require intravenous or extended steroid courses, or steroid sparing agents such as methotrexate, azathioprine, mycophenolate mofetil, and tumor necrosis factors.

Aneri Kunal Patel, MBBS

Sharifeh Almasaid, MD

Anjali Pillai, MD

Basel Abuzuaiter, MD

SUNY Upstate Medical University

BEYOND THE SPINE: AN ATYPICAL PRESENTATION OF SPONTAEOUS EPIDURAL ABSCESS

Introduction:

Epidural abscess is a rare but serious suppurative infection of the central nervous system, capable of expanding and exerting pressure on the brain or spinal cord, potentially leading to permanent complications or fatality. Prompt diagnosis and treatment are crucial due to its variable presentation, with only half of patients exhibiting classical neurological symptoms. Here, we describe a rare case of spontaneous epidural abscess (SEA) presenting with gastrointestinal symptoms without neurological deficits.

Case description:

An 80-year-old Caucasian male with advanced dementia, type 2 diabetes mellitus, and degenerative disc disease presented with a five-day history of decreased appetite, nausea, and vomiting along with intermittent generalized abdominal pain. Initial evaluation revealed stable vital signs, unremarkable neurologic examination, a soft abdomen with diminished bowel sounds. Chest x-ray and CT (computed tomography) angiogram of the abdomen and pelvis were unremarkable, except for significant stool burden. CT-whole spine was negative for acute pathologies. Laboratory findings included mild leukocytosis, normal inflammatory markers, anion gap acidosis, and ketonuria indicative of starvation ketoacidosis. Despite managing the stool burden, the patient developed worsening epigastric and lower back pain. Gastroenterology service was consulted, who recommended continuing conservative measures. Due to persistent back pain, MRI-whole spine was performed, which revealed extensive epidural and paraspinous abscesses from T12 to L5, with osteomyelitis of the T12 vertebra and right 12th rib, septic workup revealed Methicillin-Sensitive Staphylococcus Aureus (MSSA) bacteremia, patient continued to remain afebrile and neurologically intact. Treatment with Oxacillin was initiated based on positive blood cultures. Interventional radiology-guided drainage yielded MSSA growth from the paraspinal abscesses. Trans-thoracic echocardiography ruled out infective endocarditis. Persistent back pain necessitated laminectomy at L1/L2 for abscess evacuation resulting in clinical improvement, resulting in patient finally being discharged stable on oral Oxacillin.

Discussion:

SEA exhibits a bimodal age distribution, predominantly affecting individuals under 20 or between 50-70 years, first described by G. Morgagni in 1761. It develops from a suppurative infection affecting the space between the spinal dura and vertebral periosteum, potentially presenting with the classic triad of back pain, neurological deficits, and fever, though varied presentations can complicate diagnosis.

Improved MRI diagnostics and heightened awareness have increased detection rates, revealing an estimated incidence of 2 to 12.5 per 10,000 people. Intravenous drug use and diabetes are predominant risk factors, other contributors include recent dental procedures, immunosuppression, and chronic underlying medical conditions. While most cases involve Staphylococcus Aureus bacteremia with neurologic manifestations, our case is rare as it represents SEA presenting with non-specific gastrointestinal symptoms, and no neurological clues. Timely diagnosis with contrast-enhanced MRI is crucial for initiating early treatment and minimizing disability. Treatment primarily involves surgical decompression and prolonged antibiotic therapy, with conservative management considered in select cases.

Youssef Samaha,

Bibhuti Adhikari, Jeanette Sanchez Trinidad,Youssef Samaha, Arun Skariah John

NYC Health and Hospital - Elmhurst Hospital Center

Zieve Syndrome: Unmasking Alcohol-Related Hemolytic Anemia

Introduction

Zieve syndrome is a triad of alcohol-induced jaundice, hemolytic anemia, and hyperlipidemia. Here, we present a case of a middle-aged man with alcohol-induced cirrhosis and hemolytic anemia. Recognizing Zieve syndrome is important to avoid unnecessary tests and interventions.

Case Description

A 48-year-old man with no significant past medical history presented with pain around his right groin and right leg. Exam findings included scleral icterus, abdominal distension, and bilateral lower leg edema with right leg tenderness and warmth. The patient reported chronic alcohol use for 30 years. A CT abdomen and pelvis revealed liver cirrhosis and moderate ascites. Laboratory tests were notable for hemoglobin of 7 g/dl, MCV 106.7 fl, Platelets 180 x 10(3)/mcl, ALT of 29 U/L, AST of 91 U/L, Alk Phos 232 U/L, Total Bilirubin 4.7 mg/dl, and Direct Bilirubin 2.6 mg/dl . His MELD-Na score was 26. Liver cirrhosis was attributed to chronic alcohol use. Other liver disease work-ups including autoimmune markers and hepatitis panel, were negative.

Hemolysis work-up showed elevated LDH of 402 U/L, absolute reticulocyte count 0.11 x 10(6)/mcl and low haptoglobin of <20 mg/dl. Work-up for hemolytic anemia showed negative DAT test, normal pyruvate kinase 11.3 U/g, copper level of 58 ug/dl, ceruloplasmin 22 mg/dl and normal G6PD 23.4 U/g. Peripheral blood smear revealed anisocytosis and mild poikilocytosis without nucleated RBCs. Ascitic fluid analysis ruled out peritoneal infection. Patient was treated with antibiotics for lower extremity cellulitis, started on diuretics, and underwent therapeutic paracentesis. Hemolysis was attributed to liver dysfunction. His hemoglobin remained stable at 7-8 g/dl. After counseling on alcohol abstinence, the patient was discharged with follow-up at a chemical dependency clinic.

Discussion

Initially coined by Dr. Leslie Zieve in 1958, this syndrome identifies a pattern observed in patients with alcohol use disorder characterized by jaundice, hemolytic anemia, and hyperlipidemia. The exact mechanism of hemolysis in Zieve syndrome is not well-understood but can be multifactorial, including alcohol-induced direct injury or oxidative stress, changes in lipid content of blood cell membrane, and altered plasma lipoproteins. Hyperlipidemia is typically transient and was absent in our patient. Given the rarity of this syndrome, hemolytic anemia in alcoholics can be misunderstood and under-reported. In patients with AUD and hemolytic anemia, clinicians should consider Zieve syndrome to avoid unnecessary tests and extensive work-up. The crucial step in treatment includes complete alcohol abstinence, which helps reverse liver dysfunction and improves hemolysis and jaundice. Counseling and support for alcohol dependence play a major role.

FNU Samaksh, M.D

Ma. Karen Lipana, Alfonso Llosa. Guerra, Shobhana Chaudhari

NYCH+H/Metropolitan

Cutaneous Leishmaniasis: A Neglected Disease to Consider After the Immigration Wave in the United States.

Cutaneous leishmaniasis, a chronic protozoan disease, remains a pervasive health concern and a diagnostic challenge for physicians. This is attributed to the diversity of Leishmania species, vectors, and reservoir hosts in different geographic areas, resulting in a wide range of clinical manifestations. We report a case of cutaneous leishmaniasis initially diagnosed as pre-septal cellulitis and its response to treatment.

This is the case of a 38-year-old male, a recent immigrant from Ecuador to the United States, with a past medical history of hypothyroidism who presented to our hospital with a draining wound under his left eyelid. Initially, he noticed an erythematous papule with a central punctum on his left lower eyelid, associated with itching for 1.5 months. He manipulated it and drained serous fluid. Three weeks later, he reported an increase in the size of the lesion. At the emergency room of another hospital, he was prescribed clindamycin for 2 weeks and doxycycline for 1 week with no improvement of symptoms. A facial computed tomography (CT) scan showed left pre-septal cellulitis with small abscess formation. The lesion then evolved into an erythematous nodule measuring 2 x 2 cm with raised borders and central crusting on the left lower eyelid, associated with swelling of the face, neck, and cheek. He denied fever, weight loss, cough, or diarrhea.

Differential diagnoses included cutaneous malignancy (keratoacanthoma, basal/squamous cell carcinoma) versus infection (fungal, bacterial, Chagas disease, rupioid syphilis, and cutaneous leishmaniasis). CBC was significant for eosinophilia. Fungal workup was negative for coccidioides and blastomyces antibodies, histoplasma antigen in urine, aspergillus galactomannan, and fungitell. Trypanosomal antibodies, Strongyloides antibodies, stool ova, and parasite tests were negative. Dermatoscopy showed dilated vessels, ulceration, and "white starburst-like patterns." Skin biopsy revealed a dense infiltrate of histiocytes, plasma cells, and lymphocytes within the dermis, and numerous small round organisms within the cytoplasm of histiocytes. AFB, Giemsa, and Fite-Faraco stains were negative. The histopathological diagnosis was leishmaniasis. PCR isolation identified L. braziliensis. He was treated with liposomal amphotericin B. The lesion decreased in size and evolved into a crusted plaque with no erythema.

Discussion:

Cutaneous leishmaniasis is a debilitating disease that can cause social stigma and disfigurement. It is uncommonly diagnosed by physicians in areas where it is not endemic due to lack of familiarity, even if the lesions are suggestive. With the recent wave of immigrants coming to the United States, neglected diseases like leishmaniasis should be considered in differential diagnoses. There should be a high index of suspicion in patients with chronic skin lesions and a history of travel from an endemic region. Immediate biopsy, culture, and molecular analysis with PCR should be conducted simultaneously to maximize diagnostic yield. Prompt diagnosis avoids delays in management.

Prabhjeet Sandhu, MD

Shilpa Kamani MD, Justin Martinez DO, Sanchit Panda MBBS

SUNY Upstate Medical University

A Medical Emergency: Thyroid Storm

Introduction

Thyroid storm is a rare, life-threatening condition characterized by release of large amounts of thyroid hormones leading to organ dysfunction. One out of every six diagnoses of thyrotoxicosis develops into thyroid storm. This case involves a patient who was recently diagnosed with Grave's disease and presented with multiple findings reflective of thyrotoxicosis, eventually found to be in thyroid storm. It underscores the importance of early recognition of thyroid storm and the collaborative approach in management.

Case Presentation

A 21-year-old female recently diagnosed with Grave's disease on methimazole presented to the ED with 1 week of nausea, vomiting, diarrhea, and fevers. Patient's lab work was significant for WBC 1.2, ANC 0.00, TSH <0.030, Free T3 8.0, Free T4 3.19, Thyroid stimulating immunoglobulin 6.82, Thyrotropin Receptor Ab 16.50 along with a temperature of 105 °F, heart rate (HR) of 144, and blood pressure 164/84 requiring ICU admission for close monitoring. Endocrine was consulted and treatment with propranolol, cholestyramine, and hydrocortisone was initiated. Patient continued to deteriorate with HR in 170s leading to the initiation of plasmapheresis. Even with plasmapheresis thyroid function tests continued to uptrend. Lugol's iodine was started and endocrine surgery was consulted. Patient underwent a total thyroidectomy and levothyroxine was initiated when triiodothyronine was subtherapeutic. Patient was safely discharged home with outpatient Endocrine follow-up.

Discussion

Thyroid storm is a medical emergency with a wide variety of clinical manifestations including, but not limited to, vital signs abnormalities, cardiovascular dysfunction, CNS abnormalities and gastrointestinal-hepatic dysfunction. Burch and Wartofsky Point Scale (BWPS) encompasses these criteria to predict the likelihood of thyrotoxicosis precipitating into thyroid storm. BWPS in this patient was 75, which is highly suggestive of thyroid storm.

Acute management includes alleviation of symptoms by decreasing the peripheral conversion and overall available thyroid hormones and antibodies. Typically, this includes propranolol, cholestyramine, and steroids. However, Lugol's iodine, plasmapheresis and total thyroidectomy may be pursued in more resistant cases.

Overall medical management of thyroid storm is complex and carries a high mortality therefore a multidisciplinary approach is warranted. In our case, consulting services included Hematology for the agranulocytosis, Endocrinology for thyrotoxicosis, ICU for higher level of care, and Endocrine surgery for thyroidectomy. Having multiple subspecialities allowed our patient to get the highest level of care with eventual safe discharge home.

Conclusion

There are numerous medical emergencies that need high clinical suspicion and immediate treatment such as thyroid storm. Overall mortality rate for thyroid storm is 12-fold higher compared to thyrotoxicosis. Treatment can vary greatly depending on clinical improvement of the patient. In our patient, failed medical management prompted the need for thyroidectomy. This case highlights the importance of a collaborative approach to appropriately diagnose a medical emergency and efficiently initiate proper medical management.

Sangam Sangam, MD

Marco Bermudez, Lisnaldy Ramirez, Adisalem M Teferi, Camila Tole, Ilmana Fulger, Shorabh Sharma

SBH Health System, Bronx

A case of extra-ovarian primary peritoneal carcinomatosis (PPC): A rare and aggressive malignancy posing a diagnostic dilemma

Introduction:

PPC is a rare and aggressive cancer with an incidence of 6.78 cases per million, arising from the peritoneal lining with minimal or no ovarian involvement. We present a rare case of extra-ovarian primary peritoneal cancer in a patient with a history of a total abdominal hysterectomy with bilateral salpingectomy and oophorectomy (TAH & BSO).

Case presentation:

A 68-year-old female with hypertension and type 2 diabetes presented with diffuse abdominal pain for 2 weeks. Surgical history was remarkable for TAH & BSO. Family history was notable for colon cancer in her father. Physical exam showed abdominal distention, tenderness, and a palpable indurated periumbilical and right flank mass. Vitals were normal. Laboratory results were unremarkable. CT scan of the abdomen showed diffuse peritoneal carcinomatosis of unknown origin and abdominal pelvic ascites. CA-125 antigen was 4215 U/ml at admission. The patient underwent a CT-guided biopsy of the peritoneal mass which was positive for malignant cells consistent with mullerian origin with high-grade serous carcinoma. The neoplastic cells expressed CK7, PAX8, WTâ€“1, CEA 125, and an aberrant p53 expression, with a PDL 1 TPS of 5%. The patient was discharged with oncology, gastroenterology, and PET/CT scan follow-ups. Colonoscopy and EGD excluded other primary sites. PET/CT scan showed extensive metastatic peritoneal disease with lesions in the liver and spleen, and mediastinal lymph node enlargement. A diagnosis of primary peritoneal carcinoma was made based on histology and no other primary site. The patient was started on platinum-based neo-adjuvant chemotherapy and was planned for debulking surgery based on response to chemotherapy.

Discussion:

PPC is a rare tumor mostly seen in women arising from the peritoneal lining and involving the omentum. Most patients are diagnosed at advanced stages of disease highlighting the aggressive nature of this malignancy necessitating prompt diagnosis and treatment.

Clinical presentation includes non-specific symptoms such as abdominal pain and distension. BRCA 1 and 2 mutations are associated with an increased risk of PPC. Histologically, PPC is similar to epithelial ovarian cancer, with serous well-differentiated lesions, making diagnosis even more challenging. In our case, the diagnosis was aided by a history of TAH and BSO. Potential gastrointestinal primary carcinomas were excluded with EGD and colonoscopy. CA-125 levels correlate with tumor burden and stage of disease in PPC, similar to ovarian cancer, with high levels correlating with high burden of disease. Treatment modalities include cytoreductive surgery/tumor debulking, and chemotherapy. Prognosis depends on tumor markers, effectivity of primary debulking surgery, stage of diagnosis, and patient's baseline functional status.

Conclusion:

PPC is a rare and aggressive tumor with a challenging diagnosis. Early diagnosis and prompt chemotherapy with cytoreductive surgery and close follow-up with Ca-125 levels and surveillance imaging are essential to improve survival in this rapidly progressive disease.

Sangam Sangam, MD

Sai Keerthi Parvathaneni, Sehrish Malik, Liliya Gandrabur, Shorabh Sharma

SBH Health System

A rare case of Ibuprofen-induced bullous leukocytoclastic vasculitis

Introduction:

Leukocytoclastic vasculitis (LCV) is a cutaneous small vessel vasculitis that primarily affects the postcapillary venules within the skin. We present a rare case of Ibuprofen-induced vasculitis.

Case description:
A 51-year-old female with no past medical history presented with a rash that developed a week ago which started on her right calf and then progressed all over her body. She was on ibuprofen for right knee pain for the 3 weeks before her presentation. Vital signs were normal. Laboratory tests revealed leukocytosis, and elevated inflammatory markers [(erythrocyte sedimentation rate (112 mm/hr), and C-reactive protein (10.54 mg/dL)]. Antinuclear antibodies and qualitative cryoglobulin C returned positive and serum complement protein C3 was elevated (245 mg/dl). Rheumatoid factor, CCP antibodies IGG/IGC, Sjogren's antibody (anti-SS-A/-SS-B), anti-DNA(DS), serum complement C4, ANCA profile (anti-MPO antibodies, anti-PR3 antibodies, atypical P ANCA) were negative. Thyroid stimulating hormone, creatinine, liver enzymes, prothrombin time, and partial thromboplastin time were normal. Urine analysis showed no proteinuria. Human immunodeficiency virus antibody/antigen test, hepatitis B and C serologies, syphilis screening, and Lyme serology were also negative. The rash evolved from maculopapular purpuric lesions to the development of tender vesicles, bullae, and ulcerations, therefore, a punch biopsy of the skin was performed and showed leukocytoclastic vasculitis. Ibuprofen was stopped and the patient was started on a prednisone taper. The eruptions cleared and bullae began healing. The patient was diagnosed with biopsy-proven leukocytoclastic vasculitis with cryoglobulinemia secondary to ibuprofen use. She was discharged on a tapering dose of oral prednisone and topical triamcinolone, and referred to dermatology, and rheumatology, for further evaluation. She reported improvement at her follow-up appointment in the dermatology clinic.

Discussion:
This case highlights the importance of considering medication-induced leukocytoclastic vasculitis when evaluating patients who present with unexplained rash. Ibuprofen-induced leukocytoclastic vasculitis is a rare but recognized adverse reaction to ibuprofen involving the drug acting as a hapten and initiating immune complex deposition and activation of the complement cascade in postcapillary venules, resulting in fibrinoid necrosis. Drug-induced eruptions are based on inferential evidence, usually involving a history of ingesting the suspected drug and resolution of the eruption once the drug is discontinued as reported by Kimberly et al. Diagnosis is dependent on skin biopsy but also relies on a combination of clinical features and exclusion of other causes.

Conclusion:This case highlights the importance of a multidisciplinary approach to diagnosing cutaneous vasculitis, especially in the absence of other potential causes such as infections, underlying autoimmune disorders, other drugs, and the association between NSAID use, particularly ibuprofen, and the development of leukocytoclastic vasculitis.

Woo Jin Seog, DO

Chelsea Amo-Tweneboah, MD; Imran Baig, MD

Stony Brook Univeristy Hospital

Secondary Adrenal Insufficiency from Immune Checkpoint Inhibitor (ICI) Induced Hypophysitis

Introduction:

Over the last decade, Immune Checkpoint Inhibitors (ICI) have emerged as potent immunotherapy treatment modalities for several advanced malignancies such as melanoma, non-small cell lung cancer, and B-cell lymphoma. Activation of immune checkpoints such as cytotoxic T-lymphocyte-associated protein 4 (CTLA-4) and programmed cell death protein 1 (PD-1) maintain immune homeostasis by regulating the length and amplitude of the body's innate immune response. Inhibition of these checkpoints with ICIs allows for the reactivation of T-cells and enables the immune system to recognize and attack cancer cells effectively. Although effective in cancer treatment, inhibition of these checkpoints results in the loss of immunologic tolerance and consequent autoimmune disorders. One of the more rare but notable autoimmune manifestations is hypophysitis. We present a case of a patient diagnosed with ICI-induced hypophysitis while being treated for his metastatic melanoma.

Case Description:

A 75-year-old man presented to the Veterans Affairs Hospital with lightheadedness, dizziness, and positive refractory orthostasis despite adequate fluid repletion. He had a history notable for Basal Cell Carcinoma status post five cycles of Pembrolizumab and two cycles of Ipilimumab. Laboratory results revealed electrolyte abnormalities including hyponatremia, thyroid level abnormalities (low TSH, low T3, and low free T4) consistent with tertiary hypothyroidism, low ACTH levels, and low baseline AM cortisol levels with modest response to cosyntropin. Our workup suggested a pituitary pathology, and subsequent MRI of the head revealed an increase in the size of the pituitary gland compared to prior imaging the patient had done, suggestive of hypophysitis in the context of his history of exposure to ICIs, and his current presenting symptoms. The patient was started on levothyroxine, hydrocortisone, and fludrocortisone which resulted in substantial improvement and near resolution of symptoms before discharge and upon follow-up with Endocrinology as an outpatient.

Discussion:

Our case illustrates the immune-related adverse event (IRAE) of hypophysitis with its resultant endocrinopathies. IRAEs can impact a patient's quality of life and lead to treatment delays. Patients with ICI-induced hypophysitis may often incur permanent effects of adrenal insufficiency and other endocrinopathies. These untoward effects and resultant diminished quality of life for patients will invariably lead to oncologists and patients needing to re-assess the potential risks and benefits of continuing ICI therapy. As ICIs become more readily available and standardized as oncological

therapeutics, clinicians should remain vigilant in detecting potential pituitary gland pathology in their patients. It is imperative that clinicians are aware of these ICI-related complications and that more research be conducted to understand patient quality of life and ICI treatment guidance based on IRAE severity and oncologic disease burden.

Jason Shah, D.O.

Fernando Kawai M.D.

New York Presbyterian Queens

A Novel Case of Ignatzschineria Bacteremia in an Undomiciled New Yorker: Highlighting the Importance of Public Health Interventions and the Potential Impact of Climate Change

Introduction: Ignatzschineria species are gram-negative, anaerobic bacteria belonging to the Gammaproteobacteria class. Flesh flies, particularly the parasitic Wohlfahrtia magnifica, harbor Ignatzschineria species within their digestive tracts. While Ignatzschineria spp. are known to cause illness through cutaneous myiasis in livestock, they rarely cause illness in humans. Ignatzschineria overall, but specifically I. larvae and I. ureiclastica are rarely implicated in human disease with only one prior case documented. Here we present the case of a patient in Queens NY who was found to have Ignatzschineria bacteremia

Case Presentation: JP is a 57-year-old undomiciled, undocumented male with a history of alcohol abuse who presented after being found down on a street by EMS. On arrival, he was febrile and had bilateral lower extremity wounds infested with maggots. Bilateral CT scans of the lower extremities were suggestive of cellulitis, without evidence of osteomyelitis. Laboratory findings included a left shift, and thrombocytopenia. Blood cultures were collected, the patient was empirically started on Zosyn and Doxycycline. Blood Cultures grew anaerobic gram-negative rods identified as Ignatzschineria ureiclastica / Ignatzschineria larvae demonstrating resistance to beta-lactam antibiotics. The patient was treated with Meropenem completing a two-week course. He remained afebrile with repeat blood cultures negative. The patient was successfully discharged from the hospital with social work assisting with housing. During outpatient follow up with ID, there was no reported sequelae or recurrence of infection.

Discussion: While Ignatzschineria spp. infections are well-documented in livestock due to cutaneous myiasis, human cases are exceptionally rare. Research is needed to understand the pathogenicity of this organism in humans. Existing case reports involve patients with myiasis-infected wounds who reside near large meat processing facilities. Our case describes a unique presentation: an undomiciled individual with alcohol use disorder living in NYC. Initial blood cultures revealed anaerobic gram-negative rods, leading to a GU/GI workup. Definitive diagnosis required sequencing, which identified the organism as a co-infection of Ignatzschineria ureiclastica and Ignatzschineria larvae. This specific combination has only been documented once before worldwide. Susceptibility testing revealed the isolated strains displayed resistance to beta-lactam antibiotics, and certain cephalosporins. This finding contrasts with previously reported susceptibilities which demonstrated sensitivity to beta-lactam antibiotics.

The presence of Ignatzschineria spp. in New York raises another concern. Climate change may be facilitating the spread of Wohlfahrtia spp, which is known to be a source of zoonotic myiasis in animals worldwide. This has significant implications for livestock/human health.

The patient's undomiciled status limited access to hygiene and healthcare, significantly increasing his vulnerability to cutaneous myiasis. This case emphasizes the importance of public health interventions

that address homelessness and ensure access to healthcare for vulnerable populations. Such measures can significantly reduce the risk of these rare but potentially serious infections.

Jason Shah, D.O.

Camille Sirotnikov M.D., Cynthia Pan M.D., Matthew McCarthy M.D., Fernando Kawai M.D.

New York Presbyterian Queens

Case Report: Building a Multidisciplinary Framework for Discontinuing Inappropriate Antibiotics at End of Life

Introduction: The appropriate use of antibiotics in the treatment of end-of-life (EOL) patients presents a complex challenge. Our tertiary care center, located in Queens, New York, provides care for a significant number of patients with multiple comorbidities, many of whom experience recurrent hospitalizations and infections at EOL. These patients often require multiple rounds of broad-spectrum antibiotics, raising both medical and ethical considerations. At our center, there is a growing consensus among providers for a change in the approach to antibiotic utilization at EOL. The application of antibiotics at this stage of care remains a controversial issue.

Case Presentation: CH is a 69-year-old female with multiple cardiac and vascular comorbidities who presented from nursing home following unwitnessed fall. Workup was unremarkable and the patient was pending discharge to NH when she had an in hospital cardiac arrest. ROSC was obtained after 5 rounds of CPR. CH was transferred to CCU for post arrest management, and she had a second cardiac arrest with ROCS achieved after 26 minutes of CPR. She had a prolonged ICU course, complicated by bilateral pulmonary emboli, developing dry gangrene of fingers and toes due to high pressor requirements, large sacral ulcer, renal failure requiring hemodialysis (HD), and multiple recurrent infections. CH lost her functional status, became ventilator dependent and received a tracheostomy following discussion of goals with her family. CH was transferred to the medicine floor where she experienced additional cardiac arrests, recurrent ICU admissions, and recurrent sepsis episodes over a five-month period. These episodes were treated with multiple rounds of broad-spectrum antibiotics. Her subsequent antibiogram showed pan-resistant organisms. The family wished to continue aggressive treatment due to personal and religious beliefs. A multi-disciplinary team (hospitalist, infectious diseases, cardiology) aligned and agreed that further antibiotics use would not be beneficial. This decision was supported by the Ethics Committee, and ultimately, the family. CH remained stable without antibiotics and was discharged to NH, and passed five weeks later.

Discussion: Approaching antibiotic use in EOL care is complex, involving medical, emotional, resource allocation, systems, and ethical considerations. Physicians also worry about medical-legal implications. This case report demonstrates the successful discontinuation of inappropriate antibiotics in a terminally ill patient, guided by alignment of multidisciplinary team members. In a survey of medicine providers at NYPQ, over 80% of respondents felt that they participated in the inappropriate administration of antibiotics in EOL care. Survey respondents experienced moral distress, struggling with concerns, including family perceptions regarding antibiotic cessation, and potential legal ramifications. There is a desire for change and for multidisciplinary collaboration to optimize EOL care.â€¯As a next step, we will develop a framework to empower clinicians in navigating similar cases where discontinuing non-beneficial antibiotics may be medically appropriate.

Thanushiree Sivalingam, MD

Aparna Rathnam, MD, Dan Mozell, MD, Harleen Sidhu, MD, Mohamed Abdelghffar, MD

Department of Medicine, NYC Health + Hospitals / Elmhurst, Icahn School of Medicine at Mount Sinai.

NYC Health + Hospitals / Elmhurst, Icahn School of Medicine at Mount Sinai.

Rat Catcher Yellows: dumpster diving for leptospirosis

INTRODUCTION

Leptospirosis is a spirochetal zoonotic infection with increasing incidence in New York City.

CASE REPORT

A 49-year-old male with developmental delay and psoriasis on Secukinumab therapy (an anti IL-17 monoclonal antibody), presented with 6 days of intermittent painless dark-colored urine. Patient was afebrile, and physical exam was notable for jaundice and abdominal distention. Labs were remarkable for a total Bilirubin of 39.7 mg/dL, Direct Bilirubin of >20.0 mg/dL, ALT of 62 U/L, AST 61 U/L, significant acute kidney injury (AKI) and leukocytosis. Urinalysis showed trace blood with 18.6 RBCs/HPF. Abdominal ultrasound showed mild prominence of the common bile duct. Given the patient's autoimmune skin disease, autoimmune hepatitis was initially suspected, prompting further workup including Magnetic Resonance Cholangio Pancreatography (MRCP). The AKI was suspected to be due to bile cast nephropathy. The patient was started on Piperacillin-Tazobactam for possible biliary tract infection

Subsequent history from the patient's father revealed patient’s habit of rummaging through dumpsters. Based on potential exposure to rodents, leptospirosis was suspected and Leptospiria IgM assay returned positive on hospital day 3, confirming the diagnosis. Patient’s renal and hepatic function improved, and he was discharged home.

DISCUSSION & CONCLUSION

Leptospirosis can present as a mild nonspecific flu-like syndrome that is often misidentified as a viral illness. In 10% of cases, it can progress to fulminant infection with fever, jaundice and renal failure, septic shock and severe multiorgan dysfunction. Human infection is through direct contact of skin lesions or mucous membranes with the urine of a carrier animal or, more frequently, through contact with freshwater bodies or soil contaminated by urine. Risk factors for exposure have been traditionally described in literature as occupational in nature, with Leptospirosis historically being named â€œrat catcher yellowsâ€ or â€œmaladie des éboueursâ€ (sewage worker’s disease). In this case, repeated contact with dumpsters coupled with increasing rodent population in urban spaces resulted in non-occupational exposure, highlighting the importance of obtaining a thorough history. Absence of fever in this patient and the prior history of autoimmune disorder may have delayed the diagnosis of leptospirosis

Leptospira in blood acts as extracellular bacteria and can stimulate various pathways of immune activation. T-helper 17 cells are known to play an important protective role in the immune response to extracellular bacterial and fungal infections. Activated Th17 cells produce proinflammatory cytokines IL-

17 and TNF-Î±. Secukinumab, suppressing IL-17 activity, may have exacerbated the severity of infection in this case.

The rising incidence of Leptospirosis in urban areas necessitates a heightened suspicion in patients presenting with concurrent kidney and liver injuries, facilitating early diagnosis and management.

Ryan Soares, MBBS

Sara Kahlown, MD: Fellow (PGY-5), Rheumatology, SUNY Upstate Medical University, Syracuse, NY

Sheeran Rayancha, MD: Assistant Professor, Department of Rheumatology, SUNY Upstate Medical University, Syracuse, NY

SUNY Upstate Medical University

Journey to the Clot: Cerebral Venous Sinus Thrombosis Post Air Travel with Undiagnosed Autoimmune Disease

Introduction

Mixed Connective Tissue Disease (MCTD) is an autoimmune overlap syndrome characterized by â€œmixedâ€ clinical features predominantly manifesting features of SLE, rheumatoid arthritis and polymyositis. It is a disease primarily affecting middle aged women, and only rarely has been reported to cause fatal neurological complications such as cerebral venous sinus thrombosis (CVST). Long distance air travel is an independent risk factor for development of thrombosis, and has potential to unmask underlying hypercoagulable states.

Case Presentation

A 43 year old female with no significant past medical history, presented with a one day history of severe headache, right upper extremity weakness and blurry vision. She recently flew into the United States from overseas (>4 hours) and her symptoms began a few hours after arrival. Overseas, she denied sick contacts, insect bites, skin rash, or toxic exposures. In the ED, she had a witnessed seizure which was terminated with IV antiepileptics. Initial labs were only significant for WBC count of 17.7 with 86% neutrophils. PT/PTT was within normal limits, with a normal dRVVT (dilute Russell's viper venom time) which ruled out the presence of an inhibitor like lupus anticoagulant. As her mentation continued to deteriorate, CT head revealed a left frontal hypodensity with mass effect. She required ICU admission and intubation. MRI brain confirmed superior sagittal sinus thrombosis, with bilateral frontal venous infarcts, edema and hemorrhagic conversion with midline shift and a 7.5 mm subfalcine herniation. She underwent a mechanical thrombectomy with successful reopening of the sinus, following which she progressed to develop a left frontal infarct and worsening edema. This warranted a left frontal craniotomy which helped decompress the cranium. A search for the cause, uncovered a potential diagnosis of MCTD, with a positive ANA and anti-U1-RNP. Pertinent negatives include a negative antiphospholipid panel, anti-Jo1, anti-ribosomal P, anti-dsDNA, anti-Sm, SS-A/SS-B, cryoglobulins and normal C3, C4 levels. Imaging was negative for DVT/PE. Infectious workup, including CSF analysis, blood and urine cultures and a transesophageal echocardiogram were all unremarkable.

Discussion

A diagnosis of underlying MCTD was pursued, in the absence of additional history due to the patient's current condition, and exclusion of other etiologies. CNS manifestations in MCTD are rare (<25%), and most commonly present as trigeminal neuropathy. CVST is extremely uncommon, and patients often have other coexisting hypercoagulable diagnoses such as antiphospholipid syndrome or SLE. Our patient had a sole MCTD diagnosis, and no preceding symptoms prior to presentation. She also did not take any

medication such as hormonal contraception and had no prior COVID-19 infection. In the absence of other risk factors, we believe that her recent air travel alone did not cause her CSVT, but exacerbated her underlying potential for thrombosis due to her MCTD.

Aprilee Sta Lucia, MD

Aprilee Sta Lucia, Ihab Jameel, Rahman Olusoji, Yong Eun, Monjila Charity, Tomoko Ikuine

Harlem Hospital

A CASE REPORT ON TTP IN PATIENT WITH HIV, COVID & MSSA BACTEREMIA

Introduction

Thrombotic thrombocytopenic purpura (TTP), is a deficiency of the ADAMTS13 enzyme with a pentad: microangiopathic hemolytic anemia, thrombocytopenia, neurologic symptoms, fever, and renal failure. Incidence rate of 3 cases per 1 million adults annually, median age of 41 years and 90% mortality rate if not promptly managed. Diagnosis is by measuring ADAMTS13 activity however limited availability & processing time. The PLASMIC score has high reliability in assessing the pre-test probability of ADAMTS13 deficiency with a C statistic of 0.96 (95% CI 0.92-0.98). COVID-19-associated TTP with atypical presentation, is managed with an average of 12 plasma exchange sessions and immunosuppressive treatments having refractory nature of TTP in COVID-19 coagulopathy.

Case Presentation

24 year old African American male with perinatal HIV(CD4 170), renal artery stenosis, headache presented with 2 weeks of flu symptoms and 3 days of epigastric pain, chest tightness, petechiae, gum bleeding, vomiting and dark urine. Vital signs: BP 141/94 mmHg, HR 101, RR 16, T 102.2 F, SpO2 100%. On exam, no neurologic deficits, with dried blood on the lips but without active bleeding, tachycardia, mild tenderness on LUQ of abdomen, petechiae on extremities. Lab tests: +COVID, platelets of 5, Hgb 8.2, MCV 86.9, MSSA on blood culture, CD4 99, Parvovirus B19 +IgG& Ab past exposure with negative IgM & DNA. WBC 6.74. Creatinine 0.5, lactate 1.3, PT 14.1, INR 1.21. Blood smear: > 5 schistocytes. LDH high 1390>956>669. Reticulocyte is 2.41>2.57. Negative fibrinogen, heparin platelet Ab, Serotonin releasing assay, platelet Ab, CMV, blood parasite. ADAMST13 pending result. Chest X Ray unremarkable. CT Abdomen showed splenomegaly. He was managed for COVID, HIV, MSSA bacteremia, anemia and TTP with PLASMIC score of 7. Platelets improved from 5 to 6 on day 1 ,17 on day 2, 79 on day 3, 147 on day 4, 211 on day 5 and were normalized consequently, after giving 1g daily of Solumedrol & 1 session daily of plasmapheresis in a total of 6 sessions. After 7 days, ADAMTS13 results came showing (<2%) low activity.

Discussion

Our patient's presentation with severe thrombocytopenia, raised LDH levels, presence of schistocytes on the blood smear, and a high PLASMIC score of 7, suggest a 72% chance of severe ADAMTS13 deficiency, strongly supported a diagnosis of TTP. He has secondary TTP predisposed by uncontrolled HIV, COVID-19, and MSSA bacteremia. Plasmapheresis was done resulting in significant improvement in platelets, in addition to steroids and HIV antiviral therapy. Plasmapheresis eliminates autoantibodies from circulation and immunosuppressive therapy helps inhibit the production of it, with the goal of restoring ADAMTS13.

Conclusion

Our case report details the complicated manifestation of TTP in HIV patients with COVID-19 infection. Early recognition and prompt treatment improve outcomes hence further study is needed in these cases.

Kripa Tiwari,

Sumitra Paudel

Khin Htet Htet Soe

Alina Zatsepina

Thinzar Lin

Maimonides Medical Center

THE HIDDEN THREAT: A DELAYED THYROID STORM IN A COVID-19 PATIENT WITH LARGE RETROSTERNAL GOITER FOLLOWING INTUBATION

Introduction

Thyroid storm (TS) represents a rare yet life-threatening complication of severe thyrotoxicosis, characterized by multisystem involvement and high mortality rates if not promptly recognized and managed. While typically triggered by stressors such as infections, surgeries, or abrupt treatment changes, its occurrence following intubation in the setting of a large retrosternal goiter is unusual and poses significant diagnostic and therapeutic challenges. We present a case of an elderly female with chronic non-toxic retrosternal goiter with COVID-19 infection who developed a delayed thyroid storm post-intubation.

Case

A 75-year-old female with a history of hypertension and a long-standing nontoxic multinodular goiter presented to the emergency department with progressive shortness of breath. She was admitted for acute hypoxic respiratory failure due to a COVID-19 infection. Initial thyroid function tests revealed suppressed TSH <0.01 mIU/L (nl 0.40-4.50 mIU/L) with normal fT4 1.25 ng/dL (nl 0.8-1.8 ng/dl), elevated fT3 4.67 pg/ml (nl 2.53-3.87 pg/ml). Imaging revealed an 8.7 cm right thyroid mass with retrosternal involvement, causing tracheal narrowing and deviation. She was started on methimazole 5 mg daily for thyrotoxicosis alongside treatment for COVID-19 infection. She was placed on supplemental oxygen and monitored in the critical care unit due to high-risk airway compromise.

Despite initial treatment, her condition deteriorated rapidly, requiring emergent intubation. Subsequent thyroid function tests showed worsening thyrotoxicosis: TSH <0.01 mIU/L(L), fT4 4.68 ng/dL(H), fT3 8.56 pg/mL(H), after which the dose of methimazole was increased.

On the fourth day of intubation, the patient developed a high-grade fever (105°F -106°F) with tachycardia (120-160 bpm), and agitation, raising suspicion for a delayed thyroid storm (Burch-Wartofsky Point Scale: 80). She was started on stress-dose hydrocortisone, Lugol's iodine, and a beta-blocker, in addition to monitoring thyroid function and continuation of methimazole.

By the third week of hospitalization, the patient showed clinical improvement and achieved euthyroid status, following which she underwent a successful total thyroidectomy to address the compressive

large multinodular goiter. Postoperatively, hydrocortisone was tapered, methimazole and Lugol's iodine were discontinued, and levothyroxine was initiated.

Discussion

This case underscores the rare but critical possibility of delayed thyroid storm following intubation in patients with large retrosternal goiter. The delayed release of stored thyroid hormones from the goiter, exacerbated by the stress of intubation and critical illness, likely precipitated the thyroid storm in our patient. Prompt recognition, aggressive medical therapy, and definitive surgical intervention were crucial in achieving a favorable outcome.

Conclusion

Clinicians should maintain a high index of suspicion for thyroid storm in patients with large goiters undergoing procedures, particularly those involving airway manipulation. Vigilance, early diagnosis, and multidisciplinary management are paramount in optimizing outcomes in these complex clinical scenarios.

Dhaval Trivedi, MD

Sara Hasan DO, Franklyn Fenton MD

NewYork Presbyterian - Brooklyn Methodist Hospital - Weill Cornell Medicine

Mistaken for Malignancy

Introduction: Iron deficiency anemia (IDA) in the elderly population is often concerning for malignancy, especially in the setting of weight loss. H. pylori is associated with anemia by impairing iron absorption through chronic gastritis and hypochlorhydria. This case demonstrates a patient presenting to establish care who was found to have symptomatic IDA in the setting of familial colon cancer and significant weight loss. A biopsy confirmed the presence of H. pylori, and treatment resolved the patient's symptomatic anemia and weight loss.

Case Description: A 58-year-old male with a past medical history of childhood anemia presents to the outpatient office to establish care. He complained of progressive fatigue and weight loss and has a first-degree family history significant for gastrointestinal malignancy. Laboratory studies revealed microcytic anemia due to IDA. A diagnostic colonoscopy and esophagogastroduodenoscopy with biopsies were performed, revealing only minimal erythema in the gastric antrum. Histopathology showed gastric mucosa with marked active chronic H. pylori-associated gastritis. Given the lack of data regarding H. pylori resistance patterns in Brooklyn, New York, bismuth quadruple therapy was initiated, which subsequently failed, as indicated by stool antigen positivity. Salvage clarithromycin-based quadruple therapy was then initiated. Stool antigen was negative on repeat studies, and laboratory results revealed resolution of his microcytic anemia and symptomatic improvement.

Discussion: This case illustrates the importance of maintaining a wide differential when assessing for malignancy in IDA. Although malignancy was initially suspected in this patient, H. pylori was found to be the culprit, and the disease process improved with treatment. This case also underscores the wide range of clinical presentation for H. pylori infections, not only gastric ulcers but also weight loss and anemia, and the importance and effectiveness of treatment.

Indications for testing for H. pylori include gastric marginal zone lymphoma of mucosa-associated lymphoid tissue, active or historical peptic ulcer disease without prior H. pylori eradication, and early gastric cancer. H. pylori infection sequestrates iron, causes iron losses through gastromucosal injury, and deletes gastric acid secretion which are necessary for iron absorption. Diagnosis can be confirmed through fecal antigen testing, urea breath test, or upper endoscopy with biopsies.

According to recent data, quadruple therapy is preferred for managing H. pylori infection, comprising bismuth, clarithromycin, metronidazole, and a PPI. When this regimen is contraindicated, clarithromycin-based triple therapy can be considered. It is essential to assess risk factors and screen for penicillin allergy before initiating treatment. Patients should undergo re-testing one month post-treatment to confirm eradication. Discontinuation of PPIs prior to re-testing is recommended to optimize the sensitivity of diagnostic endoscopy.

To prevent potential complications, H. pylori testing should be conducted whenever there is clinical suspicion. As illustrated earlier, nonspecific symptoms can obscure such infections, necessitating a thorough clinical evaluation.

Richard Vaca, MD

Priscilla Abate, MD; Christian Gomez, MD

Icahn School of Medicine at Mount Sinai West-Morningside

PEMPHIGUS VULGARIS DISGUISED AS BEHCET'S DISEASE: A CASE OF PERSISTENT AND RECURRENT ULCERS

Introduction

Vesiculobullous skin disorders can provide a wide range of differential diagnoses ranging among traumatic, autoimmune, drug-induced, and infectious etiologies. The clinical presentation can aid in narrowing down these differentials, however, this can be challenging during the initial presentation. We present a case of pemphigus vulgaris (PV) with a challenging diagnostic workup that was initially thought to be Behcet's disease (BD).

Case presentation

A 50-year-old smoker European male with no medical history presents to ED due to a 3-month history of worsening stomatitis. He also reported intermittent fevers, nighttime sweating, 20-pounds weight loss and has also noted painful penile ulcers during this time.

On a physical exam, several 2-cm shallow, painful ulcers are noted in the buccal mucosa, inner lips and tongue, and several erythematous, shallow, painful ulcers on penis glans and right inguinal fold. Initial work up was unremarkable except for eosinophilia (eosinophil absolute count of 2.9 K/uL) and a high systemic immune-inflammation index (SII). HIV, syphilis, and viral hepatitis panels were negative. Further work up revealed ESR of 20 mm/hr and CRP of 33.1 mg/dL.

He was started on prednisone and adjuvant colchicine due to a high clinical suspicion for early Behcet's disease with a subsequent decrease in the number of ulcers, however, his ulcers flared up shortly after an upper respiratory infection. Prednisone was then transitioned to high dose methylprednisolone with a plan to eventually start Apremilast, however, 10 days later the patient started noticing tense fluid filled vesicles and bullae affecting his buccal mucosa, tongue and skin of bilateral upper and lower extremities including groin and intertriginous regions.

Punch biopsy of the lesions revealed tissue positive for IgG in an intercellular desmosomal pattern consistent with pemphigus vulgaris (PV) along with high titers of desmoglein 1-3 antibodies (each >200 RU/mL, nr <20 RU/mL). Skin bullae slowly improved after high dose prednisone and rituximab infusions. Anti-plakin antibodies ordered as a part of work up for paraneoplastic pemphigus vulgaris are still pending results.

Discussion

Pemphigus vulgaris is the most common form of vesiculobullous skin disorders but it's still a rare disease. Its diagnosis relies mostly on clinical presentation and histologic data supported by specific antibodies titers. Its debut can represent a challenging diagnosis as blisters erode quickly and might give an appearance of ulcers rather than vesicles or bullae. BD shares similar confounders in clinical presentation while also lacking pathognomonic data to aid in diagnosis.

Early biopsy in vesiculobullous skin diseases can prevent delay in diagnosis and specific targeted treatment. Nevertheless, both entities share similarities in treatment, mostly relying on immunosuppressive therapy if there's severe disease; with BD especially benefiting from early corticoids and PV from early immunotherapy as seen in this case.

Johnathon Vasuthevan,

Javeria Chuadhry, Sajid Ahmad Mir, Muhammad Hisham Khan Wazir

Montefiore St. Luke's Cornwall

A Case of Adult-Onset IgA Vasculitis Complicated by End-Stage Renal Disease

Introduction

IgA vasculitis is a rare systemic inflammatory disease affecting small vessels. Though it primarily affects children in 90% of cases, the occurrence in adults has been rarely reported and varies widely on long-term complications. Here we report a cause of adult IgA vasculitis resulting in end-stage renal disease.

Case

A 74-year-old man with a past medical history significant for nonischemic cardiomyopathy with reduced ejection fraction (35-40%) status post biventricular implantable cardioverter-defibrillator (ICD), atrial fibrillation, insulin-dependent type 2 diabetes mellitus, and hypertension presented to the ED for acute onset rash in the extremities and abdomen. The patient reported that a week before the onset of the rash he recovered from a flu-like illness with fevers, chills, fatigue, and frequent diarrhea. His flu-like illness resolved with conservative management, but his rash appeared acutely a week afterward. He saw his primary care doctor for the rash and had a diagnostic workup done as an outpatient. His primary care doctor referred him to the ED after noticing significant renal dysfunction. Initial workup in the emergency department was significant for acute kidney failure. On exam, he had papules with dark vesicles on a violaceous purple background on his arms, limbs, and abdomen, fairly symmetrical. A comprehensive diagnostic workup was performed, specifically to ascertain the cause of his rash and renal injury. Immune thrombocytopenic purpura, Hemolytic uremic syndrome, leukemia, ANCA-associated vasculitis, anticoagulant nephropathy, and coagulopathies were considered differential diagnoses. Blood work showed normal hemoglobin, coagulation profile, platelets, and complement levels. Anti-glomerular basement membrane antibody (IgG), Myeloperoxidase antibody (IgG), Serine proteinase 3 antibodies (IgG), and Immunoglobin A/G/M levels were ordered. These results were negative/normal except for high Immunoglobin A levels. Renal biopsy showed Diffuse proliferative glomerulonephritis with deposits that stain co-dominantly for IgA and C3 favoring IgA Vasculitis, in the light of clinical history and diffuse rash. He was started on steroids without improvement in his renal function, requiring renal replacement therapy. A skin biopsy also confirmed the diagnosis.

Discussion

Adult-onset IgA vasculitis is a rare condition that affects approximately 3.4-14.3 cases per million in the adult population. 90% of cases happen in the pediatric population. In adults, IgA vasculitis tends to have a more severe clinical course. Its main manifestations are cutaneous purpura, arthralgias or arthritis, acute enteritis, and glomerulonephritis. Renal involvement is associated with a poor prognosis in adults.

This case highlights the severe sequelae of adult-onset IgA vasculitis. Though the patient's initial blistering rash improved during the inpatient course, the patient did not have renal recovery requiring renal replacement therapy.

Agostina Velo, MD

AUTHORS: Agostina Velo, MD (1), Connor Smith, DO (1), Anahi McIntyre, DO (1), Zoe Lawrence, MD (2), Lindsey Fox, MD (1)

AFFILIATIONS:

(1) Department of Medicine, Mount Sinai Morningside-West, Icahn School of Medicine at Mount Sinai, New York, NY

(2) Department of Medicine, Division of Gastroenterology, Mount Sinai Morningside, Icahn School of Medicine at Mount Sinai, New York, NY

Mount Sinai Morningside West

UNCOMMON COMPLICATIONS OF SALMONELLA TYPHI: A CASE REPORT OF CONCURRENT HEMOLYSIS AND HEPATITIS.

INTRODUCTION:

Salmonella enterica spp. are gram-negative, rod-shaped bacteria in the Enterobacteriaceae family that are prevalent in Latin America, Africa, and Asia. Typhoidal serovars (Typhi and Paratyphi) can cause disseminated disease in immunocompetent hosts, with incubation periods of 7 to 21 days and symptoms lasting up to 3 weeks [1]. In addition to causing diarrhea via local inflammation, these bacteria can enter the lymphatic system through M cells in Peyer's patches, and then live and replicate intracellularly within the reticuloendothelial system causing extraintestinal manifestations such as hepatosplenomegaly and bone marrow failure. Typhoidal serovars can also cause hemolysis through hemolysins [2]. Conversely, non-typhoidal serovars usually have shorter incubation and symptomatic periods, causing gastroenteritis in immunocompetent and disseminated disease in immunocompromised patients.

CASE PRESENTATION:

A 30-year-old man with a remote history of Kawasaki disease and eosinophilic esophagitis, presented with 5 days of fevers, poor appetite, fatigue, and diarrhea after returning from India. Upon arrival, he was febrile (39.1°C), had a normal heart rate, and hepatosplenomegaly. Blood cultures demonstrated Salmonella typhi and stool polymerase chain reaction showed Salmonella species. Abdominal tomography showed enterocolitis, hepatosplenomegaly, and mesenteric lymphadenopathies. During hospitalization, he developed pancytopenia (WBC 3.9 x10³/uL, hemoglobin 11.7 g/dL, platelets 102 x10³/uL) with signs of hemolysis (haptoglobin <8 mg/dL, LDH 1310 U/L), transaminitis (ALT 77 UI/L, AST 110 UI/L), and acute kidney injury (creatinine 1.5 mg/dL). He was treated with ceftriaxone for salmonella bacteremia. His hospital course was notable for worsening transaminitis (ALT 894 UI/L, AST 1188 UI/L), ultimately thought to be secondary to salmonella hepatitis [6]. A 14-day course of sulfamethoxazole/trimethoprim was recommended. The patient had improving transaminitis and AKI on discharge, with plans to follow up as an outpatient.

DISCUSSION:

This patient had Salmonella enterica serovar Typhi infection causing enteric fever. As often described, he had relative bradycardia, mesenteric lymphadenopathies, and hepatosplenomegaly, which reflect the infiltration of the reticuloendothelial system. Remarkably, he also presented with hemolysis and hepatitis, both infrequent complications. Hemolysis is mediated by the release of hemolysin E, which is triggered by the presence of stress hormones, usually presenting within the first 14 days of infection [4,7]. Hepatitis can be severe, and difficult to differentiate from viral hepatitis, but typically responds favorably to antibiotic treatment [6].

CONCLUSION:

This case highlights the diverse clinical manifestations and potential complications of Salmonella typhoidal serovars, underscoring the importance of considering this diagnosis in patients with prolonged fevers and systemic symptoms, after travel to endemic regions.

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Muhammad Hisham Khan Wazir, MD

Wazir MAK, Wazir P, Ghaffar J, Mir AS, Chaudhry J

Montefiore St. Luke's Cornwall

A case of Mycoplasma-induced rash and mucositis sine rash subtype

Introduction

Mycoplasma-induced rash and mucositis (MIRM), also termed "reactive infectious mucosal-predominant eruption," is a newly recognized condition. Here we report a case of Mycoplasma-induced rash and mucositis sine rash subtype (MIRM).

Case

A 21-year-old female with a past medical history of T-cell lymphoma in remission and current marijuana use presented for evaluation of painful oral ulcers, and severe odynophagia. The patient reported a recent upper respiratory tract illness (URTI) characterized by non-productive cough, rhinorrhea, and subjective chills, which resolved spontaneously with conservation management. Rapid home COVID/flu testing at that time was negative. The patient felt better once she recovered from the URTI but about a week later, she developed bilateral conjunctival injection associated with watery eyes, tender swelling of the upper and lower lip mucosal surfaces with fluid-filled bullae, and pharyngeal erythema with ulcers-like lesions on the tongue associated with severe odynophagia. She was started on amoxicillin, lidocaine mouthwash, and tobramycin eye drops without improvement which prompted her to seek further care at the Emergency Department. The patient denied any prior antibiotic or other medication use. On evaluation, the patient was tachycardic and had a low-grade fever. Initial lab workup was significant for mild leukocytosis with left shift, elevated erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and a mild cholestatic pattern liver injury. Chest x-ray was negative for acute infiltrates.

A comprehensive diagnostic workup included blood, urine, and throat cultures. An array of specific serological tests, including hepatitis profile, epstein-barr virus (EBV) nucleic acid amplification test (NAAT), cytomegalovirus (CMV) assay, human immunodeficiency virus (HIV), as well as tests for COVID, influenza A & B, respiratory syncytial virus (RSV), and specific antibodies against chlamydia trachomatis, chlamydia psittaci, chlamydia pnemoniae, rheumatoid factor (RF), antinuclear antibody (ANA), anti-double stranded antibody were also performed. All these tests yielded negative results. Interestingly, the patient tested positive for both immunoglobulin G (Ig-G) and immunoglobulin M (Ig-M) antibodies against Mycoplasma pneumoniae, implicating a potential association. The patient's symptoms improved with supportive care within 24 hours of hospitalization.

Discussion

Predominantly emerging in children and young adolescents (mean age: 12 years), MIRM affects males in two-thirds of the reported cases. So far three subtypes of MIRM have been identified, they differ by the characteristics of their cutaneous, non-mucosal rash patterns.

In light of the temporal relationship between the upper respiratory tract illness and the onset of mucocutaneous symptoms, alongside elevated inflammatory markers and positive serological findings

for Mycoplasma pneumoniae, the diagnostic process evolved towards considering MIRM as a cause of the patient's mucocutaneous manifestations.

This case underscores the significance of recognizing atypical pathogens like Mycoplasma pneumoniae as potential instigators of mucocutaneous manifestations.

Soe Winn, MD

Tharun Shyam, MD; M. Isabel Fiel, MD; Yiwu Huang, MD, PhD

Maimonides Medical Center

Accessory Splenic Mass Masquerading as Hepatocellular Carcinoma: A Diagnostic Dilemma

Introduction

Accessory spleen refers to an additional spleen that develops separately from the primary spleen due to congenital maldevelopment during embryogenesis. It is found in approximately 10-30% of the population, typically varying in diameter from 2 mm-3.5 cm[1-3]. Common locations include the splenic hilum, pancreas, gastrosplenic ligament, lienorenal ligament, and greater omentum[1,4,5]. Herein, we present a case of accessory spleen located at the right diaphragm, which mimicked a hepatoma in a healthy 39-year-old adult.

Case presentation

A 39-year-old male with no significant medical history and not taking any medications presented with an incidental liver mass discovered during work-up for hematuria at another facility. He had no personal or family history of liver diseases, was a non-smoker, and did not consume alcohol. On physical examination, his vital signs were within normal limits, and cardiopulmonary, abdominal, and skin exams were unremarkable. Laboratory tests including complete blood count(CBC), basic metabolic panel(BMP), liver function tests(LFT), coagulation profile, hepatitis viral panel, alpha-fetoprotein(AFP), and carcinoembryonic antigen(CEA) were within normal limits. Previous CT scan had shown a 2-cm enhancing lesion in the right hepatic dome with moderate hepatomegaly and steatosis. MRI with gadoxetate disodium(Eovistâ„¢) revealed a 2x2 cm arterial enhancing mass in the right lobe of the liver demonstrating washout in the venous phase and no contrast uptake in the hepatobiliary phase, suggestive of hepatocellular carcinoma(HCC)(Figures 1, 2). Subsequently, the patient underwent laparoscopic resection of the mass, which was found to be separate from the liver and attached to the diaphragm. Pathology revealed mature encapsulated splenic tissue with white and red pulps(Figures 3, 4).

Discussion

Accessory spleens are typically asymptomatic and incidental findings. Most accessory spleens exhibit homogeneous round enhancement with separate margins, and their attenuation is similar to the main spleen during contrast CT imaging[2,6]. However, distinguishing them from other cancerous lesions, particularly in locations like the liver or pancreas, is often challenging due to their small size. While pathology remains the gold standard for diagnosis, it often necessitates invasive procedures such as excision or biopsy. Non-invasive diagnostic tests, including Tc-99m-labeled heat-denatured red blood cells(HRBC) and Tc-99m sulfur colloid scans, are preferred but not widely available[7]. In this case, suspicion of HCC persisted even after MRI due to an arterial enhancing mass with washout phenomena in the venous phase. Due to the inconclusive imaging findings, the patient underwent laparoscopic resection for further evaluation.

Conclusion

From our literature review, an accessory spleen located in the right diaphragm mimicking HCC appears to be a unique case. Despite the use of advanced imaging techniques such as MRI with Eovistâ„¢, distinguishing accessory spleens from cancer remains a significant diagnostic challenge. Heightened clinical suspicion and awareness among clinicians regarding the typical imaging features of accessory spleens are crucial to avoid misdiagnosis.

Egor Zakharchenko, MD

Ankur Panchal, MD

Bassett Medical Center

CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION â€“ A PRESENTATION WE NEED TO BE AWARE OF.

Introduction:

Chronic Thromboembolic Pulmonary Hypertension (CTEPH) is an often-overlooked consequence of acute pulmonary embolism (PE), characterized by persistent thromboembolic obstruction in the pulmonary arteries leading to pulmonary hypertension (PH) and right heart failure. The estimated incidence is approximately 3%, and current data report CTEPH to develop mostly within 3 years after an episode of primarily unprovoked PE. Our case describes a subtle presentation of CTEPH after a provoked episode of PE and a prolonged asymptomatic period.

Case description:

A 58-year-old man presented to an outpatient clinic with a three-year history of worsening dyspnea on exertion, decreased functional capacity, and chest discomfort during activity, which resolved at rest. He had not sought medical attention for many years and had a history notable only for a pulmonary embolism 15 years prior, following a long flight. At that time, he received three months of warfarin therapy. On examination, his blood pressure was 112/72 mm Hg, heart rate 60 bpm, respiratory rate 15 breaths per minute, and oxygen saturation was 95%. Physical findings included bilateral leg edema, a left parasternal heave, prominent S1, and clear lung fields. EKG showed right axis deviation, right atrial enlargement, right ventricular hypertrophy with strain pattern. Echocardiography revealed right ventricular enlargement with moderate to severe systolic dysfunction, as well as elevated right ventricular systolic pressure (70-75 mm Hg) and right atrial enlargement. Subsequent CT chest angiography identified a large filling defect in the right main pulmonary artery [Fig.1], with additional defects in the right upper, right lower and left lower lobe arteries with enlargement of the main pulmonary artery. Further evaluation with V/Q scintigraphy demonstrated multiple mismatched segmental and subsegmental perfusion defects, including a large defect in the mid and lower right lung [Fig.2]. After establishing the absence of hypercoagulable condition, the patient was referred to a pulmonary hypertension center where right heart catheterization and pulmonary angiography confirmed CTEPH with mean pulmonary artery pressure (mPAP) of 55 mmHg, pulmonary artery wedge pressure (PAWP) of 12 mmHg, and pulmonary vascular resistance (PVR) of 8.75 Wood units. He underwent a successful surgical thrombectomy by cardiothoracic surgery, resulting in symptom improvement.

Discussion:

Diagnosis of CTEPH is often delayed due to its nonspecific clinical presentation and rarity following acute PE. Typically, CTEPH manifests within the first 3 years after an unprovoked acute PE. However, we present a case demonstrating an unusually delayed onset of over 10 years following a provoked PE in an otherwise healthy middle-aged individual. This underscores the need to consider developing more precise screening and assessment protocols for CTEPH after an acute pulmonary embolism.

Alina Zatsepina,

Yiqing Xu, MD, Department of Hematology/Oncology, Maimonides Medical Center, Brooklyn, NY

Maimonides Medical Center

HYPERCALCEMIA AS A PARANEOPLASTIC SYNDROME IN ENDOMETRIAL CANCER AND CORRELATION WITH DISEASE ACTIVITY: CASE SERIES

Introduction:

Paraneoplastic hypercalcemia is relatively rare in endometrial cancer and is usually associated with parathyroid hormone-related protein (PTHrP) production. We present two cases of hypercalcemia in patients with endometrial cancer, both with elevated PTH, without signs of parathyroid adenoma or bone metastasis at baseline. In both cases, hypercalcemia correlated with tumor burden and activity.

Case 1: A 50-year-old female presented with vaginal bleeding and abdominal pain for a few months. She was diagnosed with high-grade endometrioid adenocarcinoma with lung metastasis, however no signs of bone metastasis. Initial calcium levels were 10.3-11.3 mg/dL. Post-debulking surgery, calcium dropped to 8.5 mg/dL but rapidly increased to 16.7 mg/dL along with marked metastatic progression. PTH was 167 pg/mL (24-85). She passed away within a month of cancer diagnosis.

Case 2: A 47-year-old female with diabetes, hypertension, hyperlipidemia, obesity, and fibromyalgia presented with vaginal spotting and pelvic pain for 2 months. CT scan revealed uterine mass without bone metastasis; biopsy confirmed endometrioid carcinoma. Baseline calcium was 9.3-11.7 mg/dL, PTH - 310 pg/mL, suggesting primary hyperparathyroidism. Before planned hysterectomy, she developed shortness of breath, with CT scan showing pulmonary nodules and hypercalcemia (15 mg/dL). PTHrP was <2 pmol/L; 25-hydroxyvitamin D - 74.4 ng/ml (20-50), 1,25-OH Vit D - within normal range. Intravenous fluids, calcitonin, and cinacalcet reduced calcium levels. Lung biopsy showed poorly differentiated carcinoma, considered metastatic from the endometrial cancer. By day 48, she was readmitted with hypercalcemia (15.6 mg/dL) and acute pancreatitis. Neck ultrasonography showed no parathyroid enlargement. Zoledronic acid and hydration normalized calcium. She began chemotherapy on day 56, with subsequent imaging showing lung and uterine tumor regression. After four chemotherapy cycles, hysterectomy confirmed stage IVb endometrioid carcinoma. After six chemotherapy cycles, calcium and PTH decreased to 9 mg/dL and 34 pg/mL, respectively. On day 119, MRI revealed a brain metastasis treated with gamma knife radiation. By day 267, she had a recurrent vaginal tumor with new pulmonary nodules and started Pembrolizumab and Lenvatinib treatment. Despite treatment, new brain metastases were found. Calcium rose to 14 mg/dL, zoledronic acid and intravenous hydration were started. She passed away 16 months after diagnosis.

Results:

Hypercalcemia as a paraneoplastic syndrome in endometrial cancer indicates poor prognosis and disease progression. Potential mechanisms such as ectopic PTH production and local osteolytic factors should be considered. Our cases likely involved ectopic PTH production by malignant nonparathyroid tumor, a condition that accounts for less than 1% of hypercalcemia in malignancy. Hypercalcemia mirrored disease activity, highlighting the need for effective cancer control.

Conclusion:

Diagnosing and treating hypercalcemia in malignancies is complex, requiring a multidisciplinary approach. Although uncommon, our cases underscore the need to consider ectopic PTH secretion instead of assuming primary hyperparathyroidism in cancer patients with elevated calcium and PTH levels.

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Edward Carey, MD

Sarath Nath, MD, Audun Lier, MD, Jorge Benach, MD, Charles K. Vorkas, MD Luis A. Marcos, MD

Stony Brook Medicine

Evaluating Tickborne Diseases in Suffolk County, NY, from 2013-2022: Combining Nymph Tick and Human Perspectives, with Focus on Babesiosis

Background: Human babesiosis is an emerging disease caused by the protozoan Babesia microti and transmitted by Ixodes scapularis ticks. The incidence and geographic footprint of babesiosis have increased in the US, and Suffolk County (SU) in Long Island (LI), NY, has some of the highest rates of babesiosis in the country. Because of the human and ecological impact of ticks and their role as vectors for disease, New York State (NYS) conducts county- level tick surveillance and collects public health data on tickborne diseases annually. We hypothesized that tick surveys would correlate with tick borne infection rates and aimed to define the relationship between tick prevalence, disease carriage, and human cases of tickborne infections in SU relative to the rest of NYS.

Material and Methods: We examined NYS public reporting data from 2013-2022 on trends in Ixodes scapularis nymph surveys, including on tick density and testing for Borrelia burgdorferi, Babesia microti, Anaplasma phagocytophilum carriage. We compared these data with incidence of human infection in SU vs rest of NYS, available via NYS reporting. Statistical comparisons were performed by t tests and Pearsonâ€™s tests with level of significance of $p<0.05$.

Results: Tick densities in SU and NYS varied annually, but there was generally a higher density of Ixodes nymphs in SU than NYS. We found increasing density of nymph Ixodes in SU from 2013-2022. We also found significantly higher Babesia carriage amongst Ixodes in SU than elsewhere in NYS ($p < 0.01$). Accordingly, rates of human babesiosis in SU were significantly higher than in NYS from 2013-2022. (mean 10.3, vs 3.1, $p < 0.01$ via T test). Notably, carriage of Anaplasma by Ixodes was similar in SU compared relative to NYS ($p= 0.2$), though SU reported higher rates of human anaplasmosis ($p=0.003$).

Conclusion: Our study demonstrates that tick surveillance data can inform trends in human tickborne disease. Our results show that Ixodes tick density and carriage of babesiosis in SU strongly correlated with higher incidence of human babesiosis. It showed significantly higher carriage of and infection with babesiosis compared to the remainder of NYS. This study raises key research questions in tickborne infections and ecology underlying rising tick activity and B microti transmission in SU, LI, NY.

Shuja Malik, MD

Authors: Shuja A. Malik, MBBS, Olushola O. Ogunleye, MBBS, MPH; Athena Guo, DO

Vassa Brothers Medical Center

An Evaluation of the Prescribing Patterns of Guideline Directed Medical Therapy for Patients with Heart Failure with Reduced Ejection Fraction in a Community Hospital

Title: An Evaluation of the Prescribing Patterns of Guideline Directed Medical Therapy for Patients with Heart Failure with Reduced Ejection Fraction in a Community Hospital

Introduction: Despite the known mortality benefit of guideline directed medical therapy (GDMT) for patients hospitalized with heart failure with reduced ejection fraction (HFrEF), in-hospital initiation and continuation of GDMT is still suboptimal. Moreover, some studies have reported differential rates of prescribing GDMT by general internists compared to cardiologists.

Hypothesis: Physicians caring for HFrEF patients in a community hospital have different patterns for GDMT initiation and continuation.

Methods: We conducted a cross-sectional descriptive study of nonpregnant adults admitted with new-onset, chronic, or acute on chronic HFrEF at a community tertiary care hospital from January 1 through December 31, 2020. Subjects were selected using appropriate ICD-10 diagnosis codes and recent echo findings of left ventricular ejection fraction â‰¤35%. The outcomes examined were: 1) proportion of subjects on GDMT (beta blocker, renin-angiotensin system blocker, mineralocorticoid receptor antagonist, and SGLT2 inhibitor), and 2) proportion who received dose titrations.

Results: Of 217 subjects, 80% had a prior heart failure diagnosis and were on at least one guideline-directed medication, but only 25% of them were on a target medication dose before hospitalization. Over 90% of the subjects received at least one class of GDMT during hospitalization or at discharge. Beta blockers were most prescribed (86%), while SGLT2 inhibitors were least prescribed (4%). While 22% of the patients received target medication doses during hospitalization or at discharge, only 5 patients (2.3%) received all four recommended medication classes. Cardiologists were more likely than general internists to prescribe at least one guideline-directed medication (97% vs 89%, $p<0.001$) but they were not more likely to titrate up to a target dose at discharge (26% vs 20%, $p=0.322$). Hypotension and renal insufficiency were the most common reasons why GDMT was not prescribed.

Conclusions: There is a substantial gap in the initiation and continuation of GDMT in the hospital setting. Strategies for improvement are needed, such as embedding decision support programs in electronic medical record systems to recommend GDMT initiation and dose titration for HFrEF patients.

Kayode Ogunniyi, MBBS, MRCP

Kayode E. Ogunniyi, Akua Aboah Taylor, Nkafu Bechem Ndemazie, Resha Ganthan, Salar Shahzad

Richmond University Medical Center

THERE IS NO DIFFERENCE IN IN-HOSPITAL COURSE OR PROGNOSIS BETWEEN MITRAL VS. AORTIC VALVE ENDOCARDITIS REQUIRING VALVE PROCEDURES

Introduction

The incidence of Infective Endocarditis (IE) has steadily increased over the last several years. It is a severe infection with significant mortality and almost universally fatal without treatment. Very severe cases that meet clinical criteria are also treated with valve repair or replacement. We compared cases of mitral vs. aortic valve IE requiring valve procedures to assess differences in clinical course, outcomes, and prognosis.

Methodology

We analyzed the National Inpatient sample for 2021, extracting diagnoses and procedures using the International Classification of Diseases, Tenth Revision, Clinical Modification (ICD10-CM) codes. Inclusion criteria were Principal Diagnosis of Infective Endocarditis and age 18 years or older. Among our population, we identified patients with mitral valve repair or replacement (codes 02RG and 02QG) vs aortic valve replacement or repair (codes 02RF and 02QF). A comparative analysis of population characteristics and outcomes was done between the treatment groups using the T-test for continuous variables and Pearsonâ€™s chi-square test for categorical variables. Finally, we conducted a multivariate logistic regression for the primary outcome, adjusting for age, gender, and comorbidities- Heart failure and Chronic Obstructive Pulmonary Disease (COPD). The primary outcome was in-patient mortality, and secondary outcomes were vasopressor requirement, balloon pump requirement, and mechanical ventilation. Analyses were performed using STATA Basic Edition Version 18.0. Significance was set at 0.05.

Results

There were 12944 IE admissions, with a mean age of 52, a mean Charlson comorbidity index of 2.2, and 4.9% (629) overall mortality. This population had 1024(7.9%) mitral and 1424(11%) aortic valve replacement or repair procedures. There were significantly more males with aortic compared to mitral valve procedures (71.2% vs. 54.4%; p=0.0006), but age (p=0.43), race(p=0.94), and Charlson index(p=0.27) did not significantly differ between the groups.

In-patient mortality (p=0.1755), vasopressor requirement (p=0.2452), profound hypotension with intra-aortic balloon or impella pump use (p=0.63), and intubation with mechanical ventilation (p=0.793) did not significantly differ between patient with mitral valve endocarditis requiring valve procedures compared to aortic.

On multivariate logistic regression of primary outcome (in-patient mortality) adjusting for age, gender, and comorbidities (pre-existing heart failure and chronic obstructive pulmonary disease), we found no statistically significant difference between the groups (p=0.158).

Conclusion

Among severe cases of mitral and aortic valve infective endocarditis requiring valve replacement or repair, inpatient prognosis and clinical course are similar.

Tulika Saggar, MD

Atul Sinha, James Pellegrini, Samuel Greenberg, Prachi Anand, Nausheer Khan, Paul Mustacchia

Nassau University Medical Center

COLON CANCER SURVIVAL BASED ON ANATOMIC SUBSITE: A NATIONAL SURVIVAL ANALYSIS FROM 1975-2020

Introduction

Colorectal cancer is the second leading cause of cancer-related death in the United States and it is expected to cause over 50,000 deaths in the US in 2024. Numerous studies have demonstrated increased survival in distal colon cancer compared to in the proximal side. We assessed the survivorship of colon cancer based on subsite over a 46-year period to determine if a more precise location differs in survivorship compared to what is already known.

Methods

This is a retrospective, cohort study using the Surveillance, Epidemiology, and End Results (SEER) database using using SEER*Stat (9.0.30.0). All complete records with colon cancer were extracted from the period 1975-2020. Demographic information was tabulated and compared between groups using a chi square or t-test for counts and means respectively. Our primary outcome was disease-specific survival time for the first 10-years after diagnosis. Records were censored for death not attributable to colon cancer, loss to followup, or survival at 10 years after diagnosis or at the end of the study period. Disease-specific Kaplan-Meir curves were calculated for patients with cancer in each location. Ten-year disease specific survival rates were further investigated by multivariate cox regression to adjust for patient race, age at diagnosis, and marital status. Adjusted hazard ratios were calculated and compared for patients with tumors in each location.

Results

We identified 300,661 patients with colon cancer from 1975-2020. The median age was 69.1 years, 49.1% were male, and 83.9% were white. Tumors in the distal colon (HR 0.95, 95% CI 0.934-0.956, $p<0.0002$) had a better 10-year survival versus tumors in the proximal colon (HR 1.06, 95% CI 1.046-1.071, $p<0.0001$). Tumors in the ascending colon had the highest 10-survival rate (HR 0.894, 95% CI 0.879-0.908, $p<0.0001$) and tumors in the splenic flexure had the lowest 10-year survival rate (HR 1.183, 95% CI 1.15-1.217, $p<0.0001$).

Discussion

We have shown that despite the overall survival being higher in the distal colon compared to the proximal colon, variations exist within these locations. Tumors located in the splenic flexure had the highest 10-year risk of death and tumors in the ascending colon had the lowest 10-year risk of death amongst the subsites, despite the overall rates within their respective areas in the colon showing the opposite outcomes. Further studies are needed to determine if any differences exist within these subsites to cause these findings and if patients may benefit from subsite specific treatments and screening.

Ahmed Salem, MD

Ahmed E. Salem, MD (Role: Presenting Author), Hazem Abosheaishaa, MD (Role: Author), Khaled Elfert, MD (Role: Author), Syed Mujtaba Baqir, MD (Role: Author), Morad Zaaya, MD (Role: Author), Pranay Siriya, MD (Role: Author), Sarah Meribout, MD (Role: Author), Syed Matthew Kodilinye, MD (Role: Author), Fatemeh Mohammadrezaei, MD (Role: Author), Mohammed Abusuliman, MD (Role: Author), Carla Barberan Parraga, MD (Role: Author), Islam Mohamed, MD (Role: Author), Mohamed Ibrahim, MBBCh (Role: Author), Daniel A. DiLeo, MD (Role: Author), Bani Chander Roland, MD (Role: Author), Manol Jovani, MD (Role: Author)

Maimonides Medical Center

Incidence of Gallstone Formation in Type 2 Diabetes Patients Treated with GLP-1 Agonists: A 24-Month Prospective Study

Introduction

This prospective study aimed to investigate the incidence of gallstone formation in patients with type 2 diabetes undergoing treatment with glucagon-like peptide-1 (GLP-1) agonists for weight loss.

Methods

A cohort of 229 patients with type 2 diabetes prescribed GLP-1 agonists for weight management was followed over 24 months. Baseline data, including demographics, clinical characteristics, and metabolic profiles, were recorded. Regular ultrasonography was performed to detect gallstone development at baseline, 6, 12, 18, and 24 months. Advanced statistical analyses, including logistic regression, evaluated the association between GLP-1 agonist use and gallstone formation, adjusting for confounders such as age, gender, duration of diabetes, BMI, and GLP-1 agonist type. Subgroup analyses explored the impact of various GLP-1 agonists on gallstone risk.

Results

Throughout the study period, 78 out of 229 patients (34%) developed gallstones. The cumulative incidence rate of gallstone formation was 33.6% (95% CI: 27.6%â€“39.6%). Significant differences were observed across various subgroups. Patients with a diabetes duration longer than 10 years had an incidence rate of 44.6% (95% CI: 34.8%â€“54.4%), whereas those with a BMI over 30 had an incidence rate of 39.8% (95% CI: 31.1%â€“48.5%). Among the GLP-1 agonists, patients treated with liraglutide had a 35.7% incidence rate (95% CI: 27.2%â€“44.2%), while those on semaglutide had a 31.6% rate (95% CI: 24.1%â€“39.1%).Logistic regression analysis identified a robust and statistically significant association between GLP-1 agonist therapy and gallstone development, with an adjusted odds ratio (OR) of 2.1 (95% CI: 1.5â€“2.9, $p < 0.01$). Adjustments for age, gender, duration of diabetes, BMI, and specific GLP-1 agonist preserved the strength of this association, underscoring the heightened risk of gallstones in this patient population.

Discussion

This prospective study provides compelling evidence of an increased risk of gallstone formation in patients with type 2 diabetes treated with GLP-1 agonists for weight loss. The findings underscore the

necessity for clinicians to recognize this potential complication and implement vigilant monitoring strategies. Tailored patient management plans, including regular ultrasonographic screening and individualized risk assessments, are recommended to mitigate the risk of gallstones in patients undergoing GLP-1 agonist therapy.

D. Nicolas Schaeffer, M.D.

Olukayode Busari, M.D. , Aleksadre Toreli, M.D.' Sudhanva Hegde, M.D.

NYC Health Hospitals South Brooklyn Health

LEFT VENTRICULAR PACING: INNOVATIONS AND APPLICATIONS IN COMPLEX CARDIAC CASES

Background: Left ventricular (LV) pacing has emerged as a promising alternative to conventional pacing techniques in patients with complex cardiac conditions. This study aimed to analyze the demographic characteristics and novel findings from 61 published case reports on LV pacing, focusing on its utility in various clinical scenarios and its potential impact on patient outcomes.

Methods: A systematic review and meta-analysis of 61 published case reports discussing LV pacing in a wide range of cardiac conditions was conducted. Demographic data were extracted. Novel findings related to indications, techniques, outcomes, and complications of LV pacing were summarized and analyzed. Particular attention was given to the innovative approaches employed in challenging cases and the potential benefits of combining LV pacing with other pacing modalities.

Results: The case reports included both male and female patients, with ages ranging from 17 to 82 years (mean age: 58.3 ± 17.2 years). LV pacing was successfully utilized in 36 cases (59%) where traditional right ventricular (RV) pacing was not feasible due to anatomical variations, previous surgeries, or complications such as severe tricuspid regurgitation. Inadvertent LV pacing due to lead malpositioning occurred in 11 cases (18%), with patent foramen ovale or atrial septal defect being the most common underlying cause (7 cases, 64%). Careful analysis of electrocardiograms and echocardiography was crucial for the diagnosis and management of these cases. Intentional LV pacing for cardiac resynchronization therapy (CRT) was reported in 19 cases (31%), with significant improvements in ejection fraction (mean increase: 8.2 ± 3.5%), mitral regurgitation, and heart failure symptoms. The coronary sinus and its tributaries were the most common sites for LV lead placement in these cases. Optimization of LV pacing parameters, such as atrioventricular delay and pacing vector, was performed in 8 cases (13%) to enhance CRT response and avoid complications like phrenic nerve stimulation. Innovative techniques were successfully employed in challenging cases. Intracardiac echocardiography-guided interventricular septum puncture was used in 3 cases (5%) to facilitate LV lead placement when conventional approaches failed. Leadless pacing systems were utilized in 2 cases (3%) to deliver LV pacing, demonstrating their potential as a minimally invasive alternative to traditional lead-based systems. Combining LV pacing with other pacing modalities showed promise in certain patients. Biventricular pacing, involving simultaneous LV and RV pacing, was used in 5 cases (8%) to enhance CRT efficacy. His bundle pacing was combined with LV pacing in 2 cases (3%) to achieve more physiological ventricular activation and overcome the limitations of single-site pacing.

Conclusions: The findings underscore the potential of LV pacing to improve outcomes in patients who may not be suitable candidates for traditional pacing techniques. Innovative strategies, such as intracardiac echocardiography-guided lead placement and leadless pacing systems, have shown promise in challenging cases.

D. Nicolas Schaeffer, M.D.

Chinar Patel, M.D.

Aleksadre Toreli, M.D.

Sudhanva Hegde, M.D.

NYC Health Hospitals South Brooklyn Health

CLINICAL CHARACTERISTICS AND PROGNOSTIC FACTORS IN PATIENTS WITH LONG QT SYNDROME PRESENTING WITH SEIZURE

Background: Long QT syndrome (LQTS) is a cardiac channelopathy that can manifest with seizures due to cerebral hypoperfusion during ventricular arrhythmias. This study aimed to systematically characterize the demographic and clinical features of LQTS patients presenting with seizures and identify key themes and correlations.

Methods: A comprehensive analysis of published case reports, case series, and observational studies reporting LQTS patients with seizures was conducted. Data on demographics, clinical characteristics, comorbidities, and family history were extracted and analyzed using descriptive statistics and qualitative thematic analysis.

Results: A total of 256 LQTS patients presenting with seizures were identified across 56 studies in a search period of 20 years. The mean age at presentation was 18.6 years (median 14.0, range 1.3-82), with a slight female predominance (58%). Cases were reported from diverse geographical regions, including North America (41%), Europe (32%), and Asia (19%). Comorbidities were prevalent, with congenital heart disease being the most common (22%), followed by hypokalemia (19%), hypothyroidism (12%), and a prior diagnosis of epilepsy (10%). A significant negative correlation was observed between serum potassium levels and QTc interval duration (r=-0.68, p<0.001), suggesting that hypokalemia may exacerbate repolarization abnormalities in LQTS. The mean QTc interval was severely prolonged at 520 ms (range 480-690 ms). QTc interval duration was positively correlated with the risk of sudden cardiac death (OR 1.5 per 10 ms increase, 95% CI 1.2-1.9, p<0.001), syncope (OR 1.3, 95% CI 1.1-1.6, p=0.002), and torsades de pointes (OR 1.7, 95% CI 1.4-2.1, p<0.001). Patients with a QTc interval â‰¥550 ms had a 3-fold higher risk of sudden cardiac death compared to those with a QTc <500 ms (RR 3.1, 95% CI 1.8-5.4, p<0.001). A significant proportion of patients experienced life-threatening events, including sudden cardiac death (18%), syncope (54%), torsades de pointes (36%), and ventricular fibrillation (10%). Notably, 42% of patients had experienced â‰¥2 episodes of syncope before LQTS diagnosis, and 28% had a history of aborted cardiac arrest. Family history was a prominent feature, with 28% of patients having a family history of sudden death, 19% of LQTS, and 12% of seizures. Patients with a positive family history of LQTS had a significantly longer mean QTc interval compared to those without (545 vs. 510 ms, p=0.008). Misdiagnosis as epilepsy was reported in 24% of patients, with a median diagnostic delay of 2.5 years (range 0.5-12 years).

Conclusions: This systematic analysis highlights the complex clinical phenotype of LQTS patients presenting with seizures. Key features include a young age at presentation, high prevalence of comorbidities, markedly prolonged QTc intervals, and a significant burden of life-threatening cardiac events. Hypokalemia and QTc interval duration emerged as important correlates of arrhythmic risk.

Rahul Singh, MD

Dawid Ozga, Gabriel Esses, Ugochukwu S. Owolabi, Shalini Selvam, Izabella Beniaminova, Rachel Carpenter, Marc Sukhoo-Pertab, Sudhanva S. Hegde, Aleksandre Toreli

NYC Health + Hospitals/South Brooklyn Health

Racial and Regional Disparities in Invasive Coronary Angiography Utilization and Mortality among STEMI Patients with COVID-19: A Nationwide Analysis 2020-2021

Background: Invasive coronary angiography (IVCA) is essential for assessing the need for percutaneous coronary intervention (PCI) in ST-segment elevation myocardial infarction (STEMI) patients. Previous research has shown decreased use of invasive coronary angiography (IVCA) in STEMI patients with COVID-19 compared to those without COVID-19, and subsequently, lower rates of PCI in STEMI patients with COVID-19 are associated with an increased likelihood of mortality. This study aims to investigate the trends, disparities, and factors influencing IVCA utilization and mortality among STEMI admissions with COVID-19 using the Nationwide Inpatient Sample datasets from 2020-2021.

Methods: A retrospective cohort study was conducted using the 2020-2021 Nationwide Inpatient Sample of admissions with a primary diagnosis of STEMI and a secondary diagnosis of COVID-19. Multivariable logistic regression analysis was performed to examine the impact of year and other determinants on IVCA utilization and mortality, adjusting for socioeconomic factors, comorbidities, and hospital-level confounders.

Results: Among 313,689 STEMI admissions, 6,195 had a secondary COVID-19 diagnosis. IVCA utilization increased from 74% in 2020 to 80.8% in 2021 (adjusted odds ratio [aOR]: 1.72; 95% confidence interval [CI]: 1.22â€“2.41, P<0.01). Significant racial disparities were observed, with lower IVCA utilization among Asian or Pacific Islanders (aOR: 0.28; 95% CI: 0.13â€“0.61, P<0.01) and 'Other' races (aOR: 0.42; 95% CI: 0.21â€“0.84, P<0.02) compared to White patients. The Southern region had lower IVCA utilization (aOR: 0.43; 95% CI: 0.27â€“0.68, P<0.01). Despite increased IVCA utilization, PCI utilization remained stable in 2021 compared to 2020 (aOR: 1.19, 95% CI: 0.86â€“1.64, P=0.3), mortality was higher in 2021 (aOR: 1.48; 95% CI: 1.03â€“2.12, P=0.03), among 'Other' races (aOR: 2.29; 95% CI: 1.16â€“4.55, P<0.02), and in the Midwest (aOR: 2.04; 95% CI: 1.14â€“3.63, P<0.02). Higher-income and Medicaid were associated with decreased mortality. Receiving IVCA was associated with a lower likelihood of mortality (aOR: 0.62; 95% CI: 0.42â€“0.91, P<0.02). (Figure 1) The trends in STEMI admissions with COVID-19, mortality, and IVCA utilization are illustrated in Figure 2.

Conclusion: In this nationwide analysis of STEMI admissions with concomitant COVID-19, we observed a significant increase in IVCA utilization from 2020 to 2021. However, this did not translate to increased PCI utilization or improved mortality outcomes. The stable PCI utilization despite increased IVCA could be attributed to COVID-19-associated factors such as higher thrombus burdens, more extensive multivessel disease, or coronary artery vasospasm mimicking STEMI, as previously documented in COVID-19 patients. Further research is warranted to investigate the underlying mechanisms of this finding. Notable socioeconomic and regional disparities were observed in IVCA use and mortality. These

disparities underscore the need for targeted efforts to ensure equitable diagnostic interventions across all demographic and geographic groups.

New York | ACP American College of Physicians
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American College of Physicians

Annual Scientific Meeting

Quality, Advocacy and Patient Safety

Poster Presentations

Omar Arman, MD

Smita Bakhai, MD MPH, FACP

University at Buffalo

Patient Centered Approach to Promote Health Equity for Colorectal Cancer Screening in Limited Resource Communities: Quality Improvement Project

Background:

Colorectal cancer (CRC) is the second leading cause of cancer mortality in the United States. Despite this, CRC screening remains suboptimal, even though it can prevent both incidence and mortality. The aim of this quality improvement (QI) project is to increase CRC screening rates from the baseline rate of 32% to 70% within 12 months in patients aged 50-75 years at an Internal Medicine clinic in a limited resource community.

Methods:

An individualized patient-centered approach and the Plan-Do-Study-Act (PDSA) method were used. The multidisciplinary team learned valuable lessons and identified challenges from a previous CRC screening pilot project. Major barriers included a knowledge gap in patients and providers about CRC and screening options, the lack of fecal immunochemical tests (FIT) as an option for average-risk patients, poor completion rates for stool DNA tests, multiple preferred languages among patients, and limited access to colonoscopy. The team created various QI tools, including stakeholder analysis, an Ishikawa fishbone diagram, a process flow map, and a driver diagram. The primary outcome measure was the CRC screening rate. Process measures included the completion rates of DNA-stool tests or FIT and colonoscopies. Balance measures included increases in patient and physician satisfaction. Our interventions included: 1) multidisciplinary team engagement, 2) client reminders through mass mailings of multilingual postcards, 3) education for patients and providers, 4) a patient navigator to enhance referral workflow and patient engagement, 5) display of multilingual educational videos and skits for patient education, 6) enhancement of digital health technology, and 7) introduction of FIT tests. Data analysis was performed using monthly run charts and statistical process control (SPC) charts.

Results:

During various PDSA cycles, we observed an increase in CRC screening rates from 32% at baseline to 58% in June 2024. The median and mean CRC screening rates were 0.476 and 0.41, respectively, in the run chart and SPC chart. The colonoscopy completion rate increased from 67.43% (n=441/654) in July 2023 to 80.28% (n=525/654) in June 2024. The median and mean colonoscopy completion rates were 0.74 in the run chart and SPC chart, respectively. The stool DNA completion rate was 48.20% (n=41/85), with a positive rate of 21.90% (n=9/41). The diagnostic colonoscopy completion rate was 33.33% (n=3/9), with the rest pending. One adenoma was detected (33.33%, n=1/3). The FIT completion rate was 46.67% (n=7/15), and all FIT results were negative.

Conclusion:

Within 7 months, this QI project achieved a significant and sustainable increase in CRC screening rates. The use of a patient navigator, education for patients and providers, and a patient-centered approach were vital to this success. Future PDSA cycles will focus on offering FIT tests for average-risk patients, improving access to colonoscopy, and continuing education for patients and providers.

Raul Benavides Leon, MD

TITLE: **Optimizing Primary Care: Addressing Challenges and Innovations for an Aging**

AFFILIATION: Department of Medicine, Icahn School of Medicine at Mount Sinai Morningside West, New York, New York

BACKGROUND

In response to the projected growth of the aging population, the New York State (NYS) Governor announced the NYS Master Plan for Aging (MPA) in November 2022. Led by the NYS Department of Health and the NYS Office for the Aging, in partnerships with local governments, stakeholders and a diverse issue-focused workgroups, this blueprint focuses on addressing social determinants of health (SDH) and enhancing the quality of life and health span—the period of life spent in good health—of New Yorkers. A key priority of the MPA is to increase primary care utilization.[1,2]

The rationale is straightforward: to reduce the burden on individuals, their caregivers, and the healthcare system, the state must prioritize early interventions and wellness maintenance by identifying, preventing, and treating illnesses before they become chronic conditions. This proactive approach has the potential to reverse disease progression, prevent disabilities, and extend the years older adults can live independently.[3]

Despite New Yorkers spending more on healthcare per capita than the national average, it is estimated that only about 5% of U.S. healthcare spending goes toward primary care. [2,4] Achieving the goals of this ambitious plan will require significant support from communities, legislators, healthcare systems, and the expanding physician workforce. However, physicians training in Internal Medicine often face several disincentives to pursue careers in primary care. These include substantial student-loan debt, lower income compared to other specialties (i.e. cardiovascular medicine) or increasing unpaid administrative work.[5] Addressing these issues is crucial for encouraging more medical professionals to enter the primary care field and support the MPA's objectives.

CHALLENGES, POLICY MAKING, AND ADVOCACY

One of the core pillars of the MPA, 'Prevention, Wellness, Promotion, and Access', focuses on optimizing existing programs, developing best practices with healthcare practitioners, and expanding innovative models for delivering primary care. [2]

While the final report from the Stakeholder Committee is due in July 2024, several challenges must be addressed to achieve the primary goals. First, primary care models need optimization to effectively manage the "care complexity" prevalent among aging adults. Second, the current physician shortage, particularly in primary care, requires urgent attention.

Policymaking is crucial in developing and funding primary care models. The complex and slowly evolving landscape of physician compensation has resulted in models with misaligned incentives for high-quality

primary care.[6] However, this offers an opportunity for innovation and collaboration among stakeholders, including both the private and public sectors.

At the national level, a top priority of the ACP's agenda has been advocating for comprehensive payment reform to achieve greater value in healthcare spending, particularly by improving payments to primary care within the current system. The ACP has also recommended addressing primary care physician shortages by expanding and simplifying loan-forgiveness programs, creating incentives for medical students to pursue careers in primary care and underserved areas, and increasing funding for Graduate Medical Education. [7,8]

In January 2024, NYS Chair of the Assembly Health Committee, Amy Paulin, introduced a bill legislation (A 8592) to amend insurance and social services laws to increase primary care investment. If passed, starting in April 2025, this bill would require payors to annually report their percentage of spending on primary care services and increase it by 1% if it was less than 12.5% in the previous year. This bill could incentivize primary care funding, but it would be up to the Commissioner and Superintendent of Financial Services to regulate areas for increased spending, such as physician reimbursement, training, technology upgrades, incentive payments, and further transition to value-based payments. [9]

This initiative aligns with the MPA's plan and could help allocate resources towards primary care services for New Yorkers, including physician salaries. Incentivizing physician payment and modernizing primary care models could shift the paradigm of providing primary care for older adults. As the American Geriatrics Society (AGS) stated in their 2023 Letter to CMS on Proposed Medicare Payment Policies, upfront investments are necessary to achieve long-term efficiencies and quality improvements. [10]

Nonetheless, significant uncertainty remains about the successful models or innovations needed to achieve high-quality primary care, particularly for the geriatric population. The AGS has maintained an active role in researching and advocating for age-friendly, evidence-based recommendations at the federal level.[11] This will likely pose a challenge for developing and executing the MPA.

FUTURE DIRECTIONS

While increasing the budget for primary care, increasing physician payments, and innovating reimbursement models are critical steps toward achieving a high-quality and cost-effective healthcare system which demands a comprehensive approach.[12] Developing person-centered, team-based primary care models that utilize modern technology and implementing policies to alleviate administrative burdens are vital. Equally important is ensuring access to healthcare and medication and addressing social determinants of health such as food and housing insecurity, safety, systemic oppression, and racism. The MPA represents a promising step forward, and its unfolding impact will reveal its effectiveness in driving these necessary changes.

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Sam Eisenberg, MD

Northwell Health

Advocating for Step Therapy Reform in the New York State Assembly

Summary:
Prior authorization (PA) policies are cost-saving measures employed by health plans that typically require a physician to provide specific documentation to a health plan before that plan will cover the costs of a medication. A subset of PA, called step therapy, can require patients to try and fail multiple inexpensive medications before covering a more expensive therapy. While these are touted by health plans as cost-saving measures, there is mounting concern that these policies are being abused, leading to excessive administrative burden on physicians and potential harm to patients. A 2022 survey by the American Medical Association demonstrated that 94% of physicians felt PA sometimes led to care delays and 80% felt it sometimes led to patients abandoning treatment (1). A third of those surveyed reported that PA policies had directly led to a serious adverse event for one of their patients.
Given these concerns, legislation limiting PA and step therapy has been introduced in multiple states, as well as on the national level (2-6). New York enacted laws regulating PA and step therapy in 2017 and 2018, respectively, which aimed to ensure patients could obtain medications quickly in emergencies or when delays would lead to patient harm (7). However, in a 2020 survey of NY healthcare providers, only 45% of respondents believed the laws have improved patients' ability to obtain medications (7).
Given this discrepancy, the NYACP has advocated for 4 bills in the NYS legislature that focus on reforming step therapy (8). Specific efforts focused on S1267/A901, which passed the Senate in January 2024 and is currently in the Assembly Insurance Subcommittee. This bill focuses on patient protections: it prohibits health plans from requiring a trial of more than one medication for more than thirty days or requiring patients repeat step therapy for a medication they were previously taking. As part of the NYACP advocacy internship, I joined members of the non-profit organization Aimed Alliance and the NYS Bleeding Disorders Coalition to meet with several members of the NYS assembly and discuss the need for these reforms.

Impact of Efforts:
The immediate outcome of these meetings with assembly members is that bill A901 gained two new cosponsors. Additionally, the NYACP established connection with a member of the Assembly Health Subcommittee for future advocacy days.
This experience overall illustrates the power and importance of including physicians in advocacy. Physicians have primary experience with patient care, health systems, and health plans, which gives a unique, personal aspect to the discussion. By working in concert with members from professional societies, non-profits, and patient advocacy groups, we were able to better support New York step therapy reform and bring it closer to passing through the legislature.

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Primary Author Information:
Samuel Eisenberg, MD PhD
PGY-2, Internal Medicine, Northwell Health NSLIJ Program
Seisenberg1@northwell.edu

Michael Jorgensen, MD

Michael Jorgensen1 MD; Nimra Hameed1 MD; Christina Mathai2 MD; Lisa Fisher2 MD; Julia Cohen3 PhD; Laura Deluca4 PhD; Deirdra Frum-Vassallo4 PhD; Arielle Asman4 PhD

AFFILIATIONS:

1-Department of Internal Medicine, Stony Brook Medicine, Stony Brook, New York, USA

2-Department of Primary Care, Northport VA Medical Center, Northport, New York, USA

3-Department of Psychology, Brooklyn VA Medical Center, Brooklyn, New York, USA

4-Department of Psychology, Northport VA Medical Center, Northport, New York, USA

Stony Brook Internal medicine

BRIEF ACTION PLANNING-MOTIVATIONAL INTERVIEWING (BAP-MI) MODEL FOR RESIDENT PHYSICIANS

Background:

Motivational Interviewing (MI) and Brief Action Planning (BAP) are evidence based, pragmatic tools that have transformed patient-provider relationships in healthcare for many years. BAP has been described as a stepped care, versatile, MI-consistent tool to facilitate health behavior change. There is currently no proven approach for teaching Internal Medicine Residents' motivational interviewing techniques.

Purpose:

Develop a novel Motivational Interviewing (MI) and Brief Action Planning (BAP)-based curriculum for Internal Medicine Residents in a primary care setting and assess response.

Methods:

Stony Brook Internal Medicine Residents of class 2024-2026 who have their primary care experience at the VA Northport Medical Center were exposed to MI/BAP techniques over the course of three one-hour afternoon training sessions. During session one the BAP flowchart was reviewed, which has five foundational skills towards collaborative planning of a SMART (Specific, Measurable, Achievable, Realistic, Timely) goal, along with role playing exercises. Session two involved tailoring BAP/MI techniques considering the patientâ€™s stage of change with either BAP, MI, or the goal of eliciting change talk as the primary focus. The third session involved residents asking each of their morning patients the first question of BAP (â€œIs there anything you would like to do for your health in the next week or two?â€) and residents shared their patient experiences. All sessions were led by psychologists trained in MI and certified in BAP and facilitated by primary care attendings. Residents completed pre- and post-intervention Likert-based surveys to assess current use, knowledge, and comfort level using MI/BAP techniques.

Results:

There were significant differences after the education sessions regarding knowledge of Question #1 of BAP pre-intervention (51% of residents answered the question correctly) versus post intervention (83%

of residents) and knowledge of fundamental MI skills pre-intervention (84% of residents) versus post-intervention (100% of residents) with p=0.031. Residents better understood core MI values, including open questions, affirmations, reflections, and summaries. Pre-intervention 57% of residents felt moderately or very effective in developing concrete plans with patients and post-intervention this increased to 86% of residents (p=0.028).

Conclusions:

A short didactic, followed by a brief check-in and further skills development can help residents improve overall patient outcomes in a primary care clinic setting. BAP-MIâ€™s stepped care approach allows for the provider to utilize a variety of interview techniques depending on the patientâ€™s current state of change and degree of rapport with the provider. The BAP road map was implemented in a stepped fashion and can be taught in a short didactic session, providing a tangible framework for eliciting a patientâ€™s readiness for change. BAP-MI utilizes the â€œspirit of MIâ€ while maintaining a structure that can easily be taught and replicated in a time limited environment.

Rasagnya Kota, MD

Rasagnya Kota, MD1; Anisha Mahat, MD1; Lisa Fisher, MD2

1 Department of Medicine, Stony Brook University Hospital, Stony Brook, NY

2 Department of Medicine, Northport Veteran Affairs Medical Center, Northport, NY

Stony Brook University Hospital

IMPLEMENTING A POPULATION MANAGEMENT STRATEGY TO IMPROVE DIABETES METRICS IN A RESIDENT-RUN PRIMARY CARE CLINIC: A QUALITY IMPROVEMENT INITIATIVE

Background: Diabetes is a chronic disease of increased blood glucose levels that can lead to multiorgan failure if left untreated. Complications from nonoptimized parameters such as cholesterol and blood pressure have led to a large financial burden. Diabetes affects 25% of the veteran population and is a leading cause of blindness, renal disease and amputation.

Purpose: To leverage a proactive population management strategy to address blood pressure, cholesterol, hemoglobin A1c (HbA1c), eye and kidney health in patients with diabetes.

Methods: From July 2022 through June 2024, residents contacted veterans with diabetes to address metrics to ensure their care was optimized. Medications were initiated or titrated to ensure blood pressure goal of <140/90, a moderate intensity statin was prescribed to control LDL, and diabetic medications were titrated to achieve a goal of HbA1c<9. Veterans were encouraged to schedule a retinal exam annually and a chemistry and diabetic urine screen were ordered to monitor kidney health. If agreeable, veterans were enrolled in a home telehealth monitoring program and a comprehensive lifestyle intervention program called MOVE! which provide additional support while addressing diet, exercise, and behavioral change. We compared how the resident clinic scored in comparison to the National Veterans Affairs (VA) average.

Results: In July 2022, the National VA average for controlling blood pressure to <140/90 was 69.9% compared to 79.26% for the resident-run clinic. After two years, both National VA and the resident-run clinic improved their scores to 76.85% and 82.05%, respectively. The resident-run clinic scored better than National VA. For statin use, National VA started at 78.2% in July 2022 and improved to 79.1% in June 2024. The resident-run clinic started at 89.21% and decreased to 88.53% in June 2024, but scored higher than National VA. In July 2022, the goal to have HbA1c <9 was 79.77% for the resident-run clinic and 78.71 for National VA. In June 2024, the resident-run clinic scored slightly below National VA at 81.71% vs. 82.72. In July 2022, kidney health monitoring was better on a national level, 57.8%, compared to the resident-run clinic, 51.19%. By June 2024, after consistent population management, the resident-run clinic increased to 72.84% compared to the National VA score of 68.7%. The resident-run clinic scored lower than National VA regarding timely retinal exams, 64.73% vs. 67.99%. After two years, this metric improved to 84.24% for the resident-run clinic, scoring higher than National VA, 73.43%.

Conclusion: After consistent population management for patients with diabetes, all metrics improved after two years with only the HbA1c control metric scoring slightly below National VA. This indicated

that a proactive, multidisciplinary approach to chronic disease management can positively impact the health of patients with diabetes and reduce the risk of diabetes-related complications.

Emily Rodriguez, DO

Emily A Rodriguez, DO, Lara Seder, DO, Andrew Chandler, DO, Martin Gozar, PharmD

Lenox Hill Hospital, Northwell Health

Increase in accurate eGFR readings in people with HIV taking a Bictegravir or Dolutegravir-Based Regimen

Introduction:

Integrase inhibitors, Bictegravir and Dolutegravir, are commonly used in the management of HIV. These medications prevent secretion of creatinine via inhibition of organic cation transporter 2, leading to increased serum creatinine and a falsely lower eGFR.1. Instead, utilization of serum cystatin C (CysC) has been shown to better correlate with measured GFR with integrase inhibitor use1â€“4. The KDIGO (Kidney Disease Improving Global Outcomes) guidelines recommend using eGFRcys for treatment decisions and adjust medications when tubular secretion is diminished, as seen with integrase inhibitors5. The aim of this quality improvement project (QIP) is to improve accuracy of eGFR readings in patients taking Bictegravir or Dolutegravir by measuring CysC at Lenox Hill Primary Care Clinic.

Methods:

This is a prospective QIP at an HIV clinic in New York City and includes adults age â‰¥18 with HIV and CKD. Included were patients on maintenance therapy with bictegravir or dolutegravir. Exclusion criteria were a GFR <15ml/min/1.73m2 or on renal replacement therapy. Several potential causes for practitioners using serum creatinine over CysC were considered and an EMR alert banner was designed for patients prescribed bictegravir or dolutegravir. The alert banner was integrated to remind providers to order CysC and metabolic panels. Pre-intervention CysC orders and values were recorded. At three-month follow-up the number of CysC orders and values were recorded for patients with follow-up appointments. The eGFRCys was compared to the eGFRcr. The primary outcome is to evaluate the change in CysC orders after alert integration. Secondary outcomes include changes in eGFR based on CysC versus creatinine.

Results:

After the 3-month follow-up period, the study group saw a 59% increase in the number of CysC orders. The average change in eGFR comparing eGFRcys to eGFRcr was 8.85 ml/min/1.73m2, with a maximum change being 45 ml/min/1.73m2, and a minimum change -19 ml/min/1.73m2. Participants with CKD stage G3a (n=13) experienced the highest average change in eGFRcr at 10.31 ml/min/1.73 m2 compared to those in CKD stage G2 (n=15) 8.93 ml/min/ min/1.73m2, CKD stage G3b (n=5) 4.8 ml/min/1.73 m2, and CKD stage G4 (n=1) 9 ml/min/1.73 m2. Among participants with a significant eGFR change altering CKD stage (n=20), 70% showed an improved stage.

Conclusion:

Through this quality improvement project, using a notification banner increased the frequency of ordering CysC tests, and > 50% of the population showed a change in CKD stage. CysC is recommended for patients with HIV taking bictegravir or dolutegravir for more accurate CKD staging. For example,

opportunistic infection prophylaxis with sulfamethoxazole-trimethoprim is commonly prescribed and requires dose adjustment based on renal function. Accurate staging is crucial for preventing renal injury and guiding medication dosing. Thus, it is essential to accurately measure eGFR for the stratification of CKD and to optimize pharmacotherapy.

Johnathon Vasuthevan, MD

Muhammad Hisham Khan Wazir, Muhammad Faisal Aslam, Muhammad Abdullah Khan Wazir, Pashma Wazir, Javeria Ghaffar, Sajid A Mir

Montefiore St. Luke's Cornwall

Cancer Mortality trends in New York State stratified by year, sex, ethnicity and race; 1999- 2020

Introduction

Cancer is a major cause of morbidity and mortality worldwide. This study aims to study the mortality trends, related to cancers in New York State population aged 20-64 years from 1999 to 2020.

Methods

We used CDC Wide-ranging Online Data for Epidemiologic Research (CDC WONDER) to access National cancer statistics from 1999 to 2019. CVD deaths are based on information from all death certificates in New York state. Deaths in the population aged 20-64 years due to cancer were represented as age-adjusted mortality rates (AAMR) per 100,000 population.

Results

There has been a total of 239632 deaths reported due to cancers in NY state from 1999-2019. The age-adjusted mortality rate (AAMR) was much higher in males (96.6) than in females (88.3). AAMR was higher in the non-Hispanic (95.3) as compared to the Hispanic population (66.4). AAMR was highest in Black or African American (109.7) followed by White (92.9), Asian or Pacific Islander (54.1), and American Indian or Alaska Native (22.0) racial groups. Cancer-related Mortality has been decreasing at a steady pace from 1999 (117.6) to 2020 (76.3).

Conclusion:

Cancer-related mortality has been decreasing at a variable pace from 1999 to 2020 in the state of New York, USA. Significant disparities exist across various ethnicities and races. Further research is needed to examine the underlying causes of these disparities and targeted interventions are required to address these disparities.

Anushri Wagner, DO

Mount Sinai Morningsdie

AIM TO IMPROVE ACCESS TO TREATMENT FOR ADULT ADHD PATIENTS BY ALIGNING MEDICATION DISTRIBUTION POLICY WITH NEW YORK STATE REGULATIONS

Purpose:

We advocate for major mail-order pharmacy companies to update their policies to be in line with current state regulations to allow for sufficient supply, fewer refills required per year, and to provide timely personalized reminders to patients who suffer from executive function disabilities.

Introduction:

Adult Attention Deficit/Hyperactivity Disorder, or adult ADHD, is a chronic medical issue that greatly affects the economic and social productivity in the U.S and impacts the executive functions of over 4% of the U.S. adult population[1, 2]. Studies show that untreated ADHD results in a 4-5% decrease in productivity at work as well as over $4000 in costs per affected employee[3]. Adult patients who have met the strict diagnostic qualifications for a medication regimen have demonstrated a true medical need for reliable treatment in order to function and manage their personal and professional lives[4].

The first-line treatment for ADHD, according to evidence-based medical treatment guidelines, is psychostimulant therapy with amphetamine salts and methylphenidate compounds, which includes the well-known brands Adderall and Ritalin[5]. These medications are classified as Schedule II by the Drug Enforcement Administration and, therefore, are regulated at the state and federal level by strict prescription and distribution laws[6,7]. Recent shortages in local pharmacy supply since 2020 have exacerbated this issue of access as patients were unable to fill legitimate prescriptions or even obtain an emergency supply.

Methods:

Phase 1: A legal and regulatory review specific to regulations on controlled substances was performed focusing on federal sources (FDA, DEA) as well as New York State regulations and policies released by private pharmaceutical companies.

Phase 2: Six of the top ten online/delivery pharmacy services in New York State were interviewed via telephone for details on their prescription filling policies for Schedule II controlled substances and specifically for amphetamine and methylphenidate compounds.

Results:

Regulatory and legal review during phase 1 revealed the following timeline of policy implementation and resulting distribution shortage[8]:

2013: Prescriptions for most controlled substances in New York State are limited to 30-day supplies, with any refills only to be filled when a patient has "exhausted all but a seven days' supply of that controlled substance provided by any previously issued prescription" per New York State regulations Title 10, Subchapter K, Section 80.67[7]. To the benefit of patients with the true executive functional disability that is ADHD, an exception (Code B) for ADHD medication, which can be technically filled for a 90 day supply, with allowances for a 5-day emergency supply between prescriptions that were filled late for any reason[10].

2021: In February, during the most recent opioid crisis in the U.S., a settlement involving federal and state governments versus three major pharmaceutical distributors resulted in a policy proposed by Cardinal Health that now limits the number of any controlled substance prescriptions that can be filled by any pharmacy that sources from these major distributors[9].

2022: The policy proposed by Cardinal Health went into effect in July, throttling the supply of all scheduled drugs to pharmacies nationwide. The Federal Drug Administration (FDA) has officially recognized shortages of Adderall, Ritalin, and generic counterparts since October 2022 which continue to date.

2023: Increased awareness, diagnoses and prescriptions written for adult ADHD treatment have not been matched by changes in these distribution limits.

Interview of six major online pharmacy services during Phase 2 revealed the following discrepancies between pharmacy policies, insurance policies, and NY State regulations.

CVS Pharmacy, HealthMart, and RiteAid do not fill controlled substance prescriptions via their online services.

Walgreens does deliver controlled prescriptions to patients through delivery but was unable to guarantee sufficient stock. They do follow the same policies as physical locations as mandated by state laws. However, depending on the patient's insurance, 90-day prescriptions may not be covered for mail-order prescriptions.

Costco pharmacists confirmed also via phone interview that they do fill Schedule II prescriptions, including ADHD stimulant medications via mail service. However, the pharmacy limits this service to patients with Costco contracted insurance plans.

Express Scripts, which did have ADHD medication in stock, had a major discrepancy in state regulation versus company protocol in that their internal policies does specify New York State 30-day supply maximum regulations but does not include information regarding specific exceptions allowed for certain conditions including medications for the treatment of "attention deficit disorder" as indicated by the exception code[10].

Conclusions

Based on this review of major online pharmacies as a supplier for much needed medication in times of shortage, it can be argued that the current barriers to medication supply, for adult patients on established ADHD regimens, should be addressed under the ADA. The policy discrepancies between

pharmacies, insurance coverage, and lack of incentive to update policies to reflect state regulations, along with long processing periods, lead to difficulties in regular, reliable treatment for patients with ADHD who are unable to otherwise coordinate refills with their physicians and have no access to emergency supply during distribution shortages.

State law should require compliance under these regulations in that if a patient makes a request, a mail-order pharmacy service must fill a 90-day prescription for Schedule II medications that fall under the exceptions to the 30 day supply limit, specifically, but not limited to ADHD treatments.

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Sumbal Wajid, MBBS

Mark Taliercio MD, Mustafa Mahmood, Abigail Belasen MD.â€¯

Albany Medical Center

Improving Skin Biopsy Training amongst Internal Medicine Residents at Albany Medical Center - A Quality Improvement Project.

BACKGROUND:

Albany Medical Center (AMC) serves as a tertiary care and level 1 trauma center for most of upstate New York, but currently lacks dermatologic services. Traditionally, patients presenting with cutaneous manifestations warranting a skin biopsy have been referred to plastic surgery or general surgery, with internal medicine overseeing their management. To address this gap in care coordination, we describe a quality improvement project aimed at enhancing the internal medicine residency program's training in skin biopsies. While not mandated by the ACGME, this skill is crucial given the lack of dermatologic services, enabling internal medicine residents to better address patient needs.

METHODS:

The project, conducted at AMC's Internal Medicine department under IRB exemption, took place betweenâ€¯November 2022 to December 2023. It involved enhancing skin biopsy training for internal medicine residents. The study's initiator performed six biopsies to kickstart the initiative. Residents were educated on the significance of dermatologic evaluations and hands-on training was facilitated during noon lectures. A centralized repository was established for procedural equipment and educational materials. Residents then observed and performed skin biopsies under supervision of certified individuals, fostering a peer-to-peer learning environment. Information was circulated among internal medicine hospitalists and relevant attendings including rheumatology, allergy and infectious diseases amongst others, who predominantly manage cutaneous diseases at AMC.

RESULTS:

At baseline (November 2022 to April 2023), 9â€¯skin biopsies were performed by internal medicine residents. Post-intervention (May 2023 to October 2023), 26â€¯skin biopsies were conducted by active internal medicine residents. Diagnosis time wasâ€¯decreased, as residents performed biopsies more swiftly compared to involving a consulting service. The project is still on-going, with considerable interest from residency class.

CONCLUSION:

Skin biopsies in the inpatient setting offer valuable treatment insights and should be conducted by internal medicine residents, who frequently oversee care. This procedural training is beneficial for residents pursuing primary care, hospitalist medicine, or further specialization including rheumatology, allergy, and infectious diseases, aligning with the department's commitment to comprehensive training.

Angela Yoo, MD

Northwell Health

Impact of hospital closures and the need for legislation requiring community input

Multiple prominent hospitals have either closed entirely or shut down divisions over the past decades leading to disruption in patient care, communities, as well as medical training and education. A few examples include Hahnemann hospital of Drexel University (1), St. Vincent Hospital, an academic teaching hospital of New York Medical college (2), and the pediatrics division of Tufts University (3). These decisions to shut down are often complex and multifactorial, driven by financial or political reasons and the changing landscape of modern healthcare. Hahnemann hospital was bought out by a private equity firm, St. Vincent Hospital closed due to a debt burden was over $1 billion, Tufts converted the 41 pediatric beds into an adult ICU and medical/surgical beds citing projections that fewer children will require hospitalizations in the future.

In the New York City area alone, hospitals that are impending closures include SUNY Downstate as well as Beth Israel of the Mount Sinai Hospital system. Beth Israel proposed a July 12, 2024, closure date because despite the investments and upgrades within the past 10 years, chronic underutilization of the hospital as inpatient capacity was only 20 percent filled led to escalating losses. (4) To demonstrate the scale of its impact, the Sinai hospital system reports an estimated loss of $150 million in 2023 and more than $1B since 2013. (5) Elsewhere in Brooklyn, similar difficulties were rising for SUNY Downstate. Earlier in 2024, SUNY Chancellor John King Jr. announced that the administration of Governor Kathy Hochul wanted to close or merge most of Downstate. Their plan included having Downstate, a 342-bed hospital, transfer services to the neighboring Kings County Hospital by creating a SUNY Downstate wing of Kings County. In their plan, this wing would include 150 beds, less than half its original capacity. (6) There was significant concern from the community, including those who utilized medical services and those employed by the hospital, that care would become more limited in an already underserved community. A list of 42 additional hospitals either closing entirely or shuttering services was published in 2023, indicating the magnitude of this ongoing phenomenon. (7)

The New York State Assembly Bill1633, introduced to the Assembly by Jo Anne Simon on 1/17/2023, “requires public notice and public engagement when a general hospital seeks to close entirely or a unit that provides maternity, mental health or substance use care.” (8) The purpose of this bill was to amend public health law including but not limited to: giving explicit authority for closure of hospitals to the Commissioner of the New York State Department of health, requiring the Commissioner to issue a report discussing “the anticipated impact of closure on the surrounding communities’ access to care, including the uninsured and underserved”, and in a city of one million or more, actively engage with and respond to community input. (8) Legislators cited the need for such a bill was proposed after closure of Long Island College hospital in 2014, which was disputed in court for almost two years.

A revised version of this assembly bill was reintroduced on 3/25/24 which specified that a general hospital seeking to close entirely or one and or more units would need to submit an application requiring review and approval by the public health and health planning council. Additionally, such a

request would need to be submitted at least 210 days before the proposed closure. The revision also proposed a public community forum to obtain input concerning the impact of such a closure on access to medical care and services, "including but not limited to recipients of medical assistance for needy persons, the uninsured, and the medically underserved populations..." Its' counterpart bill was introduced to the Senate, SB 8843 by Senator Gustavo Rivera in March 2024 which similarly seeks to establish requirements of public notice and public engagement. (9) Importantly, the bill proposes that the closure plan submitted would also include ensuring that health care services that were being no longer being offered were still accessible to patients on Medicaid, individuals insured by publicly subsidized plans, and uninsured individuals.

Impact of Efforts:

In Spring 2024, the Governor revealed that 2025 budget plans allotted $300 million in capital funding for SUNY Downstate and up to $100 million for funding of operations. (10) Importantly, the final budget agreement includes a nine-person community advisory board to help inform decisions about the hospital's future. (11) This experience illuminates the complex interaction between healthcare policies and budget agreements as well government officials, healthcare professionals, and the community. Advocacy from community members, health care professionals and groups, and senators/assembly members were integral to helping preserve SUNY Downstate. Ultimately, this will allow this historic hospital to continue providing access to medical services to the diverse community it serves.

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Primary Author Information:
Angela Yoo, MD
PGY-2, Internal Medicine, Northwell Health NSLIJ Program
Ayoo1@northwell.edu