

Saturday Poster # 1

Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Anju Adhikari

Additional Authors: Dilip Khanal, Ahmed Edhi, Ojbindra KC, Sanjog Bastola

Acute Ischemic Stroke Unveiling Polycythemia Vera

Polycythemia vera is usually diagnosed from an incidental finding of elevated hemoglobin. Clinical features include headaches, vision disturbances, pruritus, epigastric distress and erythromelalgia. Arterial and venous thrombosis is noted in 16% and 7% of patients at diagnosis respectively. Rarely, acute ischemic stroke can be the initial presenting feature of polycythemia.

68 year old right handed male with history of hypertension presented with right sided numbness and tingling. Examination revealed NIHSS of 1 for right sided sensory deficit without other neurological deficits. Complete blood count demonstrated hemoglobin of 19.3 g/dl, hematocrit of 55.8%, white blood cells of 8.1 bil/L and platelet of 477 bil/L. CT head showed acute to subacute infarction in the splenium of corpus callosum extending to left centrum semiovale and acute to subacute lacunar infarct in the left thalamus. MRA brain showed complete occlusion of the left posterior cerebral artery. Carotid artery doppler and transthoracic echocardiogram were normal. Atorvastatin, Aspirin and Clopidogrel were started. Patient underwent hemodilution via venesection removing 500 ml blood. Patient continued to have numbness and tingling on his right side despite reduction in hematocrit to 50%. He tested positive for JAK2 gene mutation.

The etiology of stroke in polycythemic patients is thought to be multifactorial. Increased blood viscosity and platelet activation forming thrombus in the brain along with micro-embolic events originating from outside of the brain are the suspected mechanisms. Management of stroke in polycythemia is unique for possible benefit from venesection, especially in acute strokes, which all physicians must be aware of.

Institution: Beaumont Hospital – Royal Oak
Program Director: Sandor Shoichet, MD, FACP
Presenter: Rhyan Maditz
Additional Authors: Hakim S, Lohani S, Zarouk S

A Mystery Case of Blood Leak Alarm Triggering

A 68-year-old male with end stage renal disease on intermittent hemodialysis was admitted to the hospital after presenting with weakness and fatigue. Patient was found to have aortic valve infective endocarditis. He underwent urgent aortic valve replacement along with coronary artery bypass grafting. His postoperative course was complicated by mesenteric ischemia, requiring exploratory laparotomy and bowel resections. He initially received intermittent hemodialysis with a 2008K Fresenius dialyzer instruments with adequate tolerance.

On post-operative day 10, the blood leak detector (BLD) alarm interrupted dialysis as the dialysate effluent became read in color. Work up for hemolysis returned negative. Hemodialysis was attempted twice again using different 2008K Fresenius dialyzer instruments, however, the blood leak alarm interrupted dialysis on each occasion. We bypassed the BLD alarms by testing the dialysate fluid for leaks every 15 minutes and by continuously resetting the alarm.

Review of administered medications revealed that the patient received 5 mg of hydroxocobalmin intravenously preceding the first blood leak alarm for vasoplegia syndrome. Rifampin was included in the patient's antibiotic regimen for infective endocarditis and is known to cause reddish discoloration of bodily fluids. Rifampin was discontinued but did not resolve the issue. The BLD no longer alarmed two days following discontinuation of hydroxocobalmin. Rifampin was restarted without any additional blood leak alarms.

This case highlights the importance of recognizing other etiologies of BLD alarms. It is important to recognize hydroxocobalmin as a cause for BLD false alarms. BLD false alarms lead to the inability to perform hemodialysis.

Saturday Poster # 3

Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak
Program Director: Sandor Shoichet, MD, FACP
Presenter: Marsel Matka
Additional Authors: Justin E Trivax

Three's Company: A Case Presentation and Literature Review of Cor Triatriatum Sinister in the Adult

Cor triatriatum is a rare congenital cardiac malformation defined by abnormal septation of the right (dexter) or left (sinister) atrium, resulting in three effective atria. The varying degree of inflow obstruction to the respective ventricle leads to clinical consequences that range from trivial to catastrophic. The defect is usually recognized and surgically repaired in infancy or childhood and commonly co-exists with other congenital anomalies. In a minority of cases, cor triatriatum sinister (CTS) either persists asymptomatic in adults or is discovered through one of its many complications that closely mimic mitral stenosis.

We report a case of a 24-year-old male without a significant past cardiac history who presented with palpitations and dyspnea for two days. Physical exam was significant only for an irregularly irregular rhythm. EKG showed atrial fibrillation with rapid ventricular rate. He was started on anticoagulation with unfractionated heparin and rate was controlled with beta blockade. A 2D echo showed preserved left ventricular function, mild left atrial enlargement, and CTS with a peak gradient of 15mmHg. The patient underwent transesophageal echo with successful cardioversion the next day. A cardiac MRI re-demonstrated CTS with an outflow tract opening of 0.7cm squared. The patient was asymptomatic upon discharge home with metoprolol and rivaroxaban. He was referred to pediatric cardiovascular surgery and will have a resection of the additional membrane with left atrial ablation and appendage ligation.

We review the etiology, classification, clinical manifestations, established and emerging diagnostic modalities, and treatment of CTS.

Saturday Poster # 4

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Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Molly Orosey

Additional Authors: Molly Orosey DO, Nisha Sharma MD, Atulkumar Patel MD

Port-Site Metastasis: An Uncommon Consequence of Laparoscopic Colon Cancer Removal

A 71-year-old male with unexplained iron deficiency anemia was sent for screening colonoscopy. Colonoscopy revealed a fungating, infiltrative, polypoid ulcerated mass in the mid-ascending colon. Pathologic examination demonstrated invasive adenocarcinoma. A robotic right-sided hemicolectomy with a side-to-side functional end-to-end anastomosis between the terminal ileum and transverse colon was performed. Pathologic examination revealed poorly differentiated invasive adenocarcinoma. Immunohistochemistry was positive for homeobox CDX2. Four months post-operatively the patient complained of pain at the surgical site. A computed tomography (CT) abdomen and pelvis demonstrated two new rim-enhancing masses within the right rectus abdominis muscle highly suspicious for port site recurrence of malignancy at the surgical site. An ultrasound-guided core biopsy of the right rectus abdominis-abdominal wall mass was performed. Pathology was consistent with metastatic adenocarcinoma from primary colon cancer. Immunohistochemistry was also found to be homeobox CDX2 positive. Patient was given folinic acid, fluorouracil, and oxaliplatin (FOLFOX) with plan to add bevacizumab.

Port-site metastasis (PSM) is an uncommon consequence of laparoscopic colon cancer resection. A review of over 500 patients from the American Society of Colon and Rectal Surgeons (ASCRS) database showed that port-site or wound metastasis occurred in 1.1% of patients. There are multiple hypotheses for PSM that have been proposed, including: excessive manipulation of the tumor, direct implantation with contaminated instruments, and contamination while extracting specimen. However, the pathophysiology still remains unclear. Physicians should have a high index of suspicion for PSM in patients with abdominal pain after laparoscopic resection. A low threshold for follow-up diagnostic imaging should be maintained.

Saturday Poster # 5

Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Yifan Pang

Additional Authors: Adrian Mercado-Alamo, MD; Cristina Greulich, MD; Sami Zarouk, MD

The Hidden Culprit Behind Severe Abdominal Pain

Introduction

Henoch-Schönlein Purpura (HSP) is a predominantly childhood disease. We report a case of HSP with gastrointestinal symptoms and glomerulonephritis that preceded the appearance of arthritis and purpura.

Case Presentation

A 23-year-old female presented with six days of severe abdominal pain, nausea, vomiting, and burgundy-colored urine. She had no recent upper-respiratory infection, fever, petechiae, flank pain, or change in diet. CT scan of the abdomen showed marked wall-thickening and distension of the proximal jejunum. She had leukocytosis and a serum creatinine at 0.99 mg/dl. Urinalysis was positive for 3+ blood and the presence of red blood cell casts. Random urine for protein to creatinine ratio was 0.8. Kidney biopsy revealed IgA nephropathy with mild focal interstitial fibrosis. Serum creatinine decreased to 0.7 mg/dl with hydration. Intravenous corticosteroids for three days alleviated her abdominal symptoms before switching to prednisone 40 mg daily. A week later, she presented with palpable purpura, arthritis, and abdominal pain. Upon reinstating IV methylprednisolone, all symptoms improved. She was discharged on oral prednisone at 40 mg daily.

Discussion

The lack of arthritis or purpura broadened the differential diagnosis. Renal biopsy was essential to prove the deposition of IgA in the kidneys as other gastrointestinal vasculitides were considered in this case. It is rare for gastrointestinal symptoms to be the main presentation of HSP. Pediatric data demonstrated that corticosteroids could effectively ameliorate gastrointestinal symptoms and control glomerulonephritis. However, its efficacy in adult patients needs to be established.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak
Program Director: Sandor Shoichet, MD, FACP
Presenter: Elisa Quiroz
Additional Authors: Seifeldin Hakim

Large Cell Neuroendocrine Carcinoma of the Colon: A Rare Finding

Large cell neuroendocrine carcinomas are exceptionally rare tumors with a dismal prognosis due to early metastasis. Of neuroendocrine tumors of the large intestine a mere 3.9% present in the colon. Majority of cases arise in the rectum (94.5%).

A 56-year-old male began experiencing abdominal discomfort, dyspepsia and chest pain. Computed Tomography (CT) of the abdomen and pelvis revealed a 3.7 x 1.7cm colonic mass at the splenic flexure with mesenteric and porta hepatis lymphadenopathy, multiple liver lesions and vertebral metastases. Colonoscopy showed a fungating, infiltrative, sessile, ulcerated, partially obstructing large mass in transverse colon. A spectrum of pathological findings were revealed throughout the large intestine including sessile polyps and tubulovillous adenoma with high-grade dysplasia. Biopsy of the mass was positive for chromogranin, synaptophysin, CDX2 and pankeratin while negative for TTF-1 and CK7 consistent with Grade 3 large cell neuroendocrine carcinoma. Within 3 days of diagnosis the patient began chemotherapy with carboplatin and etoposide. On follow up the disease had rapidly progressed and hepatic and renal function deteriorated. Patient and family opted to forego further treatment and enrolled in hospice care. The patient passed away just nine months following diagnosis.

Large cell neuroendocrine carcinomas of the colon are both rare and highly aggressive tumors. Overall survival has been reported as 10.4 months. Genomic profiling is being investigated as a promising modality for targeted therapies. Several clinical trials are currently underway such as use of P13K and mToR inhibitors in pancreatic neuroendocrine tumors with PI3K frameshift deletion.

Saturday Poster # 7

Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak
Program Director: Sandor Shoichet, MD, FACP
Presenter: Sara Ropp
Additional Authors: Dorin Deitch, DO

Ictal Asystole: A Rare Manifestation of Temporal Lobe Epilepsy

Ictal asystole is a rare manifestation of temporal lobe epilepsy. Many of the previously-documented cases occur in older patients, with predisposing brain lesions or history of epilepsy. We document a case of ictal asystole in a previously-healthy young female.

Our patient is a 34 year old woman with past history of well controlled hypothyroidism, on levothyroxine. She initially presented with episodic syncope throughout adolescence, triggered by temperature changes or sudden changes in position. Episodes became more frequent, prompting hospitalization at age 33. Telemetry monitoring revealed multiple pauses lasting up to 20 seconds. A dual-chamber pacemaker was placed. The syncopal episodes resolved, but the patient continued to complain of prodromal symptoms including lightheadedness, whole body paresthesias and dissociative episodes. These occurred more frequently around the time of her menses and also during physical exertion. Stress echocardiogram and TSH were normal. Treatment with salt tablets and midodrine did not resolve episodes. The patient was referred to neurology. Outpatient EEG and brain MRI were normal. She noted mild improvement on a trial of topiramate. Twenty-four hour video EEG showed numerous clinical seizures originating in the left frontotemporal area. Treatment with topiramate was initiated with plans for outpatient dose titration.

Seizures are an important consideration as causes of unexplained syncopal or presyncopal episodes. Injuries sustained during syncopal events are preventable with anticonvulsant drugs and pacemaker placement is required to manage the accompanying asystole. Early recognition of this rare life-threatening complication of temporal lobe epilepsy is essential to ensure patient safety.

Saturday Poster # 8

Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak
Program Director: Sandor Shoichet, MD, FACP
Presenter: Ahmad Said
Additional Authors: Alexandra Halalau, MD, FACP

The Curse of Relieving Pain

Acute compartment syndrome (ACS) is associated with significant morbidity if not promptly diagnosed and successfully treated. Severe complications are inevitable if fasciotomy is delayed for over 12 hours. However, irreversible muscle damage can occur within 6-8 hours of moderately raised compartment pressure.

A 39-year-old female with a history of multiple malignancies and chronic back pain secondary to spine hemangioma presented after losing consciousness. She collapsed and lied on her bathroom floor for over 12 hours. Upon arrival to the Emergency Room (ER), she was drowsy and admitted to taking double her daily dose of oxycodone for an exacerbation of her back pain in addition to diphenhydramine, Alprazolam, and a glass of wine for insomnia. An hour later in the ER, she became more conscious. She reported pain in her right forearm. On exam, she had mild soft tissue swelling and tenderness in the forearm, weakness in the flexors and intrinsic hand muscles, and decreased sensation in the hand. Laboratory tests revealed leukocytosis with a left shift and Creatine Kinase (CK) of 4663 U/L. X-ray did not demonstrate fracture or dislocation on the arm. Acute compartment syndrome was clinically diagnosed and the patient underwent emergent forearm fasciotomy.

Acute compartment syndrome (ACS) has been presented in multiple case reports as a complication of heroin overdose associated with prolonged loss of consciousness. ACS has not been reported before as a complication of prescribed opioids especially in patients with cancer-related chronic pain.

Institution: Beaumont Hospital – Royal Oak
Program Director: Sandor Shoichet, MD, FACP
Presenter: Ali Sahlieh
Additional Authors: Michael A Barnes, MD

Immunoglobulin-Troponin I Complex Falsely Elevating Troponin I Levels

Cardiac troponin I and cardiac troponin T are highly sensitive and specific biochemical markers of myocardial injury and they are the preferred serologic tests for patients with suspected acute coronary syndrome (ACS). However, troponin levels may be elevated in clinical conditions other than myocardial infarction. Rarely, false troponin elevation may occur because of analytical interferences with the troponin immunoassay.

48-year-old male was brought to the emergency room for syncope while running on a treadmill. The episode was preceded by lightheadedness and followed by diaphoresis but no other symptoms. He reported no significant past medical history. His father had coronary artery disease. Physical exam was unremarkable. EKG showed inferolateral ST-T changes concerning for ischemia. Troponin I was significantly elevated up to 2 ng/mL (normal range 0.00 to 0.05 ng/mL). Cardiac catheterization showed normal coronary arteries and normal left ventricular function. Cardiac MRI showed small spots compatible but not definitive for myocarditis. Extensive infectious and autoimmune workup was unremarkable. Upon follow up visits, his troponin I levels were persistently elevated over several months. His serum samples were sent to be further studied and it was concluded that he has an immunoglobulin-troponin I complex that increases troponin I half-life in his circulation and results in an elevated troponin I levels regardless of the assay used. His troponin T levels were normal.

A false positive troponin result is a reminder that although troponin plays an important role in the diagnosis of myocardial injury, it should not be the only criterion for establishing diagnoses.

Institution: Beaumont Hospital – Royal Oak

Program Director: Nancy Crossley, MD, Member – Beaumont Hospital – Royal Oak – Med Peds

Presenter: Darshan Sarode

Additional Authors: Paul Chittick, M.D.

An Unexpected Case of IRIS

Introduction- Immune reconstitution inflammatory syndrome(IRIS) is a host response resulting in paradoxical worsening of an infectious process. It can occur in the setting of reversal of immunosuppressed state. We describe the development of IRIS during the treatment of disseminated Nocardiosis.

Case- A 63-year-old male with a history of renal transplant presented with multiple skin abscesses over his right thigh and headache for the past 3 weeks. His review of systems and examination were otherwise negative. Cultures from the abscess grew *Nocardia farcinica*. A brain MRI revealed several ring-enhancing lesions with surrounding vasogenic edema. He was started on IV trimethoprim-sulfamethoxazole and imipenem for six weeks, and his immunosuppression (mycophenolate, tacrolimus, prednisone) was reduced. He returned a week later with increasing drowsiness and abdominal pain. An EEG showed moderate encephalopathy. Repeat brain MRI demonstrated increased size of the lesions, with worsening edema. IRIS was suspected, but treatment was continued, with gradual improvement in symptoms. Repeat MRI six months later showed no residual foci of enhancement.

Clinical Significance-The decrease in immunosuppression may have exacerbated the development of IRIS in our patient.

Discussion- IRIS has primarily been studied in the setting of HIV-associated paradoxical worsening of symptoms. While case reports are now emerging of IRIS occurring in the setting of solid organ transplants and multiple opportunistic infections. We believe IRIS remains an under-recognized complication in this high-risk group, and may have an impact on the management of transplant immunosuppression.

Institution: Beaumont Hospital – Royal Oak
Program Director: Sandor Shoichet, MD, FACP
Presenter: Matthew Sczepanski
Additional Authors: Bhavin Dalal

A Common Disease Presenting Uncommonly as Stroke

A thirty-nine-year-old female presented with acute onset of right-sided weakness and dysarthria. She was diagnosed with an acute ischemic stroke with NIHSS score of 5 but was not a candidate for tPA due to late presentation. Risk factors for atherosclerotic disease included smoking, family history, and being overweight. Initial computed tomography (CT) of the head was negative but cerebral arteriogram demonstrated occlusion of a branch of the left middle cerebral artery. To complicate the story further, chest X-ray showed multiple bilateral pulmonary masses and CT chest demonstrated multiple ground glass (GG) nodules/masses (3-5cm in size) with “vessel sign” and mediastinal adenopathy. Transbronchial fine needle aspiration (FNA) of the lymph nodes using endobronchial ultrasound (EBUS) guidance was performed along with transbronchial biopsy. All FNA/biopsies demonstrated non-necrotizing granulomas. With a strong family history of sarcoidosis in her mother and grandmother she was diagnosed with pulmonary and neuro-sarcoidosis. She was started on high-dosed steroids for neuro-sarcoidosis with a prolonged taper and discharged to inpatient rehabilitation. At discharge, she had improved lower extremity strength, aphasia, and dysarthria, but had persistent upper extremity weakness and remains wheelchair bound.

Sarcoidosis is a multisystem granulomatous disorder that most commonly affects the lungs. This case depicts unusual presentations of both neuro-sarcoidosis and pulmonary sarcoidosis. In regards to neuro-sarcoidosis, it is unusual for it to cause focal cerebral infarction. Additionally, her abnormal imaging with multiple GG masses with vessels going in to them is suggestive of hematogenous spread which is a less common type of progression than lymphatic spread.

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Christopher Willner

Additional Authors: Leila Khaddour, MD and Jon Golenbiewski, DO

By Chance or By Genetics: Metastatic Seminoma and Small Lymphocytic Lymphoma in a Single Lymph Node

Typically, CLL/SLL presents as a leukemia and is detected incidentally upon obtaining a routine CBC. However, when presenting as a lymphoma, secondary site-specific malignancy should be of concern. We present a 62-year-old male with a painful left groin mass. Following preliminary laboratory and radiological investigation, the patient underwent an excisional biopsy of a left inguinal lymph node which revealed metastatic seminoma and a monotonous population of small, mature lymphocytes characterized as a kappa monotypic B cell population showing co-expression of CD5 and CD23, consistent with CLL/SLL. The patient received four cycles of definitive etoposide and cisplatin for metastatic seminoma, but required no treatment for the CLL/SLL which was Rai Stage I. This is the second reported case of metachronous metastatic seminoma and CLL/SLL occurring in the same lymph node. There is no known pathologic link or shared risk factors that can explain this association, except that patients with antecedent CLL/SLL are at an increased risk for local site-specific secondary malignancy. In one case control study, 28% of 29 reviewed CLL/SLL cases revealed coincident neoplastic processes. Thus, this case demonstrates the necessity for utilization of ancillary techniques including immunohistochemistry and flow cytometry for complete pathological diagnosis, affecting management. Fortunately, our patient's CLL/SLL was Rai Stage I and required no specific treatment. This case also highlights the challenges of surveillance, as recurrent seminoma and progression of lymphoma are indistinct, considering radiologic characteristics and activity on FDG-PET. However, germ cell tumor markers will likely be useful in our case.

Institution: Central Michigan University – Saginaw

Program Director: Josephine Dhar, MD, FACP

Presenter: Shafia Beg

Additional Authors: Abhishek Bhandiwad, MD. Asma Taj, MD.

Strangled by the Thoracic Sarcoma...

Background: Less than 1% of the newly diagnosed cancers are sarcomas while primary thoracic sarcoma is a rare finding within that group. Our patient had an even more infrequent variant - SMARCA4 deficient thoracic sarcoma which is a new genetic variant identified recently.

Case Description: 48 year old Caucasian female with past medical history of COPD, hypertension, 70 pack year smoking history who presented with dysphagia, cough and right supraclavicular mass. She also had weight loss which she attributed to taking weight loss pills. CT neck showed bilateral lymphadenopathy and CT thorax showed mediastinal mass encasing trachea, right stem bronchus, the descending aorta and brachiocephalic artery. Interventional radiologists biopsied the lymph nodes and initially the presentation looked like lymphoma versus primary lung cancer however, could not pinpoint to diagnosis as the path report showed poorly differentiated cells. The sample was sent to University of Michigan and eventually pathology report from Harvard University, Boston confirmed that patient had SMARCA4 deficient thoracic sarcoma. In the meanwhile, patient had symptoms of SVC syndrome and radiation therapy was initiated. Unfortunately, she developed a large pulmonary embolism and passed away after being made comfort care.

Conclusion/Significance: SMARCA4 is a subunit of BAF complex which are tumor suppressors. Loss of function mutation of this subunit causes thoracic sarcoma that is clinically aggressive which has poor response to chemotherapy. Most commonly affected patients are young males with extensive smoking history.

Institution: Central Michigan University – Saginaw

Program Director: Josephine Dhar, MD, FACP

Presenter: Abhishek Bhandiwad

Additional Authors: Abhishek Bhandiwad MD, Ronak Soni MD, Phoo Pwint Nandar MD, Naveed Akthar MD

'Kounis Syndrome' – A Case of Allergic Myocardial Infarction Caused by Paclitaxel

Paclitaxel is a commonly used anti-neoplastic agent included in a number of chemotherapy regimens. Acute myocardial infarction is a potentially fatal cardiotoxicity of Paclitaxel. We report a rare case of NSTEMI caused by Paclitaxel induced coronary vasospasm in a patient being treated for breast cancer.

A 41 year old female with no previous coronary artery disease and no family history of MI, with ductal carcinoma right breast went to the infusion center to receive second dose of Paclitaxel. She developed sudden sub-sternal chest pressure and dyspnea and was rushed to the emergency department.

On arrival the patient was hypotensive, troponin was elevated at 0.07 and EKG showed new T wave inversions in lead II, III and aVF. Six hours later, troponin was 3.5; she was started on heparin infusion and taken for cardiac catheterization that showed widely patent coronaries without stenosis. Echocardiogram showed normal systolic and diastolic function without wall-motion abnormalities. In 24 hours, troponin trended down to 0.33, chest pressure and dyspnea resolved and she was discharged.

Kounis syndrome i.e. allergic Myocardial Infarction is an underdiagnosed entity caused by coronary spasm due to a vasoconstrictor stimulus. Paclitaxel has been implicated to cause histamine mediated Coronary vasospasm due to its suspension vehicle named Cremophor. Much caution should be exercised during treatment with Paclitaxel, especially at infusion centers where resources for cardiac resuscitation are limited. This case strengthens the postulation that allergic myocardial infarction by Paclitaxel can occur in persons with no known cardiac disease and can be potentially fatal.

Institution: Central Michigan University – Saginaw

Program Director: Josephine Dhar, MD, FACP

Presenter: Srinandan Guntupalli

Additional Authors: Harsh Shah DO, Divaya Bhutani MD , Abhinav Deol MD, Ernie Balcueva MD,

We Missed It!! He is a Blue Fugate: Rasburicase Induced Methemoglobinemia in Glucose-6-Phosphate Dehydrogenase Deficiency

Rasburicase is commonly used in tumor lysis syndrome (TLS). Although it's safe, it causes severe hemolytic anemia and methemoglobinemia in patients with glucose-6-phosphate dehydrogenase (G6PD) deficiency. We report a case of Rasburicase-induced methemoglobinemia in a patient with previously unrecognized G6PD deficiency.

48 year old African-American male with a history of chronic myeloid leukemia with blast crisis presented to the emergency department from physician's office with concern of asymptomatic tumor lysis syndrome. Initial labs noted elevated uric acid levels with acute kidney injury. 6mg of rasburicase was given for possible worsening tumor lysis syndrome. Within 6 hours, his oxygen saturation declined to 87% on room air. Oxygen supplementation did not improve saturation. ABG was normal except for low PaO₂ saturations of 67% on non-rebreather-mask. Methemoglobin levels went up-to as high as 22.2 (<1%).

Immediate hemolysis panel revealed elevated indirect bilirubin and LDH levels with a drop in hemoglobin count and haptoglobin levels. Emergent treatment with oxygen supplementation and PRBC transfusions improved oxygen saturations dramatically with normalization of hemolytic parameters in 36 hours. Low level of G6PD confirmed the diagnosis of G6PD deficiency. Methemoglobinemia develops when the iron moiety is oxidized from Fe²⁺ to Fe³⁺ which decreases oxygen carrying capacity, leading to hypoxia. High clinical suspicion is key in diagnosing methemoglobinemia. Blood transfusion, ascorbic acid, hyperbaric oxygen and oxygen supplementation are used for rasburicase-induced Methemoglobinemia. Methylene blue is contraindicated. Screening for G6PD deficiency for all newly diagnosed high risk patients with Leukemia and lymphoma should be considered.

Saturday Poster # 16

Category: Research

Institution: Central Michigan University – Saginaw

Program Director: Josephine Dhar, MD, FACP

Presenter: Dhara Patel

Additional Authors: Srinandan Guntupalli, Ronak Soni, Kathan Mehta, Smit Patel, Mohit Pahuja and Firas Alani

Seasonal Trend of Paroxysmal Supraventricular Tachycardia: A 12 Year Retrospective Analysis of National Database

Background: Paroxysmal supraventricular tachycardia adversely affects cardiovascular morbidity and mortality and increases healthcare costs. Although circadian variations are known to affect PSVT, seasonal patterns have not been well characterized. Previous studies have shown seasonal variations for several cardiovascular diseases; however there is no data on PSVT. We reviewed a large national hospitalization database to determine whether rates of PSVT have varied by season.

Methods: The Nationwide Inpatient Sample (NIS) database was used to estimate annual number of hospitalizations from 2000 through 2012. PSVT related hospitalizations were identified based on principal diagnosis of ICD-9 code 4270. The frequency of hospitalization per month for 12 years was calculated and divided by number of days in that month to determine the mean hospitalizations per day for each month. All calculations were carried out using the weighted estimates approximating nationwide population estimates.

Results: The number of hospitalizations per day was stratified by season. The number of hospitalizations was highest in winter and lowest in summer. The mean number of hospitalizations in each day was highest in February and thereafter the hospitalizations rate dropped to nadir in July.

Conclusion: We identified for the first time in US an impressive pattern of seasonal variation in hospitalizations for PSVT with a notable increase in winter. The seasonal pattern may reflect an influence of various risk factors such as environmental, neuroendocrine, metabolic or lifestyle. To understand the role of seasonal stresses and other mechanisms, further research is warranted to identify novel treatments of PSVT.

Saturday Poster # 17

Category: Clinical Vignette

Institution: Henry Ford Health System - Detroit

Program Director: Odaliz Abreu Lanfranco, MD, FACP

Presenter: Anita Eapen

Additional Authors: Dr. Joseph Won, MD; Dr. Mira Otto, MD; Dr. Mohamed Hamam, MD

Midostaurin: A Cancer Killer with Deadly Potential

A 19 year old healthy male presented with complaints of generalized fatigue and 8 kg weight loss over one month. Labwork revealed leukocytosis with immature cells noted on differential and peripheral smear revealed 80% blasts. Bone marrow biopsy completed, revealing acute myeloid leukemia with monocytic differentiation, positive for FLT3 mutation. He completed induction chemotherapy with idarubicin and cytarabine. He developed pancytopenia, as expected with induction chemotherapy. He was started on midostaurin, a newly FDA approved targeted therapy for FLT3 mutation. He developed febrile neutropenia. He was started on broad-spectrum antibiotics with vancomycin and cefepime and due to tooth pain, from unaddressed dental carie, clindamycin and chlorhexidine mouth rinses were added. On day 5 of midostaurin, he complained of generalized malaise, continued fevers, and new hemoptysis. CXR revealed possible pneumonia but otherwise, unremarkable. He developed hypoxia followed by progression of hemoptysis, hypotension, and acute hemoglobin drop to 4.3. He required medical ICU transfer for escalation of care where CXR revealed diffuse infiltrates and pulmonary edema. His antibiotics were broadened to vancomycin, meropenem, cresemba, and eraxis and stress-dose steroids were started. He was intubated and required levophed. Bronchoscopy revealed bloody secretions, concerning for diffuse alveolar hemorrhage vs. pneumonitis due to midostaurin, which was discontinued. He improved and was transferred back to GPU. Repeat bone marrow biopsy revealed 50% blasts, requiring second induction chemotherapy with mitoxantrone, etoposide, and cytarabine.

This case illustrates an important and potentially lethal adverse effect of a new drug, midostaurin, in the form of pneumonitis.

Institution: Henry Ford Health System - Detroit

Program Director: Odaliz Abreu Lanfranco, MD, FACP

Presenter: Hiba Jabbour

Additional Authors: Ranya Selim MD, Waleed Al-Darzi MD, Joshua D. Collins MD

Hemophagocytic Lymphohistiocytosis Triggered by Hepatitis A Infection

A 62-year-old female with recent hepatitis A (HAV) infection was admitted to the hospital with fever, jaundice, abdominal pain, vomiting and diarrhea for two weeks. She exhibited right upper quadrant abdominal tenderness and hepatomegaly on exam. Labs demonstrated ALT/AST 140/173 IU/L, total bilirubin 14.7 mg/dL, LDH 386 IU/L, ferritin 8676 ng/mL, triglycerides 238 mg/dL and positive HAV IgM antibody. CT abdomen showed periportal inflammation and splenomegaly with lymphadenopathy, without evidence of malignancy. Liver biopsy demonstrated phagocytized erythrocytes and cirrhosis. Bone marrow biopsy showed hypercellular marrow, multifocal granulomas with atypical clonal T-cell infiltrates, occasional hemophagocytic activity and slight polytypic plasmacytosis. Soluble CD25 was elevated at 4109 U/mL. The patient met 5 of 8 criteria for hemophagocytic lymphohistiocytosis (HLH): fever, elevated ferritin, splenomegaly, hemophagocytosis, and elevated CD25. HLH was believed to be triggered by HAV. She was transferred to inpatient rehab prior to establishing the diagnosis, and passed away within two weeks.

HLH is a life-threatening syndrome of excessive immune activation. Many cases involve a genetic predisposition or immunologic trigger such as infection, malignancy or rheumatologic disorder. Few case reports have described an HAV trigger, mostly in pediatric patients. Diagnosis is established by identifying an HLH gene mutation or fulfilling 5 of 8 diagnostic criteria. Those who meet fewer criteria with strong clinical suspicion for HLH should be treated as such, without awaiting confirmatory testing. Initial treatment involves etoposide and dexamethasone. Those refractory to this may undergo monoclonal antibody therapy or hematopoietic cell transplants. Prognosis is poor, with about 50% median survival.

Institution: Henry Ford Health System – Detroit
Program Director: Odaliz Abreu Lanfranco, MD, FACP
Presenter: Michelle Mohyi
Additional Authors: Junior Uduman MD

HIV-infected Patient Presenting with Severe Sepsis Secondary to Legionella Infection

A 62 year-old African American male with the past medical history of HIV presented to the ER for generalized weakness and fatigue. He stated compliance with HAART therapy with last CD4 count 291 with undetectable viral load. On presentation he was found to be in severe sepsis, Febrile, pulse of 115, respiratory rate was 25 breaths per minute, and blood pressure 130/70. He was also found to have an AKI with creatinine of 8.0, from previous creatinine of 1, serum sodium of 129mEq/L and Creatinine Kinase of 10,000. Chest x ray showed large opacification of the left lung. Urine legionella antigen was positive and all other cultures were negative. He was admitted to the ICU for severe sepsis secondary to legionella pneumonia and acute oliguric renal failure secondary to rhabdomyolysis requiring emergent dialysis. Infectious Disease was consulted and recommended treatment with IV azithromycin and moxifloxacin for two weeks. He improved on dual antibiotic coverage and discharged. Legionnaire pneumonia is not commonly reported in HIV-infected individuals. Some clinicians believe that prophylactic HIV medications such as Trimethoprim-sulfamethoxazole protect against infection with this pathogen. However, when patients with HIV are infected with Legionella, their clinical course is more severe and complicated by respiratory failure, with mortality rates being as high as 20%. There is no clear association between CD4 count and susceptibility to infection. Treatment of legionella infection is focused on two major classes of antibiotics, macrolides and quinolones. With severe infection, some data support the use of combination therapy.

Saturday Poster # 20

Category: Research

Institution: Henry Ford Health System – Detroit
Program Director: Odaliz Abreu Lanfranco, MD, FACP
Presenter: Malav Parikh
Additional Authors: Matthew Cerasale, MD

Inconsistency of Recording Vital Signs as it Relates to the Modified Early Warning Score (MEWS)

The Modified Early Warning Score (MEWS) has been shown to be an effective tool in identifying ill patients. It is a simple physiological score based solely on patient temperature, heart rate, respiratory rate, systolic blood pressure and level of consciousness (LOC). LOC is scored as alert, responding to verbal stimuli, responding to painful stimuli, or unresponsive (AVPU). The simplicity of the score allows it to have great utility for widespread use in clinical settings. However, there can be inconsistencies in the recording of the vital signs. Our study sought to evaluate the consistency and availability of elements of the MEWS being documented on inpatients. The study was completed on patients in a tertiary care teaching hospital. The study population were patients who had undergone an arrest event requiring intubation or cardiopulmonary resuscitation over a 1-year period. Each patient encounter was evaluated for elements of the MEWS at 1 hour and 4 hours before the event. At the 1 hour interval before the event, 79.4% patients had a missing data point in the MEWS, with LOC missing in 58.7%. LOC was not documented in the 4 hour time frame for 40% patients. Our study clearly demonstrates the inconsistency of recording vital signs, specifically LOC, on an inpatient unit. At our institution, LOC is not recorded as a standardized AVPU score. As the MEWS use becomes more widespread, there will be a greater importance placed on regular and consistent recording of vital signs to allow the score to be used accurately.

Institution: Henry Ford Health System – Detroit
Program Director: Odaliz Abreu Lanfranco, MD, FACP
Presenter: Ali Saeed
Additional Authors:

It's Not Always Dementia: A Rare Case of VZV Encephalitis

An 84 year old female presented to the hospital after developing new onset severe left ear pain and flu like symptoms. Examination revealed tender left ear auricle associated with cervical lymphadenopathy. She was diagnosed with Otitis Externa and admitted. Patient was additionally noted to have decreased cognition and word finding difficulty. Neurological examination determined that patient had slow speech and inappropriately answered questions with no focal deficits. It was thought that she may have had underlying dementia given her advanced age, or delirium. However, when her primary care physician came to visit her, she noted a marked change from baseline mental status. This prompted a lumbar puncture. Cerebrospinal fluid studies were consistent with viral meningitis. She was started on intravenous acyclovir. Three days thereafter the patient was noted to have developed vesicles on her upper back and ear. PCR results came back positive for Varicella Zoster virus confirming the diagnosis of VZV encephalitis. She was continued on antivirals and over several weeks her cognitive deficits completely resolved.

The delay in initiating treatment in this case scenario was due to the fact that the cutaneous manifestations occurred later and changes in the patients' mental status were attributed to her advanced age and to dementia, and a baseline mental status was not established.

Elderly patients are often assumed to have dementia or delirium which can lead to a missed diagnosis and the involvement of the patients' family or communication with their primary care physician is a way to rectify the mistake.

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD, FACP

Presenter: Dharika Shah

Additional Authors: Nidhi Sura DO, Rajika Munasinghe MD, Omokayode Osobamiro MD

Severe Lactic Acidosis in Metastatic Breast Cancer

Lactic acidosis has been recognized in leukemias, lymphomas and solid tumors but rarely in metastatic breast cancer. It is considered metabolic oncologic emergency with levels reaching as high as 20 mg/dL. Most cases are Type B lactic acidosis with a possible Warburg effect. We report a case of severe lactic acidosis in a patient with metastatic breast cancer.

71 year old female with metastatic breast cancer presented with generalized weakness, severe volume depletion and lactic acidosis of 21.9 mg/dL. Patient was diagnosed with left breast cancer-triple negative, with metastasis to lung and bone. Initial etiology was thought to be a combination of volume depletion and possible Warburg effect. Patient was aggressively resuscitated with intravenous fluids and given antibiotics. Additional supplementation with intravenous thiamine sodium bicarbonate and oral Carnitine was provided; however lactic acid level remained high (13-15 mg/dL). Patient remained clinically asymptomatic for several days but suddenly deteriorated and died from shock within a few hours.

Only five cases have been reported associating lactic acidosis and metastatic breast cancer. Metastatic hepatic lesions are present in a large majority of cases; however our patient did not have evidence of liver metastasis. Several theories have been postulated to explain lactic acidosis in malignancies including the “Reverse Warburg effect”, deficiencies of thiamine and riboflavin and overproduction of lactic acid due to ischemia in tumor cells with production of aberrant energy in those cells. The danger is from the acidosis but not the lactate itself. The prognosis remains poor regardless of treatment offered.

Institution: Henry Ford Health System – Macomb
Program Director: Amitha Aravapally, MD, FACP
Presenter: Britni Souther
Additional Authors:

Is Lemierre's Syndrome Making a Comeback?

Lemierre's syndrome is an infection facilitated by *Fusobacterium necrophorum*. It classically begins in the oropharynx and leads to thrombosis of the internal jugular vein and may cause septic emboli and thrombotic extension to the central nervous system. This syndrome was very well known until the 1980's, and due to the emergence of antibiotic use to treat pharyngitis, the incidence is now only 3 cases per year.

A 24-year-old African American female with a past medical history of morbid obesity presented with jaundice and abdominal pain. Prior to admission, she was treated for pharyngitis. Labs were significant for a leukocytosis of 25.2, a bilirubin of 5.5, and a Hemoglobin of 9.9. Patient was diagnosed with ascending cholangitis and initiated on piperacillin-tazobactam. She was taken to the operative theater for laparoscopic cholecystectomy. Her postoperative course was unremarkable, however she remained hypoxic. CT obtained demonstrated bilateral loculated pleural effusions with septic pulmonary emboli, and bilateral chest tubes were placed. Her left sided pleural effusion did not resolve and patient underwent decortication. Blood cultures grew *Fusobacterium necrophorum* and her pleural fluid cultures remained negative. She was discharged home to complete a course of IV Ceftriaxone and was followed up by her primary care physician.

While this isn't a unique presentation of Lemierre's Syndrome, it is a syndrome that has little awareness and therefore late recognition due to its decrease in incidence since the era of early antibiotic therapy. We present this very rare case with hopes to increase awareness and therefore earlier recognition.

Institution: Henry Ford Health System – Macomb
Program Director: Amitha Aravapally, MD, FACP
Presenter: Emily Wittenberg
Additional Authors: Jelena Arnautovic, DO

Life Changes in the Blink of an Eye

Sudden vision loss is an ocular emergency and the differential is extensive. Though not commonplace, ocular syphilis should be tested for in high risk groups or when the etiology isn't quite clear. Ocular syphilis often presents as uveitis, retinitis, perineuritis, retinal detachment, and papillitis. Also, it may be the initial manifestation leading to the diagnosis of HIV.

A 43 year old man with no significant past medical history presented with right visual loss to an ambulatory clinic. He was diagnosed with panuveitis and retinal angiitis. Further work up revealed syphilis, but then he was lost to follow up. He eventually presented to the hospital with right hip pain and blurry vision. CD4 was consistent with AIDS. Lumbar tap was unable to be performed, however due to ocular involvement, the patient was treated as having neurosyphilis. Appropriate treatment was promptly instituted along with outpatient follow up and opportunistic prophylaxis.

Ocular syphilis is certainly not a new phenomenon. The recent increase in incidence and prevalence in the United States is concerning. Prompt diagnosis and immediate treatment should not be delayed. Patients with ocular syphilis are treated as having cerebrospinal involvement, and thus are treated as neurosyphilis. Treatment of neurosyphilis should be administered within 24 hours of diagnosis to help improve the chances of full sight restoration. HIV infected people are likely at a higher risk of developing neurosyphilis, even after treatment of syphilis with IV Benzylpenicillin. Therefore, screening for HIV should be widespread in cases of ocular complaints.

Saturday Poster # 25

Category: Clinical Vignette

Institution: Hurley Medical Center/MSU - Flint

Program Director: Ghassan Bachuwa, MD, FACP

Presenter: Rahul Gupta

Additional Authors: Mohd. Qadeer Baig, Vijay Naraparaju, M. Varkey Thomas

Miraculous Survival of a Patient with Profound Metabolic Acidosis and Severe Anemia: Is this Compatible with Life?

We describe an unexpected survival of a 55-year-old female, who presented to the emergency department with profound metabolic acidosis and unexplained severe anemia. Patient had significant medical history of alcohol abuse and hepatitis C. Laboratory work-up done on day of admission revealed a pH 6.67, bicarbonate 2.0 with base excess (BE) -30.0 and hemoglobin 2.4. Plasma lactate was 31.4, Ammonia 336, Aspartate Aminotransferase (AST) 1298 and Alanine Aminotransferase (ALT) 844. CT chest, abdomen and pelvis with contrast showed bilateral (b/l) renal infarcts with hypo perfusion of spleen. Patient was suspected to have hemorrhagic shock, although the source of blood loss remained unclear. Upper GI scope showed a Mallory-Weiss tear. She was managed in the intensive care unit, where she required massive blood and fresh frozen plasma (FFP) transfusions along with bicarbonate infusion, but was subsequently discharged home with complete recovery and no neurological deficit. We believe that patient's intrinsic liver disease compounded by acute blood loss lead to shock liver, leading to severely elevated lactate, abnormal liver enzymes and worsening of anemia. Chromosomal analysis from bone marrow aspirate with fluorescent in-situ hybridization (FISH) results were consistent with an additional copy of chromosome 8. Gain of Chromosome 8 is associated with myeloid neoplasms and the results therefore supported a diagnosis of myelodysplastic syndrome (MDS). Although there are case reports of patients surviving such profound metabolic acidosis these have mainly been cases of near drowning or toxic alcohol ingestion. Literature review supports that such survival and complete recovery is extremely rare.

Institution: Hurley Medical Center/MSU - Flint
Program Director: Ghassan Bachuwa, MD, FACP
Presenter: Adiraj Singh
Additional Authors:

Primary, Bilateral Breast Abscesses Secondary to Actinomyces Neuui in an Otherwise Healthy Male

Patient is a 40-year-old Caucasian male, construction worker by profession, with past medical history of depression, anxiety, right shoulder injury with adhesive capsulitis, alcohol, marijuana and tobacco abuse, who presented to his PCP's office following a recent ER visit for right areolar abscess requiring incision and drainage. He was prescribed a 10 day course of Bactrim at the time, which did not seem to improve his symptoms according to the patient. On presentation to the clinic, patient continued to complain of "lima bean green" bilateral nipple discharge. He was afebrile, mildly tachycardic (HR 103/min) with unlabored respirations and BP of 112/62. He underwent repeat left areolar I&D and cultures were sent. He was prescribed an additional 10 day course of Bactrim for concerns of recurrent bilateral mastitis thought to be secondary to community acquired MRSA, a common infection. Surprisingly, cultures came back positive for Actinomyces neuui. At this time, patient's personal history was thoroughly investigated and he recalled getting both his nipples pierced a few years ago. He returned three additional times with similar complaints and received two seven day courses of Keflex. An Endocrinology workup was also pursued to rule out hormonal causes of gynecomastia, however, prolactin, estrogen and progesterone levels were normal. Patient was also evaluated by infectious disease service and started on an extended course of oral penicillin. He noted improvement in his pain, redness and nipple discharge but continued to have some induration in both sub-areolar regions.

Institution: McLaren Regional Medical Center/MSU – Flint

Program Director: Parul Sud, MBBS, FACP

Presenter: Farah Al Sabie

Additional Authors: Kollu V MD; , Kollu L, MD; Chaudhary S, MD; Kakarala R, MD.

Risk Factors Associated with the Development of Diabetes in Patients Treated with Statins

Introduction:

New onset of diabetes (NOD) has been associated with the use of statins. Risk factors associated with developing NOD are variable.

Methods:

We included English language studies between 2010-2016, with > 1000 patients without baseline DM with follow-up > 1 year. We searched databases. Search terms included "Statin, Diabetes Mellitus, Risk Factors, and Adverse Effects."

Results:

Of the 74 articles identified, seven met our inclusion criteria. Six were subgroup analyses and one was a meta-analysis.

Five of six of the subgroup analyses found high BMI (> 25 kg/m²) and fasting triglycerides >150 mg/dl as risk factors. Three of the six analyses found impaired fasting glucose (FBS) >100 mg/dl (HR 1.92-2.53) and hypertension (HR 1.21-1.35) as risk factors. Postmenopausal women with either low BMI < 25 kg/m² (HR 1.89) or BMI of 30 kg/m² or more (HR 1.20) had higher risk. Male gender (HR: 1.91, p<0.001) and poor diet adherence (HR: 1.27, p<0.05) increased the risk. A meta-analysis of 43 genetic studies evaluated the effect of nucleotide polymorphism (rs17238484-G and rs12916-T alleles) on the development of NOD. There was a higher risk with each extra allele of rs17238484-G (OR: 1.02) and rs12916-T (OR: 1.06).

Conclusion:

Patients on statins at high risk of NOD include those with baseline BMI > 25, triglycerides > 150, hypertension, FBS > 100, HbA1c > 6, male sex, poor diet adherence, low AST/ALT ratio, high white count and genetic factors.

Institution: McLaren Regional Medical Center/MSU – Flint

Program Director: Parul Sud, MBBS, FACP

Presenter: Sarah Nazir

Additional Authors: Al-Ward R, Tipparthy M, Ali S

Rare Presentation of Bladder Cancer with Cutaneous Metastasis

Introduction

Metastasis to skin from internal organ malignancy is infrequent but has increased in the past few years 5.3%. Most common sites are abdominal wall, scalp and face. Urological malignancy as the source of skin metastases has been reported 0.7-1.3%, with the most common being renal cancer, bladder being very rare 1%.

Case Report

We report a case of an 82-year-old Caucasian male who was having hematuria for the past 2-3 years. Developed obstructive urinary symptoms and noticed an erythematous tender swelling in his left flank with no bleeding or discharge. Renal USG showed dilated left ureter, hydronephrosis, and a 12x10x13 cm left flank mass. Biopsy of the mass confirmed metastatic epithelial carcinoma with immunostains confirming urothelial origin. Patient underwent CT chest/abdomen/pelvis which showed collapsed urinary bladder containing a soft tissue mass likely the primary tumor, was diagnosed with stage IV urothelial bladder cancer. Palliative chemo-radiotherapy was started to alleviate symptoms and to decrease progression of skin metastases.

Discussion

Cutaneous metastasis from bladder cancer is rare and thought to have a poor prognosis with less than 12 months survival. Several mechanisms of metastases were suggested, including lymphatic, direct tumor invasion and iatrogenic. Most common sites of metastases from bladder are regional lymph nodes, liver, lungs and bones. Skin metastasis is more predominant in male, could either be an early or late manifestation. They usually present as infiltrative plaques or nodules.

Treatment is more directed towards palliation. More research is needed in managing these patients with curative intent.

Institution: McLaren Regional Medical Center/MSU – Flint

Program Director: Parul Sud, MBBS, FACP

Presenter: Rami Salameh

Additional Authors: Rami Salameh, Siddique Chaudhary, Farah Al-Sabie, Halina Kusz, Susan J Smith

Case Report of Methadone-Induced Adrenal Insufficiency

We report a 52 year old male nursing home resident, with a history of hypertension, osteoarthritis and chronic pain on a stable dose of methadone 5 mg every 8 hours for more than 3 years, developed episodes of hypoglycemia although he was not on hypoglycemics. Increased intake did not eliminate the episodes.

The patient was noted to have relative hypotension without a change in his anti-hypertensive medications. CBC and BMP showed normal renal function, hyperkalemia, hyponatremia, hypoglycemia and eosinophilia. Adrenal insufficiency was suspected. AM cortisol blood level was 2.6ug/dL(normal: 10-20ug/dL). free T3 and free T4 were normal. Further testing was refused. The patient was treated presumptively for methadone-induced adrenal insufficiency with prednisone 5 mg/day and methadone was stopped. All abnormalities reversed supporting the diagnosis of methadone-induced adrenal insufficiency.

In the early 1980s, two studies reported that chronic exogenous opioid exposure may cause depletion of the endogenous endorphin system. Other studies around the same time concluded that chronic long acting opioids do not affect endogenous opioids and circadian rhythms of beta-endorphin, cortisol or ACTH. The reason for this inconsistency could be due to mu, delta and kappa opioid receptor polymorphism causing individual variability in the HPA axis response to opioids.

The mechanism of opioid-induced adrenal insufficiency is uncertain. But it is thought possibly to be due to a three-fold effect: 1) decrease of CRH secretion from the hypothalamus; 2) a direct interference with the pituitary capacity to respond to CRH; and 3) direct interference with the adrenal production of cortisol.

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Presenter: Om Dawani

Additional Authors: Ahmad Alratroot, Lilit Karapetyan, Omar Albanyan

An Interesting Case of Uremic Pericarditis in a Patient with ESRD

Introduction:

Uremic pericarditis is an uncommon major complication in patients with end stage renal disease (ESRD). The incidence is about 5-20% in chronic hemodialysis (HD) patients. We present such a case in a middle aged patient.

Case:

A 41 year old Caucasian male with ESRD on HD, rectal cancer s/p pelvic exenteration and sacrectomy, deep venous thrombosis presented with altered mental status and generalized weakness. Physical exam was notable for tachycardia, tachypnea, bilateral rales, and a pericardial friction rub. Laboratories showed BUN 159 mg/dl, Cr 4.69 mg/dl, ALP 348 and Potassium 5.0. EKG showed sinus tachycardia, incomplete right bundle branch block and ST-segment elevations in V4 and V5. CXR showed mild patchy opacities in bilateral lungs. Echocardiogram showed large pericardial effusion with fibrinous strands traversing the pericardial space with no evidence of cardiac tamponade. The patient completed ten days of HD and repeat echocardiogram showed little or minimal improvement. Colchicine was started which led to only mild improvement in breathing. Patient was referred for drainage of the effusion via percutaneous pericardial window.

Discussion:

Uremic pericarditis has a slow, subclinical nature with pericardial friction rub being the only clinical finding. HD without anticoagulation remains the main treatment modality. Intractable pericarditis in hemodynamically unstable patient can be managed with pericardial drainage by creation of a pericardial window or total pericardiectomy.

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Presenter: Xiao Ling

Additional Authors: Prajwal Dhakal, MD

Uncommon Complication of a Common Infection - Reno-Colonic Fistula Following Pyelonephritis

Introduction: Pyelonephritis is a common illness to encounter in the inpatient setting but there are still complications that are rarely seen. We describe a case of reno-colonic fistula following right pyelonephritis.

Case description: A 44 year old female with past medical history of nephrolithiasis and recent admission for right pyelonephritis presented to emergency department for fever, and right flank pain. The patient was improving gradually from the previous pyelonephritis until approximately 4 days prior to admission when she started to have fever, and back pain. CT Abdomen with and without contrast at ED showed acute emphysematous pyelonephritis. The patient was admitted to the critical care unit and started on Vancomycin, gentamicin and ciprofloxacin. Drain was placed by IR into the emphysematous perinephric abscess. Nephrostomy tube was placed by IR the next day; CT was repeated and it showed fistulous connection between the right kidney and the right colon. The culture of the abscess grew *Escherichia coli*, *Streptococcus anginosus* group, and *Candida albicans*. Antibiotics were changed to ertapenam and fluconazole. After conversations between the patient and the medical teams involved (colorectal surgery, urology, infectious disease, and internal medicine) it was decided to observe on IV antibiotics for 6 weeks and evaluate for right nephrectomy and partial colectomy.

Discussion: Pyelonephritis is a common illness that's often encountered in the inpatient setting. However, there are still rare complications is not often seen. This case discuss the pathophysiology behind the fistulous connection and the difficulty associated with treating infection with such.

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Presenter: Divyesh Nemakayala

Additional Authors: Manoj Rai MD, Julie Yam DO

Dieulafoy's Lesion; A Rare Cause of Upper Gastrointestinal Bleeding

Dieulafoy's lesions are a rare cause of acute upper GI bleeding and have a propensity to cause massive hemorrhage with high mortality rates. A Dieulafoy's lesion is a dilated, aberrant, submucosal artery eroding the overlying mucosa with no underlying ulcer, aneurysm, or intrinsic mural abnormality. There have been about 280 published case reports in literature, but only 2 of these reports describe Dieulafoy's lesions in the esophagus.

A 55-year-old male presented to the ED with a large amount of hematemesis. The patient required two units of PRBC and aggressive IV fluid resuscitation. Emergent endoscopy revealed a visible submucosal vessel in distal esophagus suggestive of a Dieulafoy's lesion. It was sclerosed using epinephrine injection and gold probe cautery. Patient's hematemesis resolved and was discharged home. He was recommended to follow up outpatient for subsequent endoscopy.

Dieulafoy's lesions are most commonly found in the stomach, but are exceedingly rare in the esophagus (prevalence 8%). Patients commonly present with hematemesis and melena. Endoscopy is the mainstay of diagnosis and treatment. The endoscopist may choose to use clipping, thermocoagulation, or to inject epinephrine like in our case. Endoscopy has a 70% sensitivity, and if it fails to diagnose the lesion, angiography may be employed to embolize the lesion. Surgery is reserved as a last resort.

Although Dieulafoy's lesions are exceedingly rare in the esophagus, the high mortality associated with it goes undiscovered and its amenability to life-saving endoscopic therapy prompts us to keep this as a differential diagnosis for an upper GI bleed.

Saturday Poster # 33

Category: Clinical Vignette

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Presenter: Manoj Rai

Additional Authors: Divyesh Nemakayala MD, Subhash Bastakoti MD, Ahmad Alratroot, MD, Abdullah Almohammadi MD, Boyrs Hirnczenko PhD MD

Nitrous Oxide Abuse Causing Vitamin B12 Deficiency Leading to Bone Marrow Suppression

Introduction: Nitrous oxide (NO) has been known to be misused by healthcare workers and young adults. It can cause severe vitamin B12 deficiency as reported in this case.

Case: A 21 year old female presents to ED after being found down with bottles of "whip-its", she has been reportedly using it for 3 months. She was tachycardic with pulse of 96/min. On physical exam she appeared somnolent but was easily arousable to voice with no focal neurological symptoms.

Labs showed severe neutropenia with absolute neutrophil count (ANC) of 0.47, platelet count of 114×10^3 /microliter, hemoglobin (Hb) of 6.2 g/dL, mean corpuscular volume 82 fL, folate > 24 ng/ml, vitamin B12 was low at 104 pg/ml, methylmalonic acid of 0.44, nmol/mL, total iron was 74 ug/dL, absolute reticulocyte count was 0, homocysteine was elevated at 101.7 umol/L. Peripheral smear showed normocytic anemia with marked neutropenia and thrombocytopenia. Computed tomography and Magnetic resonance brain were negative for any acute process. She was started on Vitamin B12 replacement following which her Vitamin B12 levels improved.

Discussion: NO can inhibit the enzyme methionine synthase thereby functional vitamin B12 deficiency state may occur which can lead to megaloblastic anemia. These patients are at increased risk of developing subacute combined degeneration of the spinal cord. Removal of the offending agent and vitamin B12 replacement appear to be an effective treatment. In cases where symptoms persist methionine treatment has been successful where vitamin B12 treatment alone has failed.

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Presenter: Syed Shah

Additional Authors: Karen Shahar

Treatment of Hypercalcemia with Ketoconazole in Patient with Suspected Sarcoidosis

Background: Ketoconazole has been shown to improve resistant hypercalcemia in patients with sarcoidosis in some case reports and physiological studies. This case reports describes a case of sarcoidosis induced Hypercalcemia treated with Ketoconazole.

Case Presentation: 65 year old F with history of Diabetes, Atrial Fibrillation and Stage 3 Chronic Kidney Disease came presented to the Emergency Department for progressive weakness for the previous 2 weeks. On arrival, patient's Serum Calcium was 13.68, serum 1, 25 Dihydroxy Vitamin D was 81. Serum PTH, PTHrP and 25 Hydroxy Vitamin D were within normal range. CT scan of the chest showed bulky mediastinal lymphadenopathy. Sarcoidosis was suspected and the patient was started on IV fluids with slow improvement in Serum Calcium. Patient was scheduled for elective lymph node biopsy, she was not started on steroids in anticipation of biopsy. As the Calcium levels were not improving significantly, patient was started on Oral Ketoconazole with resolution of hypercalcemia in the next 2 days. Patient was discharged after lymph node biopsy on Oral Ketoconazole. The biopsy came back positive for noncaseating granulomas.

Discussion: Ketoconazole has been shown to inhibit the 1 alpha hydroxylase to prevent conversion of 25 hydroxy D3 to 1,25 dihydroxy D3 in some in vitro studies. There have been few case reports in literature describing improvement of serum calcium after treatment with Ketoconazole. This case report corroborates the role of Ketoconazole in treatment of hypercalcemia in patients with contraindications for steroids or in anticipation of biopsy for the confirmation of sarcoidosis.

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Rohan Naik

Additional Authors: Maria Cortti-Ferrari, MD; Ajit Thakur, MD; Snigdha Sharma, MD; Camelia Arsene, MD, PhD, MHS; Geetha Krishnamoorthy, MD

An Uncommon Trio: Synchronous Primary Lung, Colon Adenocarcinoma and Ulcerative Colitis

Introduction: Synchronous primary malignancies are an uncommon occurrence. We present an interesting case of simultaneously occurring double primary adenocarcinomas and ulcerative colitis.
Case Description: A 49 year old male presented to the hospital with diarrhea, abdominal pain, and 20 pound weight loss over 6 months. Physical exam revealed diffuse abdominal tenderness and decreased bowel sounds. Laboratory studies were suggestive of microcytic anemia and leucocytosis. CT-abdomen demonstrated thickening of the colon. Endoscopy revealed an apple core lesion in the cecum and colitis in the rectum and sigmoid. Chest Roentogram showed a right hilar opacity and CT-thorax revealed a large spiculated mass in the right upper lobe infiltrating into the mediastinum with a large hilar lymph node. Colon biopsy specimens diagnosed primary adenocarcinoma of the cecum and active ulcerative colitis of the rectosigmoid region. CT-guided lung biopsy independently diagnosed an adenocarcinoma, which was confirmed to be a primary malignancy using immunochemical staining. The patient underwent Right hemicolectomy, chemotherapy and radiation therapy for the lung cancer, and is undergoing adjuvant chemotherapy for colon cancer due to positive lymph nodes.

Discussion: Although rare, upon diagnosis of a primary malignancy, it is critical not to overlook the presence of a second malignancy. Immunochemical staining strategies are invaluable in differentiating the two. Treatment strategies in case of synchronous double malignancies need to be individually tailored, and differ from the management of a primary malignancy with metastatic disease. Managing concurrent active ulcerative colitis presented a unique challenge as well, since biological agents could not be used.

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Akshay Sharma

Additional Authors: Elisa Akagi, MD; Aji Njie, MD; Camelia Arsene, MD, PhD, MHS; Geetha Krishnamoorthy, MD

Acute Hepatitis Due to Garcinia Cambogia, an Herbal Weight Loss Supplement

Introduction: Garcinia Cambogia(GC) fruit extract is sold for weight loss. The main ingredient hydroxycitric acid(HCA), blocks adenosine triphosphatase citrate lyase, involved in fatty acid and cholesterol synthesis. 23 cases of hepatotoxicity due to HCA led to its ban. Currently sold as GC, hepatotoxicity including fulminant hepatic failure has again been reported. We present a case of acute hepatitis due to GC.

Case Presentation: A 57-year-old female with no prior liver disease presented with abdominal pain and vomiting. Physical examination showed diffuse abdominal tenderness. Laboratory evaluation revealed: ALT 738 U/L, AST 856 U/L, alkaline phosphatase 80 U/L, normal bilirubin and prothrombin time. Patient had been taking vitamins A and D and GC for weight loss. She was on no prescription medications. She had normal results for Vitamin A and D levels, alcohol, acetaminophen, iron profile, anti nuclear antibody, acute viral hepatitis panel, smooth muscle antibody, and liver kidney microsomal antibody. Ultrasound showed a normal liver. She was asked to stop GC. Her liver enzymes decreased to an ALT of 396 μ /L and AST of 138 μ /L within three days with resolution of abdominal symptoms.

Discussion: GC causes modest short term weight loss with gastrointestinal side effects. There is a misconception that herbal supplements are safe, but the Drug Induced Liver Disease Network reports dietary supplements as one of the important causes of drug induced hepatotoxicity. Acute hepatitis is a reversible side effect of GC, which if not identified in a timely fashion, can lead to fulminant hepatitis.

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Paramveer Singh

Additional Authors: Davit Batlawala, MD; Malitha Hettiarachchi, MD; Joel Apple, MD.

A Challenging Case of EBV Positive Plasma Cell Neoplasm: Plasmablastic Lymphoma

Introduction

Plasmablastic lymphoma (PBL) is a rare subtype of diffuse large B-cell lymphoma. About 65% of PBL occurs in immunocompromised patients, mostly with HIV. Diagnosis of PBL is challenging because of rarity and varied presentations however, is imperative due to its aggressive nature and associated complications.

Case Presentation

A 57-year old male presented with fatigue, intermittent fever and night sweats for two weeks. Examination revealed generalized lymphadenopathy and hepatomegaly. Laboratory studies showed leukocytosis (WBC:56000, N:26000, L:9600), acute kidney injury (creatinine 10.9), tumor-lysis (uric acid 17.3), hyperviscosity (IgG:45000). Plasmacytoid cells with rouleaux formation were seen on peripheral smear. High-grade lymphoma and plasma cell leukemia were the two main differential diagnoses. On lymph node biopsy; large cells with eccentric nuclei, vesicular chromatin and mitotic figures in starry sky appearance suggested PBL. Immunophenotyping, high Ki67 proliferation and EBV-encoded RNA on in-situ hybridization were consistent with PBL. Clinical course was complicated by rasburicase induced hemolytic anemia and heparin-induced-thrombocytopenia.

Discussion

The most common site affected by PBL in HIV patient is oral mucosa followed by gastrointestinal tract and lymph nodes. Usually CD-30,45,79a,138,MUM1 are positive and B cell markers are absent in PBL. However, our patient was immunocompetent and developed extra-oral PBL. CD138 marker was negative suggesting a high grade neoplasm.

Conclusion

Because of varied presentations, confirmation of PBL can be delayed. As a clinician, being aware of different presentations will lead to rapid diagnosis and involvement of oncologists. In addition, internists should be aware of the management of tumor-lysis and hyperviscosity syndromes associated with PBL.

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Mohamad Taha

Additional Authors: Snigdha Sharma, MD; Camelia Arsene MD, PhD, MHS; Geetha Krishnamoorthy, MD.

Clinical Significance and Management of Isolated Pupil-Sparing Oculomotor Nerve Palsy

INTRODUCTION: An isolated third cranial nerve palsy is considered a diagnostic challenge secondary to different etiologies and subtle presentations. It is classified according to extra-ocular muscle dysfunction as partial or complete, and pupil involvement as pupil-involving or pupil-sparing. Clinical approach depends on the neurological manifestations, classification, and the patient's risk factors.

CASE DESCRIPTION: A 50-year-old woman presented with a recent onset drooping of the right eyelid, with no diplopia, headache or further neurological symptoms. She had uncontrolled hypertension, DM-2, and hyperlipidemia. Neurological examination revealed a complete third nerve palsy, right eye pointing downward and outward, and right eyelid ptosis, without pupil involvement; the remaining of the examination was normal. CT without contrast as well as CTA of the head were performed and were negative for stroke, aneurysm, mass or other vascular abnormality.

DISCUSSION: Etiologies of third cranial nerve palsy increase risk of morbidity and mortality. Pupil-sparing palsies occur mainly in elderly (age>50) with atherosclerotic risk factors - diabetes, hypertension, and dyslipidemia, and are attributed to atherosclerosis and neuronal ischemic injury. Such patients can be managed as outpatients without neuroimaging. For younger individuals (age 20-50) with no vascular risk factors, an aneurysm should be ruled out with neuroimaging regardless of pupil involvement. Pupil-involving palsies always require prompt neuroimaging in search of an aneurysm or mass lesions. Complete palsies with bilateral ptosis should always raise the suspicion of nuclear lesions that is caused by infarction of the midbrain and further diagnostic evaluations should be pursued.

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Ajit Thakur

Additional Authors: Ajit Thakur, Rohan Naik, Paramveer Singh, Shayna Mcquaid, Kim Jones

Tissue Engineering Human Cells for Allogeneic Transplantation

Many incurable diseases such as end-stage renal disease, cardiac, hepatic and pulmonary failure have a known solution: organ transplantation. However, transplanted organs or grafts have a limited life-span in the host due to the immune response against the alloantigens on foreign cells. Immunosuppressive drugs provide a short-term solution, but they are systemic and greatly increase the risk of severe side effects. Acute cellular allograft rejection is primarily mediated by CD8+ Cytotoxic T Lymphocytes and their MHC recognition capability. Hence, viruses have evolved many mechanisms to modulate MHC Class I expression and evade and suppress detection by the immune responses of the host. In this study, we used a retrovirus to transduce a model human cell line with a viral protein (MIR2) derived from Kaposi Sarcoma-Associated Herpes Virus (KSHV) to down-regulate the number of MHC Class I as well as other immunoactive molecules on the cell-surface. We demonstrate that this targeted approach resulted in a significant reduction (up to 52%) in the CD8+ Cytotoxic T Lymphocyte-mediated cytotoxicity, without increasing Natural Killer cell-mediated cytotoxicity of allogeneic cells in vitro. This study serves as a proof-of-principle that viral strategies of immune evasion can be successfully employed in human cells to potentially extend the life of transplanted tissues in an allogeneic host. We predict that this research will lead to the development of “universal” cells for transplantation that may not require immunosuppressive drugs.

Saturday Poster # 40

Category: Clinical Vignette

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Varun Yelamanchili

Additional Authors: Courtney Jones MD, Camelia Arsene, MD, PhD, MHS

A Rare Case of Primary Small Cell Esophageal Carcinoma in a Young Patient

Introduction: Prevalent esophageal cancers are squamous cell carcinoma and adenocarcinoma. Primary neuroendocrine tumors are very rare but have an aggressive nature characterized by early and widespread metastasis. Some patients presenting with loco-regional disease may be cured with aggressive therapy, but most relapse and the overall prognosis is poor. For patients with extensive disease, the median survival is 8 – 12 months.

Case Description: We present a 47 years old female with no past medical history, who initially presented with progressively worsening epigastric pain, dysphagia and unintentional weight loss. Her epigastric pain was unrelieved by over the counter antacids, H2 blocker and Omeprazole. An abdomen CT scan showed multiple metastatic lesions in the liver and lytic lesions of the lumbar spine and pelvis. Further, a CT of the thorax showed masses compressing esophageal lumen. Surgical pathology from the upper endoscopy and liver biopsy showed high grade neuroendocrine tumor, small cell with esophageal cell origin. Tumor staining was performed which stained strongly for Chromogranin and Synaptophysin. Carboplatin, Etoposide with Granulocyte colony stimulating factor was initiated with a duration of 4-6 cycles. Patient continued to decline, and she was finally transferred to hospice care.

Discussion: Small cell carcinoma of the esophagus is a rare cancer which arises from pleuripotent basal epithelial cells. Unfortunately, there are no optimal treatment protocols established yet. Aggressive combined chemotherapy, surgical intervention and radiation have shown encouraging results. Irradiation is the reserved modality for cranial metastasis.

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Renny Abraham

Additional Authors: Renny Abraham, M.D., Raymond Hilu, M.D., FACP St. John Hospital and Medical Center Detroit, Michigan

Shigella Enteritis Misdiagnosed as Lupus Enteritis

Introduction: Gastroenterological(GI) manifestations of SLE are common, however they are frequently overlooked in the presence of renal, pulmonary, and cerebral complications. SLE can mimic a variety of GI conditions.

Case Presentation: A 36 year old male presented with abdominal pain and frequent diarrhea for 3 weeks duration. He reported over 30 Bowel movements daily for the past 1 week. The stool was watery and low volume. He denied any blood in the stool. The abdominal pain was diffuse in nature; worse in the epigastrium, and was associated with non bloody bilious vomiting and anorexia. He denied recent travel or sick contacts, fevers, or chills. On arrival to the ED, he met 2/4 SIRS criteria. He was found to have multiple lab anomalies; Lactic acid of 9.4, Elevated AST and ALT, Elevated bilirubin, and leukocytosis. CT of abdomen showed diffusely edematous bowel suggestive of severe enteritis. A provincial diagnosis of Lupus Enteritis was made, and patient was started on IV steroids. Blood cultures came back later positive for Shigella. Steroids were discontinued, and he was treated with IV Ceftriaxone and transitioned to PO Ciprofloxacin. Symptoms resolved and he was discharged.

Discussion: This case highlights the need to always consider and rule out the more common diagnoses before in SLE when considering complications of the disease. Infectious diarrhea is a far more common diagnosis than lupus enteritis, and should be considered first in patients with SLE presenting with diarrhea.

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Lamia Aljundi

Additional Authors: Lamia Aljundi, M.D., Seyed Salehi, M.D., Tarik Hadid, M.D., FACP St John Hospital and Medical Center, Detroit, MI

A Case of Desmoplastic Small Round Cell Tumor

Introduction: Desmoplastic small round cell tumor (DSCRT) is a rare and highly malignant mesenchymal tumor that predominantly affects young males with peak incidence at ages 25-29 years.

Case report: 39 year-old African-American man who presented with urinary retention and weak stream for one month. Computed tomography (CT) scan of the abdomen and pelvis revealed 11.3 x 9.7 x 12.5 cm pelvic mass compressing the bladder and rectum. Histologic studies revealed nests of cells separated by thick bands of desmoplastic stroma. Cells were positive for cytokeratin AE1/AE3, desmin, CD99 and neuron specific enolase. Diagnosis was confirmed with positive t(11;22)(p13;q12). Patient was initiated on induction chemotherapy: Vincristine, Doxorubicin and Cyclophosphamide alternating with Ifosfamide, Etoposide and Vincristine. Follow-up CT revealed partial response with reduction in the size of the pelvic mass and smaller external iliac lymph nodes with clinical improvement of his symptoms.

Discussion: DSCRT is predominantly more prevalent in African-American males. In addition to its unique epidemiologic distribution, DSRCT is a mesenchymal tumor characterized by the distinctive chromosomal translocation t(11;22)(p13;q12). Treatment options are limited and 5-year survival rate ranges between 15-33%. Alkylator-based therapy has been the cornerstone of initial treatment. Reports of molecular-targeted drugs like Pazopanib and Sunitinib have been shown to have anti-DSRCT activities. Surgical debulking followed by radiotherapy has shown improved survival.

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Yara Daloul

Additional Authors: Yara Daloul MD, Tanvir Kahlon MD, Hussein Othman MD, Raghavendra Kamath MD, FACP, Internal Medicine St John Hospital and Medical

Obstructive Prosthetic Valve Thrombosis (OPVT) Management: Do We Know Enough?

OPVT is a life-threatening complication of anticoagulation interruption with an incidence of 0.1% - 3% per patient-year. While surgery remains the gold standard for large thrombus, thrombolytics are emerging as a potential substitute. We report a case of successful transesophageal echocardiography (TEE)-guided therapy of mitral OPVT using low dose, slow infusion of thrombolytics.

Case: A 61-year-old female with a medical history of mechanical mitral valve, atrial flutter and breast cancer presented with 2-days of dyspnea. Physical examination was notable for tachycardia, tachypnea, hypoxia at 87% on room air, distended neck veins, diffuse wheezing, crackles at the lung bases and reduced mechanical valve sound. INR was 1.33. OPVT was suspected and the patient was started on heparin. Echocardiographic evaluation revealed severe pulmonary hypertension, severe increase in mean mitral valve gradient (26 mmHg), reduced leaflet mobility with a large valve thrombus. Due to comorbidities and in consultation the decision was made to administer low dose (25 mg) tPA over 6 hours. Repeat TEE showed favorable response and a second dose of tPA was given 24 hours later. Serial echocardiographic evaluation and fluoroscopy revealed a significant drop in mean gradient (5 mmHg) and pulmonary arterial pressure, remarkable improvement in leaflet mobility and near resolution of the thrombus. No embolic or hemorrhagic complications were seen and she did well on 3-month follow-up.

Discussion: In the absence of randomized data, low dose infusion of thrombolytics may be a safe first-line therapy for OPVT with surgery reserved for failed thrombolysis

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Deepshikha Garg

Additional Authors: Deepshikha Garg MD, Susan Van Dellen DO, FACP St John Hospital and Medical Center, Grosse Pointe, MI

An Unusual Case of Subarachnoid Hemorrhage

Introduction: Reversible Cerebral Vasoconstriction Syndrome (RCVS) is a cerebrovascular disorder associated with symptoms of thunder-clap headaches (TCH) and multi-focal arterial constriction on imaging studies. This is thought to occur from a dysregulation in cerebrovascular tone. The primary diagnostic dilemma is distinguishing RCVS from primary central nervous system vasculitis.

Case: A 60 years-old female presented with sudden incapacitating TCH in the occipital region for one day. Computed tomography of the head on admission showed a non-aneurysmal subarachnoid hemorrhage (SAH) in the left inferior occipital lobe. There was no evidence of infarct on. Magnetic resonance angiogram (MRA) of the brain and cerebral angiogram revealed diffuse segmental narrowing of the left middle cerebral artery described as “string of beads” appearance. Lumbar puncture revealed 10 white blood cells and 48 mg/dl protein. Spinal fluid cultures were negative for bacteria, fungus, and herpes infection. Phospholipid antibody titers were within normal limits. The patient’s headache resolved and she was discharged on calcium channel blocker(s) (CCB). Follow-up MRA after 3 months demonstrated resolution of the segmental narrowing.

Discussion: RCVS is a distinct syndrome which should be differentiated from primary cerebral vasculitis, infection, phospholipid antibody syndrome and autoimmune encephalitis. Common triggers include physical exertion, emotional situations, postpartum state or vasoactive substances. While mostly self limited, treatment involves removal of precipitants, supportive analgesic management of headache and CCBs. Clinical history of TCH, finding of normal spinal fluid and demonstration of reversibility of vessel narrowing on follow-up cerebral angiogram supports the diagnosis of RCVS.

Saturday Poster # 45

Category: Clinical Vignette

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Alaa Hajal

Additional Authors: Alaa Hajal MD, Tariq Marroush MD, Donald Rozzell MD, FACP, Zachary Levine MD, Tarik Hadid MD, MS, FACP

Zoonotic Infection as the Initial Presentation of Hairy Cell Leukemia

Introduction: Hairy cell Leukemia (HCL) is a rare indolent lymphoid neoplasm. It characterizes by bone marrow failure and splenomegaly, resulting in variable degrees of pancytopenia. We present a case of hairy cell leukemia who presented with a rare zoonotic infection.

case: A 70-year-old man presented with progressive fatigue, fever, rigors and chest pain for 2 weeks. Physical examination was significant for temperature of 102 F°, splenomegaly and tender hepatomegaly. Laboratory studies revealed white blood cell count 1300 / μ l, hemoglobin 7.6 gm/dl, platelet count 76,000/ μ l and absolute neutrophil count of 400/ μ l. Peripheral blood smear showed small lymphocytes with hair-like cytoplasmic projections. Piperacillin/tazobactam was initiated and he defervesced in 24 hours. Blood cultures were positive for *Streptococcus equi*, subspecies *zooepidemicus*. He was switched to ceftriaxone to complete a 14 day-course. patient lives on a farm and owns 4 horses. Bone marrow aspiration and biopsy confirmed the diagnosis of HCL. antineoplastic therapy after completing the antibiotic course.

Discussion:

Hairy cell leukemia is a rare neoplasm with an incidence of 3.2/million population/year. Typically, it presents with pancytopenia due to bone marrow failure and splenomegaly. Lymphocytes with hair-like cytoplasmic projections are frequently seen in the peripheral blood. Due to pancytopenia, recurrent infections can occur and can rarely be life-threatening. *S. zooepidemicus* is part of the normal flora in horses. This patient likely contracted this organism from his horses, which resulted bacteremia given his immunocompaized status. Early recognition and prompt therapy can be life-saving in this condition.

Saturday Poster # 46

Category: Clinical Vignette

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Sana Kang

Additional Authors: Louis, Saravoltaz, MD, MACP

Afebrile Neutropenia Secondary to Ceftaroline

Afebrile Neutropenia Secondary to Ceftaroline

Sana Kang, MD; Louis Saravoltaz, MD, MACP

St John Hospital and Medical Center, Grosse Pointe, Michigan

INTRODUCTION: Ceftaroline is a fifth-generation cephalosporin with potent antimicrobial activity against gram-positive and gram-negative pathogens. Serious adverse effects were reported in less than 5% of people including agranulocytosis.

CASE PRESENTATION:

The patient is 74 years old female with a has past medical history including hypertension and spinal stenosis who underwent spinal fusion with decompression complicated by epidural abscess secondary to methicillin-resistant *Staphylococcus aureus*. She was discharged to a nursing home with to complete a six week course of ceftaroline. One week after discharge she returned to the hospital for an erythematous rash on the dorsum of her upper and lower extremities. Her labs at the time of discharge showed a white blood count (WBC) of 13, Hemoglobin of 8.1gm/dl and platelets 228,000. However, at the time of presentation her WBC was 0.8 and an absolute neutrophil count (ANC) of 0. Physical examination showed bilateral erythematous rash and the rest of the exam was unremarkable. In the setting of rash and an ANC of 0, ceftaroline was discontinued, and she was switched to vancomycin. The patient remained afebrile and her cultures remained negative throughout her stay, her WBCs improved from 0.8 to 4.1 three days after discontinuing ceftaroline.

Discussion: Ceftaroline has bactericidal activity against MRSA however, with its use for more than a week it is important to monitor weekly blood counts.

Saturday Poster # 47

Category: Clinical Vignette

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Mohamed Mansour

Additional Authors: Mohamed Mansour, MD; Muhammad Aljuhani, MD; Raghavendra Kamath, MD
St John Hospital and Medical Center

It is Not Always Pharyngitis: A Case of Spontaneous Pneumomediastinum From Severe Asthma Exacerbation

Introduction:

Pneumomediastinum is a severe and unusual complication of asthma exacerbation. Management is primarily supportive and can result in rapid recovery. Nonetheless, it may require surgical intervention if hemodynamic instability develops.

Case report:

24-year-old African-American male with history of asthma requiring intubation in the past presented with dyspnea to the emergency room. Patient was treated with methylprednisolone, albuterol, ipratropium and magnesium, which improved his symptoms and he was discharged home.

Patient returned to the emergency department the next day with worsening symptoms. Physical exam showed diffuse bilateral inspiratory and expiratory wheezes with use of accessory muscles. Patient, this time was admitted to the hospital for severe asthma exacerbation.

On the medical floor, a day later, the patient started complaining of sore throat. Soon after the patient developed tightness in his chest, worsening of sore throat, dysphagia, and dysphonia. On physical exam patient had crepitus on the neck bilaterally. Chest x-ray showed subcutaneous emphysema in the lower neck with extension to the left axilla and possible pneumo-mediastinum. Findings were confirmed with a CT scan. Patient was transferred to the medical intensive care unit. ENT and cardiothoracic surgery evaluated him with recommendation for conservative management.

Subsequently, patient reported improvement in his symptoms and was discharged home in a stable condition.

Conclusion:

Spontaneous pneumomediastinum and subcutaneous emphysema are very rare and most commonly occur from trauma or are iatrogenic. High index of suspicion is warranted. Rapid diagnosis and treatment could prevent severe complications including cardiopulmonary arrest.

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Tariq Marroush

Additional Authors: Andrew Boshara MD, Bassent Botros MD, Philip Venditelli DO, Zohaib Ahmed MD, Luay Dawood MD, Louis Saravolatz MD, MACP

Rupture of Sinus of Valsalva, A Concise Review of the Literature

Background:

The rupture of sinus of Valsalva (RSV) is a rare complication with various manifestations that require timely disposition and management. Prompted by two cases we encountered in our hospital we conducted this review.

Methods:

We reviewed the articles published on PubMed that depict cases of RSV using appropriate keywords between 1966 and 2017.

Results:

A total of 225 cases were found; the mean age was 38.9 y with 72% of the patients younger than 50. Dyspnea was the presenting symptom in 52% of the cases, followed by chest pain in 18%. Right coronary cusp ruptured in 56% of the cases, followed by non-coronary cusp in 24%. The fistula communicated to the right atrium in 37% of the cases, followed by the right ventricle in 32% and the interventricular septum in 8%. Continuous murmur was described in 64% of the patients whereas systolic murmur was heard in 12%.

Discussion:

The symptomatology of RSV can be explained by the high output heart failure status in addition to the extravasation. The condition should be suspected in degenerative connective tissue disease but also in patients with previous aortic root surgery. Despite the seriousness of the condition, prompt surgical repair carries an excellent prognosis.

Conclusion:

RSV likely presents with dyspnea and is mainly responsible for aortic to right heart fistula. The cardiac examination is abnormal in the majority of cases. Since urgent surgery is the treatment of choice, patients with suspicion of this condition should undergo structural evaluation as soon as possible.

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Raid Saco

Additional Authors: Abdulkader Chaar, M.D.; Tarik Hadid, M.D.

What a HIT: Thrombosis Presenting with Acute Hemorrhage

Introduction: Heparin-induced thrombocytopenia (HIT) is a thrombotic disorder caused by an autoantibody directed against endogenous platelet factor-4 (PF4)-heparin complex. This life-threatening condition is characterized by arterial and venous thrombosis with a mortality rate of up to 20%. Bleeding is rare and its presence argues against the diagnosis. We report a rare case of bleeding caused by HIT.

Case: A 53-year-old man presented with alcoholic pancreatitis. He was given unfractionated heparin for venous thromboembolism prophylaxis. On the twelfth day of hospitalization, he developed thrombocytopenia with a nadir of 99,000/microL. His 4Ts HIT probability score was intermediate.

Accordingly, heparin was discontinued and anti-heparin-PF4 antibody was strongly positive with a titer of 2.23 OD. Because of abdominal distension and hypotension, a computed tomogram of the abdomen and pelvis revealed left adrenal hemorrhage. Argatroban was initiated and serotonin-release assay was positive. A repeat computed tomogram showed resolution of adrenal hemorrhage.

Discussion: Adrenal hemorrhage has rarely been reported in patients with HIT and is presumed to be because of adrenal vein thrombosis, which results in adrenal venous congestion and subsequently hemorrhage. This case illustrates that anticoagulation should be continued despite this finding. In addition, the titer of anti-heparin-PF4 antibody plays an integral role in raising the suspicion for HIT with titers below 1.0 OD as false positives in 95% of cases and titers above 2.0 OD (as in our patient) occurring as true positives in >90% of cases. Healthcare professionals should be aware of such presentations in which early initiation of therapy can be life-saving.

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Sima Salahie

Additional Authors: Sima Salahie M.D, Farah Tanveer MD, Michael Yacoub, M.D, Riad Khatib MD St John Hospital and Medical Center, Detroit, Michigan

Bartonellosis in HIV: Protean Presentations in the Same Patient

Bartonellosis is an infectious disease caused by *Bartonella* spp, usually presents as cat scratch disease in immunocompetent host or produces a broad array of additional manifestations in immunocompromised host. Our case illustrates protean presentation of Bartonellosis manifested as bacillary angiomatosis, peliosis hepatis and endocarditis in the same patient.

A 47 y/o AAM recently diagnosed with AIDS (CD4=12), *Pneumocystis jirovecii* pneumonia and CMV hepatitis. US of the liver showed few well-circumscribed lesions, consistent with hemangiomas. He was treated and discharged on Genvoya, valgancyclovir, and atovaquone.

Two months later, he presented with slowly developing diffuse papulo-vascular lesions and fever. During this admission, a new aortic murmur was noted. Labs revealed WBC 9.7, CD4 56, viral load 73 and normal liver enzymes. Blood culture remained negative but *B. Henselae* antibody was 1:1024, *Bartonella* PCR was positive and a skin biopsy revealed bacillary granulomas. An echo demonstrated aortic valve vegetation with severe AR. Patient was started on doxycycline plus gentamicin for 14 days and to continue doxycycline for three months with noticeable regression of the skin lesions.

Bartonellosis is a disease with protean manifestations resembling other ailments. It was first noted to cause endocarditis in 1993 and is considered a common cause of culture negative endocarditis. It also causes bacillary angiomatosis and peliosis hepatis. High degree of suspicion is essential for diagnosis given its fastidious growth and limited sensitivity of histopathological stains. This case illustrates the importance for internists to be aware of this rare serious disease and its protean presentation.

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Matthew Wilkins

Additional Authors: Matthew Wilkins MD, Swapna Gudipati MS IV, Michael Kern MD St. John Hospital and Medical Center, Detroit, Michigan

Chasing Zebra's: Atypical Presentation of Pharyngeal-Cervical Brachial Variant of Guillain-Barre' Syndrome

Introduction: Guillain-Barré syndrome (GBS) was first diagnosed in 1916 as a syndrome characterized by tetraparesis. Over the past 100 years atypical presentations have led to the recognition of new variants. We present a case of subacute progressive pharyngeal-cervical-brachial (PCB) variant of GBS leading to respiratory failure.

Case presentation: A 69 year-old female with progressive dysarthria/dysphagia over the past few months was admitted for acute renal failure due to poor oral intake. On examination, oxygen saturation was 98% on room air without respiratory distress. Articulation was muffled with slow pronunciation and prominent oropharyngeal, neck and arm weakness. Outpatient records demonstrated normal brain imaging, laryngoscopy, barium swallow, negative AChR/MuSK antibody. The patient experienced worsening oropharyngeal weakness with respiratory involvement requiring intubation. CSF was negative for albuminocytologic dissociation/oligoclonal bands. Further laboratory work up revealed Anti-GQ1b antibody. Electromyography testing showed global demyelinating polyneuropathy. Due to slow response to IVIG, plasmapheresis was initiated with successful extubation. The patient's status declined secondary to chronic comorbidities and deconditioning, ultimately expiring from sepsis due to UTI.

Discussion: PCB typically involves rapid bulbar palsy, rarely leading to respiratory involvement. Due to the indolent presentation of this case, the diagnosis was delayed as we were focused on more common pathologies, such as myasthenia gravis, multiple sclerosis, and stroke, missing the zebra hiding among horses. The internists' ability to identify pattern recognition of atypical cases of Guillain-Barré syndrome enables anticipatory monitoring for disease progression and early treatment, improving patient outcomes.

Institution: St. John Hospital and Medical Center - Grosse Pointe

Program Director: Raymond Hilu, MD, FACP

Presenter: Rami Zein

Additional Authors: Rami Kassem Zein, DO; Susan Szpunar, PhD; Jason Mouabbi, MD; Shwan Jalal, MD; Frederick Michael, DO; Hiroshi Yamasaki, MD; Thomas Lalonde MD

The Association of Clinical and Echocardiographic Findings with New Onset Heart Failure with Reduced Ejection Fraction

Introduction: In this study, we assessed the clinical and echocardiographic measurements in association to occlusive CAD on angiography.

Methods:

This study is a retrospective chart review of patients with acute heart failure syndrome (AHFS) who were evaluated with coronary angiography as a diagnostic modality from January 2010 to December 2014 (n=194).

Results:

The mean age of the study group was 59.4 ± 12.4 years, 56.7% were male and 69.1% were black. Positive angiographic findings were found in 22.6% of patients (n=44) with HFrEF. From univariate analysis, patients with positive findings were older than those with negative findings (66.2 ± 12.5 vs. 57.4 ± 11.7 years respectively, $p < 0.0001$). Left ventricular internal diameter in end systole (LVIDs) and end diastole (LVIDd) were reduced in patients with significant CAD when compared to patients with no angiographic findings: LVIDs: 52.0 ± 8.6 mm vs 56.2 ± 8.2 mm, $p = 0.005$; PWd 10.4 ± 2.4 mm vs 11.7 ± 2.7 mm, $p = 0.01$, respectively. Patients with positive findings were more likely to have hyperlipidemia ($p = 0.04$), be Caucasian ($p = 0.001$) and have a lower BMI ($p = 0.01$). From logistic regression, the odds of a positive finding was associated with age (OR=1.06, $p = 0.001$), hyperlipidemia (OR=2.8, $p = 0.02$), and Caucasian race (OR=3.5, $p = 0.006$) as well as a decreased incidence with radial catheterization approach (OR=0.35, $p = 0.0001$).

Conclusions: Approximately 23% of our study patients had positive angiographic findings. Positive findings were significantly associated with age, race or hyperlipidemia. Further investigation of the associating with race and other comorbidities with angiographic findings is needed to help refine predictors of ischemic coronary artery disease.

Saturday Poster # 53

Category: Clinical Vignette

Institution: St. John Hospital Providence - Southfield

Program Director: Robert Bloom, MD, FACP

Presenter: Hassan Ali

Additional Authors: Ana Capatina Rata, Sofia Iqbal.

The Troponin Masquerade

Introduction: Troponin T (TnT) is a commonly used biomarker for detecting myocardial injury. However, in inflammatory myopathies, TnT released from skeletal muscle can cross-react with antibodies in immunoassays used to detect cardiac TnT. This non-cardiac TnT elevation may lead to a misdiagnosis of cardiac ischemia, thereby leading to an unnecessary heart catheterization.

Case: A 50-year-old female with a history of Polymyositis and Sjogren's Syndrome presented with atypical chest pain. Initial workup revealed an elevated TnT and no acute EKG changes. A working diagnosis of NSTEMI was suggested and intravenous heparin was initiated. Repeat troponin levels were requested on account of ongoing chest pain which demonstrated an upward trajectory. We proceeded with cardiac catheterization which revealed no evidence of coronary artery disease. It was eventually concluded that the elevation in TnT was likely secondary to diseased skeletal muscle rather than cardiac pathology.

Conclusion: When diagnosing an MI in patients with myopathies, one should be cautious of TnT elevation secondary to diseased muscle. In such patients, Troponin I assay may be used as it shows minimal cross-reactivity with skeletal troponin and its specificity for detecting cardiac injury is 95% compared to 80% of Tn T. Furthermore, early use of an echocardiogram helps provide clarification as WMA occur within seconds of coronary artery occlusion and the sensitivity and specificity of WMA for diagnosing an MI has been shown to exceed 90%. Utilizing these modalities can prevent a misdiagnosis and thereby an unnecessary cardiac catheterization which can be associated with grave iatrogenic risks.

Institution: St. John Hospital Providence - Southfield

Program Director: Robert Bloom, MD, FACP

Presenter: Leo Reap

Additional Authors: Ciuro, Jordan, MD; Singh, Gurbir, MD

The Age-Old Question: Hickam's Dictum or Occam's Razor?

Mixed connective tissue disease (MCTD) is a rare autoimmune condition that creates a hybrid syndrome often confused with systemic lupus erythematosus (SLE), rheumatoid arthritis (RA), and inflammatory myopathies, only occurring in one in a million patients.

A 52-year-old African-American woman presented to the hospital following the development of chest pain, sore throat, and malar rash that had been gradually worsening over the preceding three days. EKG that was obtained demonstrated diffuse PR depression and troponin was 0.36, consistent with perimyocarditis. Rapid strep test was positive, indicating streptococcal pharyngitis. Physical exam revealed bilateral, tender parotid glands. Laboratory studies revealed a strongly positive ANA at >1:1280 in a speckled pattern, SSA/SSB both >8.0 AI, and a RF of 392 IU/mL. Anti-DS DNA, anti-Smith, and anti-CCP antibodies were all negative. Respiratory viral panel, mumps, EBV, CMV, and HIV were negative. Given the presence of concomitant perimyocarditis, inflammatory myositis, nonspecific lupus-like rash, and bilateral parotitis, MCTD was suspected. Anti-RNP antibody was 6.3 AI, confirming the diagnosis.

This case demonstrates multiple important teaching points. Firstly, the phenotypic spectrum of autoimmune disease is often unmasked by underlying infection as a product of increased immune activity. Secondly, in MCTD, pericarditis is a hallmark sign not present in any other inflammatory myopathy. It is usually subclinical but has found to be highly prevalent postmortem in approximately 40% of cases. Most importantly, this case demonstrates the critical importance of not only performing a symptom-focused assessment, but to maintain a big-picture perspective and establish a single, cohesive diagnosis when appropriate.

Institution: St. John Hospital Providence - Southfield

Program Director: Robert Bloom, MD, FACP

Presenter: Talha Syed

Additional Authors: Jeremy Heffernan MD, Eric Hart MD, Shawkee Aboualayoui DO

A Rare Case of Cholangiocarcinoma

Cholangiocarcinoma accounts for 3% of all gastrointestinal tumors. It's the second most common primary hepatic tumor after hepatocellular carcinoma.

A 45 year old female presented with jaundice, pruritus, and tea-colored urine for 12 days duration. Labs revealed elevated liver enzymes with AST 445, ALT 937, Alkaline Phosphatase 468, Total bilirubin 12.8 and direct bilirubin 8.7. Hepatitis panel was negative. CEA 19.9 level was elevated with other tumor markers normal. A CT scan of abdomen/pelvis revealed an obstructive process with moderate to severe intrahepatic biliary ductal dilation to the level of the porta hepatis with abnormal soft tissue attenuation and also a 13cm complex pelvic mass likely ovarian in nature. She underwent an ERCP with stent placement to relieve the obstruction. A CT guided biopsy of the mass at the porta hepatis was performed with pathology positive for adenocarcinoma with positive stains for CK-7 and CDX-2 confirming extrahepatic cholangiocarcinoma. Initially, the ovarian mass was thought to be a second primary malignancy, however biopsy of this mass was histologically similar to previous biopsy and not ovarian in nature. Patient was started on chemotherapy with cisplatin/gemcitabine with improvement and decrease in size of both masses.

Extrahepatic cholangiocarcinoma most commonly metastasize to the liver, lung, brain or bone.

Metastasis to the ovary has rarely been reported in the literature as a common site. However it is imperative to know that extrahepatic cholangiocarcinoma can indeed spread to this site as it would change the initial treatment course in terms of chemotherapy vs surgery.

Institution: St. John Hospital Providence - Southfield

Program Director: Robert Bloom, MD, FACP

Presenter: Issam Turk

Additional Authors: Ali Zakaria MD, Jalpa Patel MD, Samira Ahsan MD

A Long Life of Cancer- A Case of Muir–Torre Syndrome

Muir-Torre-syndrome (MTS) is a rare autosomal dominant phenotypic subtype of Lynch-syndrome characterized by development of cutaneous and visceral malignancies. In most cases it arises from germ-line mutations in genes encoding for mismatch repair (MMR) proteins.

An 84-year-old-female with PMHx of small bowel, colorectal, and breast cancer diagnosed at age of 33, 69, and 83 respectively. She presented to the dermatologist with multiple skin lesions over her abdomen. The lesions were resected and histopathology revealed sebaceous adenoma. Given her previous visceral malignancies a suspicion of MTS was raised. Immunohistochemistry revealed deficiency of MSH2 and MSH6. Genetic work up revealed an extensive Family history of colon cancer in father (age 45), brother (age 45), and three sisters. As she met both the revised Bethesda and the Amsterdam II criteria, germ-line test was performed and revealed the pathogenic MMR mutation which established the diagnosis of Lynch, particularly in her case, the subtype Muir-Torre-syndrome. MTS is a rare subtype of Lynch-syndrome. The mean age at diagnosis is 53 years, with male-to-female ratio 2:1. The cutaneous characteristics include sebaceous adenoma, carcinoma, basal cell carcinoma, and keratoacanthoma. Visceral malignancies include colorectal (most common), endometrial, urological, and upper gastrointestinal tumors. The diagnosis is clinical based on the presence of one sebaceous neoplasm associated with one primary visceral malignancy. Sebaceous tumors may appear after the internal malignancy in 56% of patients. High index of suspicion of MTS in patients with sebaceous gland tumors facilitates early detection of malignancies and proper patient counselling.

Institution: St. John Hospital Providence - Southfield

Program Director: Robert Bloom, MD, FACP

Presenter: Brian Tyson

Additional Authors: Kellen Hipp

When a Sore Throat Might Kill You: A Case of Lemierre's Syndrome

42 y/o African American female was brought into the emergency department after being falling into her closet and becoming unresponsive. Prior to her admission she was battling a severe sore throat with subjective fevers, and odynophagia for 2 days prior. Upon arrival in the ED, her blood pressure as only palpable in the groin, heart rate was 140, and normal body temperature; however she was unresponsive to commands, and only guarding her abdomen to deep palpation of the left upper quadrant. . Initial labs obtained showed a pronounced leukocytosis of 26.78, with bandemia of 22%, and acute renal failure. She was promptly intubated due to her GCS <8, with central line access obtained via the right internal jugular vein, placed on pressure support and transferred to the ICU for further management .

48 hours into her hospitalization, her blood cultures grew *Fusobacterium Necrophorum*, and a Doppler of the jugular veins was ordered, which came back negative. A Ct of the neck was ordered, which was also negative for any thrombus. She did make a full recovery, and once her right IJ was removed, a final Doppler was performed, showing the thrombus behind the catheter site.

Lemierre's Syndrome is a fairly uncommon disease process, but should be in the differential for patients with severe pharyngitis. This patient illustrates how quickly the infection can become severe and the importance of scanning your vasculature prior to central line insertion.

Institution: St. John Hospital Providence - Southfield

Program Director: Robert Bloom, MD, FACP

Presenter: Ali Zakaria

Additional Authors: Ali Zakaria MD, Bayan Al Share MD, Issam Turk MD, Georgey Kaspar MD, Charles Nino MD

A Fluttering Coronary Event

Acute coronary syndrome (ACS) is a term used to describe a spectrum of diseases associated with sudden reduced blood flow to the heart. Coronary artery thromboembolism is recognized as an important non-atherosclerotic cause of ACS. Atrial fibrillation is the most frequent risk factor for coronary thromboembolism.

A 65-year-old African-American female presented to the ER with sudden onset chest pain. She was hypotensive and bradycardic. Initial electrocardiogram showed new onset atrial flutter with ST segment depressions in lead I and V2-V4. This was suspicious for posterior infarction. Coronary angiography revealed total occlusion of the left circumflex artery that was attributable to a thrombus. Aspiration thrombectomy was performed and the images following the intervention revealed no residual disease. The patient remained in atrial flutter. A transesophageal echocardiogram revealed no atrial thrombus. She underwent a successful ablation and was discharged on anticoagulation therapy.

Acute myocardial infarction originating from a thromboembolism are reported in 2.9% of ACS. A retrospective study by Shibata et al proposed criteria for the clinical diagnosis of coronary embolism. In the setting of atrial fibrillation/flutter it is important to recognize that absence of atrial appendage thrombus on TEE does not preclude thromboembolism. As with any other STEMI, urgent intervention is necessary. However, with a coronary embolism, interventional techniques involving aspiration thrombectomy may be more crucial than stent implantation. Although current guidelines suggest no mortality benefit and an increased risk of stroke with routine aspiration thrombectomy, nonatherosclerotic coronary embolism may be an exception. Currently there is no consensus on optimal intervention.

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

Presenter: Rajiv Doddamani

Additional Authors: Sirisha Gokaraju, Arwa Mohamed Hosni

Peripheral and Pleural Eosinophilia in Malignant Melanoma: A Rare Association

Introduction: Melanoma accounts for less than 1% of all skin cancers diagnosed in United States, but is the most common cause of deaths secondary to skin cancer. Lung and pleura are the most common visceral sites of metastases. Combination of pleural and peripheral eosinophilia is known to occur in non-malignant conditions and several malignant conditions such as Hodgkin's and rarely bronchogenic carcinoma. No known cases have been reported in metastatic melanoma. We present a case of metastatic melanoma with pleural and peripheral eosinophilia.

Case: 57-year-old male with cutaneous melanoma who underwent resection 10 years ago presented with exertional dyspnea, chest pain and low-grade fevers. Blood work was notable for eosinophilia. Imaging revealed right lower lobe atelectasis secondary to large pleural effusion, ill-defined hyperdense mass-like collection in right lower hemithorax measuring 3.1 x 2.6 cm and a 6-mm left lower lobe nodule. Thoracentesis revealed eosinophil-predominant bloody pleural fluid. Right video-assisted thoracic surgery with decortication and talc pleurodesis was performed. Biopsies from pleural mass revealed metastatic melanoma with positive HMB-45, MelA, MITF and negative Ber-EP4, CK5, calretinin, BRAF markers. Treatment with radiation and immunotherapy planned.

Discussion: Studies have looked at baseline eosinophil count (BEC) as a prognostic biomarker of melanoma. There is a possible association of BEC with overall survival in melanoma treated with immunotherapy. It is of interest if pleural eosinophilia has a similar association. Mechanism of peripheral and pleural eosinophilia in malignancies is poorly understood. Further research for elucidation of this mechanism is warranted in understanding response to immunotherapy.

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

Presenter: Karine Tawagi

Additional Authors: Ambreen Allana MD, Tareq Al Baghdadi MD

Abstract Title IDH1 Mutation in Lung Adenocarcinoma

Introduction: Broad genotyping in non-small cell lung cancer (NSCLC) has great value in influencing treatment decisions and directing patients towards pertinent clinical trials. The most common mutations identified in NSCLC include KRAS, EGFR, PIK3CA, and ALK. IDH1 (isocitrate dehydrogenase 1) mutations have mainly been associated with gliomas, myelodysplasia and acute myeloid leukemia. This case report highlights the rare concurrence of IDH1 mutation in NSCLC.

Case Description: A 77-year-old male former smoker presented with a 6-week history of exertional dyspnea and cough. Cross-sectional imaging revealed a right suprahilar mass, lymphadenopathy, and a right pleural effusion. Thoracentesis and cytology revealed an EGFR and ALK wild type lung adenocarcinoma. The patient was enrolled in a clinical trial however his disease eventually progressed. Biopsy and genomic testing revealed a mutation in IDH1. The patient was enrolled in a phase 1 study of an IDH1/IDH2 inhibitor. Unfortunately, intracranial and systemic progression was seen within 2 months of enrollment.

Discussion: Mutations targeting IDH1 and IDH2 result in synchronous loss of their normal catalytic activity, the production of α -ketoglutarate, and production of the oncometabolite 2-hydroxyglutarate (2-HG). 2-HG inhibits more than 60 dioxygenases with various cellular functions, including abnormal histone and DNA methylation. Distinctive features of IDH1/2 mutations make them good biomarkers and potential drug targets.

Clinical Significance: To our knowledge, this is the first case report of a patient with IDH1-mutated lung adenocarcinoma. This association will have therapeutic implications in the future particularly as novel targeted therapies for IDH1/2 mutations are developed.

Institution: St. Joseph Mercy - Ann Arbor
Program Director: Patricia McNally, MD, FACP
Presenter: Dima Youssef
Additional Authors: Patricia McNally, MD

Squamous Cell Carcinoma of the Gallbladder, a Rare Case Report

Gallbladder cancer is the most common malignant tumor of the biliary tract. The majority of cases are adenocarcinoma where squamous cell carcinoma (SCC) accounts approximately 0.5-3% of gallbladder tumors. Many patients are at advanced stage when diagnosed. We report a very rare case of SCC of the gallbladder.

Case:

A 52 year old female with hypertension and diabetes mellitus type 2, presented to the emergency department with complains of weakness and right hypochondrial pain for 2 months. Physical examination revealed hepatomegaly as well as right upper quadrant tenderness. Vital signs were within normal limits. Abdominal ultrasound followed by CT scan of the abdomen and pelvis showed heterogeneous solid cystic gallbladder mass with invasion to the liver and right colon. Colonoscopy was performed and showed a protuberant lesion of the right colic angle which biopsy concluded metastasis of poorly differentiated squamous cell carcinoma (SCC) of the gallbladder. The tumor was judged unresectable, and the patient subsequently transitioned to comfort care per her and her family wishes.

Discussion:

A limited review of the literature on SCC reveals only a 0.5-3% predominance of this malignancy within gallbladder cancers. The disease is usually diagnosed at an advanced stage when surgical intervention is no longer indicated. Recent reports have shown a benefit of adjuvant chemo radiation in this type of tumor. At present, no therapy is defined for unresectable tumors of the gallbladder and the prognosis remains poor. The benefits of chemotherapy and radiotherapy should be explored.

Institution: St. Joseph Mercy - Oakland - Pontiac

Program Director: Benjamin Diaczok, MD, FACP

Presenter: Nilesh Patel

Additional Authors: Faisal Majeed, MD; Anupam A Sule, MD, PhD, FACP

Sick Sinus Seizure

INTRODUCTION:

Sick sinus syndrome (SSS) is dysfunction of sinoatrial node resulting in symptomatic bradycardia, sinus pauses or sinus arrest causing decreased cardiac output and presents as syncope, pre-syncope, and fatigue. Presentation with generalized tonic-clonic seizure is very rare.

CASE:

A 69-year-old man presented with two episodes of generalized tonic-clonic seizures, each lasting for about one minute with 30 minutes of postictal confusion, without incontinence or tongue bite. Initial labs were normal, EKG showed HR 45-50 with sinus bradycardia secondary to the athletic background.

Later he developed dizziness with HR in the 20s, sinus pauses of 4-5 seconds and was treated with atropine and dopamine infusion as per ACLS protocol. He underwent definitive therapy with a permanent dual chamber pacemaker. A thorough evaluation by neurology with MRI, EEG and CT angiography of neck failed to reveal any other cause of seizures. His symptoms resolved after pacemaker placement.

DISCUSSION:

SSS is dysfunction of SA node secondary to etiologies like degenerative changes and fibrosis. It may lead to decreased cardiac output and global cerebral hypoperfusion presenting as convulsive syncope (myoclonic jerks) but postictal confusion is absent. In primary seizure disorders with Ictal Bradycardia Syndrome, bradycardia occurs in the immediate postictal period but prolonged sinus dysfunction is absent.

CONCLUSION:

It is important to distinguish convulsive syncope (absence of postictal confusion) and ictal bradycardia syndrome (absence of persistent sinus dysfunction) from true SSS precipitated generalized seizures as these patients require telemetry and urgent permanent pacemaker implantation.

Saturday Poster # 63

Category: CQI/EBM

Institution: St. Joseph Mercy - Oakland - Pontiac

Program Director: Benjamin Diaczok, MD, FACP

Presenter: Mohanad Saleh

Additional Authors: Armah, J., Acharya, D., Sule, A., Diaczok, B., Chandra, R., Patel, K.

Is Telemetry Used Extravagantly? : A Quality Improvement Project in a 443-Bed Community Hospital

Purpose: Continuous cardiac monitoring in hospital settings is essential in evaluating high-risk patients, alerting staff for life-threatening arrhythmias. Although telemetry is a valuable tool, studies show that it is implemented when there is little to no benefit to patient management. We evaluated the use of telemetry in a community hospital to analyze how orders align with guidelines from The American Heart Association (AHA) and the American College of Cardiology (ACC).

Methods: We retrospectively gathered patient data from St. Joseph Mercy Oakland Hospital using the EMR from October 31st, 2016 to April 30th, 2017. Using ICD-10 codes, we classified the telemetry initiation and discontinuation orders according to the AHA/ACC classes. We calculated the duration of monitoring and prevalence of orders that fit Class I and II indications, which are clinically relevant for cardiac monitoring, in comparison to Class III, which is not relevant.

Results: Out of 8593 patients on continuous cardiac monitoring, 43% of initiation orders were classified as Class III, 30 % in Class II and 26% in Class I. Mean duration for monitoring was 75 hours for Class III patients, 57 hours for Class II and 117 hours for Class I.

Conclusion: Preliminary findings showed that a significant proportion of telemetry orders in our community hospital is for non-high-risk patients who are not clinically indicated. We will re-evaluate patient data after an intervention to increase awareness about AHA telemetry guidelines. This should decrease orders that fall under Class III and will reflect the effective allocation of hospital resources.

Institution: St. Joseph Mercy - Oakland - Pontiac

Program Director: Benjamin Diaczok, MD, FACP

Presenter: Rovin Saxena

Additional Authors: Buddhi Hatharaliyadda MS III, Jacky Duong DO

Arthritis Here, Here, and Here with Severe Sepsis - Oh, and He is Immunocompetent without Comorbidities

INTRODUCTION

Septic arthritis is a medical emergency with high mortality which occurs predominantly in single joints. Only 15% of the cases involve multiple joints and even fewer are caused by *Streptococcus pyogenes*.

CASE

A 27 year-old male presented with pain of the right knee, left ankle, and generalized body aches for 2 days. He denied trauma or intravenous drug use. His temperature was 103 F, pulse 128/bpm, BP 135/83 mm/hg and respirations were 21/min. Physical exam showed right knee, left ankle, left elbow, left forearm, erythema, warmth and tenderness. His sternoclavicular and temporomandibular joints were also involved. Labs revealed leukocytosis of 34,500, BUN 26, creatinine 1.82, lactic acid 3.6, ESR 45, and CRP 47.5. Liver function was normal. Blood cultures, HIV, hepatitis and STD panels were negative. ANA, RF, anti-dsDNA and uric acid levels were normal. Due to severe sepsis, he was admitted to the ICU and started on Vancomycin, Ceftriaxone, and Clindamycin. Right knee aspirate was positive for *S. pyogenes*. After an 11 day hospital course, he showed significant improvement and was discharged on antibiotics.

DISCUSSION

Polyarticular septic arthritis (PASA) is rarely seen in young and healthy, immunocompetent individuals with no risk factors. In addition, Group A *Streptococcus* as the etiology is uncommon and has been reported in two cases involving patients over 50 years old.

CONCLUSION

Clinicians should be aware that PASA may lead to severe sepsis in otherwise healthy, young patients caused by *Streptococcus pyogenes*.

Institution: St. Joseph Mercy - Oakland - Pontiac
Program Director: Benjamin Diaczok, MD, FACP
Presenter: Ahmadur Siddiqui
Additional Authors: J; Guthrie, M; Patel, K; Khan, M

When Bumex Makes You Crazy

INTRODUCTION

Patients hospitalized with acute exacerbation of chronic systolic heart failure (CHF) are managed with aggressive diuresis. In CHF patients with underlying liver disease, diuresis with bumetidine may precipitate fulminant hepatic failure.

CASE

A 67-year-old lady with an ischemic cardiomyopathy, NYHA stage 3, an EF of 25% and implantable defibrillator presented to the ER with dyspnea and bilateral leg swelling. Admission labs demonstrated AST / ALT and bilirubin were not elevated, but BNP was >4900. After repeated IVP bumetidine the patient's SOB and leg swelling rapidly improved. On the 3rd day of admission the patient became encephalopathic. Serum ammonia level came back 760. The patient was intubated. Patient was started on lactulose. After 2 days of ICU support and lactulose, the patient recovered rapidly to baseline. Previous hepatic evaluation included diagnostic blood work, paracentesis and liver biopsy which revealed centrilobular congestion, benign liver parenchyma with some fibrosis, consistent with cardiac cirrhosis. The patient was discharged in stable condition. Two weeks later patient presented with recurrent CHF exacerbation. Again, the patient received IV bumetidine. Again, her mentation rapidly declined due to acute liver failure. The family declined intubation and the patient was transferred to hospice.

DISCUSSION

Contraction alkalosis by Bumex promotes the conversion of ammonium (NH₄⁺), a charged particle which cannot cross the blood-brain barrier, into ammonia (NH₃) which can enter the brain.

CONCLUSION

When diuresing patients with underlying liver disease, acute hepatic failure may be precipitated. Physicians should be aware of this complication.

Institution: St. Joseph Mercy - Oakland - Pontiac
Program Director: Benjamin Diaczok, MD, FACP
Presenter: Anup Trikannad
Additional Authors: Sruthi Vellanki; Pratik Bhattacharya

Plasmapheresis Stopped Bobby's Head From Bobbing

INTRODUCTION:

Malignancies may initially manifest with paraneoplastic syndromes (PNS). Patients with small cell lung cancer (SCLC) or thymoma may develop antibodies to collapsin response mediator protein-5 (CRMP-5) and develop cerebellar degeneration, characterized by ataxia, dystonia's, finger-past-pointing and tremors.

CASE

A 64-year-old lady presented with 8 months of progressive ataxia, slurred speech and head bobbing. Her symptoms were initially attributed to alcoholism. Her symptoms progressed despite alcohol cessation. Physical examination revealed coarse intention tremors in both arms, head bobbing, nystagmus and dysarthria. An MRI did not demonstrate structural disease of the cerebellum. Her ANA was 1: 160, but dsDNA, anti-Smith, SSA, SSB, RPR, RF, antigliadin, and neuronal nuclear (Hu) antibodies were negative. Her vitamin E, B1 and B12 levels were normal. Paraneoplastic causes were considered. Her CRMP- 5- IgG (1:122,880) was strongly positive. Chest CT scan chest demonstrated mediastinal and left hilar lymphadenopathy, consistent with small cell lung cancer. Karnofsky performance score was low precluding biopsy and chemotherapy. Ataxia and titubation improved with 10 sessions of plasmapheresis and 5 days of IV solumedrol. She was discharged on long term oral steroids and weekly plasmapheresis.

DISCUSSION

The differential diagnosis of cerebellar degeneration includes, alcoholism, lupus, Sjogren's syndrome, celiac disease, vitamin deficiencies (B1, B12, E); and paraneoplastic syndromes.

Initially, her symptoms were attributed to alcoholism, but when her symptoms progressed after cessation of alcoholism, additional workup was initiated.

CONCLUSION

Cerebellar degenerative diseases have a lengthy differential including paraneoplastic syndromes. Physicians should include CRMP-5 antibody mediated paraneoplastic disorder when clinically indicated.

Institution: St. Joseph Mercy - Oakland - Pontiac

Program Director: Benjamin Diaczok, MD, FACP

Presenter: Sruthi Vellanki

Additional Authors: Dr. Sruthi Vellanki, MD1 Dr.Anup Kumar Trikannad Ashwini Kumar MD, MS,
Dr.Cecilia Cosma, MD

I Have Pain in my BONE, but the Groan is in My GUT!!

INTRODUCTION

Adenocarcinoma of the rib comprises of 4 to 5 % of primary site invasive cancers of unknown origin. Colon cancer may manifest as a rib mass causing chest pain without abdominal symptoms. Immuno histochemical markers can guide therapy in such clinically subtle presentations.

CASE

A 53- year old gentleman presented with chest pain and Shortness of breath. A chest X ray was followed by a CT that showed large destructive rib lesion mass with extension into right pleura and innumerable skeletal lytic lesions. CT imaging did not reveal any liver or lung abnormal findings. CT guided biopsy of the rib mass was performed. IHC markers, Cytokeratin 20+/CK 7 -, CDX2 +which was consistent with metastatic adenocarcinoma of colonic origin. CEA was 10.9. Bone scan was done and revealed widespread metastatic disease throughout the whole skeleton .The patient was discharged on FOLFOX chemotherapy.

DISCUSSION

Skeletal metastasis from colon cancer occur in 5-10 % of cases after widespread metastatic disease. This case highlights the unusual presentation of colon cancer and underscores the importance of having colon cancer as a differential diagnosis in patients with bone metastases without involvement of the liver and lung despite its rare occurrence. The phenotype of CK20 +/CK7- further supports the diagnosis of colon cancer as the primary site.

CONCLUSION

Clinicians should be more vigilant when evaluating patients with bone metastasis as it is indicative of terminal phase of colon cancer. Treatment should be initiated based on IHC staining in conjunction with anatomic pathology.

Institution: St. Mary Mercy Hospital - Livonia
Program Director: David Steinberger, MD, FACP
Presenter: Uzochukwu Amadi
Additional Authors: Serge Sorser, Victor Veloci

Eosinophilic Gastroenteritis Characterized by Cholecystitis and Cholangitis

Eosinophilic gastroenteritis (EG) is a rare inflammatory disorder, associated with atopy, and characterized by eosinophilic tissue infiltration, variable eosinophilia, and gastrointestinal (GI) tract pathology. Given its rarity and nonspecific symptoms, EG may be overlooked as a cause of GI illness. Herein, a case of EG defined by focal enteritis and cholangitis is reported. The patient was a 23-year-old male with no medical history that presented with two months of abdominal pain and jaundice. His vitals were normal. His lab work revealed eosinophilia and elevated liver chemistry tests. CT imaging showed jejunal wall thickening suspicious for inflammatory enteritis. Hepatitis, iron, ANA, AMA, ASMA, anti-LKM1, ceruloplasmin, alpha-1-antitrypsin, AFP, CA 19-9, CEA, IgG subclassification, and viral antibody level studies were all unremarkable. MRCP showed intrahepatic biliary ductal dilation and common bile duct (CBD) obstruction, suspicious for sludge or post-inflammatory stricture. A 25 mm CBD stricture was noted on ERCP. Sphincterotomy, CBD sweeping, and cholangioscopic visualization and biopsy of the stenotic area was performed. A CBD stent was placed. Biopsy results showed no neoplasia, normal mucosa, subepithelial fibrosis, and mixed eosinophilic inflammation. Clinical improvement occurred post ERCP. The patient was discharged on steroids. Three months later, existing biliary stenting was removed, and visualization of the CBD displayed scarring, erythema, and continued ductal stricturing. Roux-en-Y hepaticojejunostomy and cholecystectomy were performed. This case illustrates a rare etiology of enteritis, cholangitis, and biliary obstruction, and serves as a reminder to consider EG, as a potential diagnosis in patients with obstructive hepatobiliary disease.

Institution: St. Mary Mercy Hospital - Livonia
Program Director: David Steinberger, MD, FACP
Presenter: Lydia Espinoza
Additional Authors: Ryan Wolok, MD

A Rare Case of Familial Hypocalciuric Hypercalcemia

Introduction: Familial hypocalciuric hypercalcemia is a rare benign autosomal dominant disorder with high penetrance characterized by mild-longstanding hypercalcemia, low urinary calcium excretion, and normal to increased PTH levels. The Office of Rare Diseases of the NIH lists FHH as a rare disease that affects less than 200,000 people in the US.

Case Report: A 44-year-old female with history of allergic rhinitis, chronic back pain, and depression was evaluated for hypercalcemia of 10.9 with concomitant PTH level of 81.5. She was diagnosed with primary hyperparathyroidism in 2002 when found to have an elevated calcium level for which she was referred for surgery since sestamibi scan showed 2 hyperactive areas. Patient refused surgery and had one episode of nephrolithiasis during her second pregnancy. Although laboratory data was suggestive of PHPT, 24-hr urine calcium levels were undetectable with a 4.8-liter urine study. Repeat sestamibi scan and thyroid ultrasounds were negative. DEXA, GFR, vitamin d, and phosphorus were normal. Additional history taking revealed her father had an unknown calcium issue and her 18-year-old son was just diagnosed as having elevated calcium. She is currently undergoing genetic testing at UofM.

Conclusion: It is imperative to distinguish FHH from primary hyperparathyroidism, since FHH typically does not require parathyroidectomy. Our patient is part of the 20% of FHH patients who have elevated PTH levels, and has experienced hypercalcemia associated symptoms, raising the question for the need for treatment. It can be challenging to differentiate patients with atypical presentations.

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Soumaya Ezwawi

Additional Authors: Guillaume Curaudeau, MD; Raveen Rai, MD; Preeti Misra, MD; James Kruer, MD.

Solitary Peutz-Jeghers Polyp: Is it an Early Disease Presentation or a Separate Disease Entity?

Introduction: Solitary Peutz-Jeghers polyp (PJP) is a polyp develops without other characteristics of Peutz-Jeghers Syndrome (PJS). In this report, we describe an intestinal intussusception caused by a single PJP.

Case presentation: A 31-year-old Caucasian male presented to the emergency department with severe abdominal pain, non-bloody diarrhea, fever, chills, nausea and vomiting. A clinical diagnosis of small bowel intussusception was made based on the constellation of clinical features and Computer Tomography scan findings. The patient underwent an emergency exploratory laparotomy, which revealed a 3.0 cm long pedunculated mass in the proximal jejunum, just distal to ligament of Treitz. Enterostomy and excision of the mass were performed and sent for histopathology examination. The histopathology report revealed a hamartomatous polyp of Peutz-Jeghers type, with focal low-grade dysplasia. The patient neither had mucocutaneous pigmentations nor reported PJS in his family. In addition, his previous colonoscopy and esophagogastroduodenoscopy studies were negative for any other polyps.

Discussion: Solitary PJP is rarely reported. While few authors believe that PJP can be an early presentation of PJS, others think of it as a separate disease entity giving the lack of other PJS genetic and clinical manifestations (e.g., dominant inheritance pattern, intestinal polyposis, and mucocutaneous pigmentation). The purpose of this report is to shed the light and expand the spectrum of knowledge about PJP disease entity since it carries the same increased risk of malignancy as PJS. This and similar cases underscore the importance of recognizing these high-risk patients and establishing early cancer surveillance among this population.

Saturday Poster # 71

Category: Clinical Vignette

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Milan Patel

Additional Authors: Souad Al-Bacha, Preeti Misra, Narendralal Khanchandani

Acute Onset of Methemoglobinemia After Single Spray of Local Anesthetic

Intubation, endoscopy, and bronchoscopy are routinely performed interventions in patient care. Physicians performing these interventions judiciously use topical benzocaine spray to achieve local uptake and neural blockage of the desired mucosal region. Methemoglobinemia secondary to topical anesthetic use has been reported a total of 319 times; this includes 7 cases of death, 32 life-threatening cases with a methemoglobin level of > 55%, 216 serious cases with a methemoglobin level measuring 30-55%. We present a 71 year-old male admitted to ICU status post evacuation of a subdural hematoma secondary to head trauma. Patient underwent PEG tube placement during which 20% benzocaine spray was used. Patient developed cyanosis on return to ICU; oxygen saturation of 78% via pulse oximetry on 2 L oxygen. Methemoglobin level was 50.2% (normal 0.6–2.5%); methylene blue 180 mg x 2 doses at 30 minute intervals given and patient was continued on 15 L/min nonrebreather. Oxygen saturation improved to 94% after two hours. Methemoglobinemia is phenomena that occurs when iron in hemoglobin becomes oxidized from ferrous to ferric state which leads to decreased oxygen-carrying capacity and delivery. One of the common causes of acquired methemoglobinemia is topical anesthetics. Methemoglobinemia levels below 50% can present with symptoms of cyanosis, headache, dyspnea, fatigue and with seizures, dysrhythmias, hypotension, coma and possible death at above 50%. Physicians should be aware of this fatal complication as it can arise from routinely used drugs, hence early diagnosis is critical for immediate treatment to prevent death.

Institution: St. Mary Mercy Hospital - Livonia
Program Director: David Steinberger, MD, FACP
Presenter: Asma Saboor
Additional Authors: Tahir Khan, MD; David LeCronier, DO ; Preeti Misra, MD; Arqam Zia, MD

A Case of Refractory Hypoglycemia. NIPHS, a Rare Complication of Bariatric Surgery

Introduction: Bariatric surgeries not only significantly improve glycemic control but also favorably affect cardiovascular risk factors. On the flip side, they have many complications as well, one of them is non-insulinoma pancreatogenous hypoglycemia syndrome (NIPHS) representing only 0.5-5% of such cases.

Case Description: A 34 years old female who presented with sudden onset confusion, staggering gait, tremors, tunnel vision, dizziness and light headedness six months after Roux-en-Y Gastric bypass surgery. She also had sleeve gastrectomy 5 years ago. Initial biochemical workup was done twice during hypoglycemic episodes (55 mg/dl and 32 mg/dl) which showed high plasma Insulin, high C-peptide, high pro-insulin level, low Beta-hydroxybutyrate, negative anti-insulin antibodies and sulfonyleurea screen. Cortisol, TSH and T4 level were normal, ruled out any adrenal, thyroid and pituitary cause. CT abdomen and pelvis with and without contrast didn't show any pancreatic lesion or pathology. Insulinoma was ruled out with Gallium-DOTA PET scan. Persistent hypoglycemia was managed by dextrose 10% drip, Total Parenteral Nutrition (TPN) and octreotide. Nine days later she was transferred to University hospital for persistent hypoglycemia. New management plan included octreotide, TPN and diazoxide but she still experienced hypoglycemic episodes. Finally, she underwent G tube placement in her remnant pouch for frequent feedings to suppress pancreatic beta cell proliferation and hyperinsulinemia. Reversal of bypass and/or Partial pancreatectomy is still in plan.

Discussion: NIPHS should be considered in cases of refractory and persistent hypoglycemia after bariatric surgeries. Proper patient counselling is important before these surgeries to prevent any frustration in future.

Saturday Poster # 73

Category: Clinical Vignette

Institution: St. Mary Mercy Hospital - Livonia
Program Director: David Steinberger, MD, FACP
Presenter: Pratyusha Yadavalli
Additional Authors: Wolok R, Steinberger D

A Rare Case of Oligosymptomatic Melkersson-Rosenthal Syndrome Masquerading as ACE Inhibitor Induced Angioedema

Introduction: Melkersson-Rosenthal Syndrome is a rare granulomatous disorder with a triad of persistent or recurrent orofacial edema, facial paralysis and a fissured tongue. Approximately 300 cases have been reported but the condition may be under-diagnosed because the classic triad is not always present.

Case: 28 year old male with a past medical history of hypertension presented with complaints of persistent asymptomatic swelling of the lips for 6 months. He has been on lisinopril for four years. On physical exam he was noted to have thick indurated edema of both lips. Gingival hyperplasia was noted and his tongue was normal. Lisinopril was discontinued, and he was prescribed cetirizine and famotidine. The patient only had a 50% improvement in symptoms. Labs showed that C1 esterase inhibitor and C4 complement levels were not elevated. On follow up visit, patient endorsed a history of unilateral facial paresis two years ago. He was sent for a lip biopsy which showed mixed dermal lymphocytic infiltrate with focal granulomatous features, confirming Melkersson-Rosenthal syndrome. Patient is currently undergoing treatment with low dose prednisone.

Discussion: The purpose of this case is to increase awareness of Melkersson-Rosenthal syndrome. As it is a rare condition, it can be mistaken for much more common diagnoses such as ACE inhibitor induced angioedema, especially in a case where the classic triad is not present and requires histopathological diagnosis.

Institution: University of Michigan - Ann Arbor

Program Director: John DeValle, MD, FACP

Presenter: Eric Smith

Additional Authors: Kathleen Linder, Tejal Gandhi, Corey Lager, Nazanene Esfandiari, Joshua Evron

Proximal Lower-Extremity Weakness: Subtle Signs and Drastic Implications

A 42-year-old man with a history of hypertension, sleep apnea and GERD presents to his PCP with lower-extremity weakness.

Over a period of months, his lower-extremity weakness progresses. He is diagnosed with type 2 diabetes mellitus, referred to a neurologist, and given a diagnosis of chronic inflammatory demyelinating polyneuropathy. Routine labs show hypokalemia with potassium of 1.9 mmol/L. Due to low potassium and leg weakness, he is admitted to the hospital.

In the hospital, a physical exam reveals abdominal striae, moon facies, and a prominent dorsocervical fat pad. A random serum cortisol measures 76 ug/dL; 24-hour urine free cortisol measures 2147 ug/day. A dexamethasone suppression test is negative. The patient is diagnosed with Cushing's disease.

A brain MRI reveals a normal pituitary and numerous ring-enhancing lesions in the brain parenchyma. Brain biopsy shows fungal hyphae; voriconazole and amphotericin B are started. Due to hypoxic respiratory failure, the patient is transferred to the ICU. CT chest shows diffuse ground-glass opacities, pneumocystis jiroveci PCR is positive, and Bactrim is started. Due to abdominal pain, a CT abdomen/pelvis is obtained and reveals an intraabdominal abscess; piperacillin/tazobactam is started. A rash on the left flank swabs positive for herpes zoster; valacyclovir is started. Etomidate and metyrapone are used for control of serum cortisol. An ectopic ACTH-secreting tumor is suspected. A Ga-DOTATE scan is recommended but deferred due to the patient's instability. This case demonstrates the subtlety with which Cushing's disease can present and the drastic implications of long-term unsuppressed cortisol secretion.

Saturday Poster # 75

Category: CQI/EBM

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Sarwan Kumar, MBBS, FACP

Presenter: Israa Ali

Additional Authors: Hashim Alwash, MD, Usha Abeinenni, MD, Vesna Tegeltija, MD, Sarwan Kumar, MD

Improving Appropriate Use of IV Levofloxacin in the Hospital Setting

Introduction:

Fluroquinolones is one of the most commonly prescribed antibiotic nationwide for a variety of infections .

Methods:

Tools: We conducted a retrospective study to review charts to determine if we were adherent to IDSA guideline for the recommended empirical antibiotics for UTI and Pneumonia with the appropriate switch from IV to PO form.

Plan: We planned to educate attending physicians and both IM and FM residents regarding IDSA by routine discussion during rounds, reminder emails and lectures.

Do: We developed evidence based guidelines and educational sessions were to educate IM and FM residents.

Study: Post interventional data collected from hospital admissions as well as Emergency room.

Act: Would like to improve patient comfort, reduce preparation and administration time, lower costs, decrease length of stay and complications.

Post implementation:

Implementation of evidence based guidelines from IDSA guidelines with a team based review and education decreased the percentage of delay in conversion from IV to PO form by 19% with little improvement in the prescribing levaquin in a non indicated setting for CAP by 7%. No change for UTI which stayed at 5%

Conclusion:

We were successful with improvement decreasing the delay in IV to PO conversion with improvement in prescribing it inappropriately.

We are currently in the process of our second PDSA cycle, will focus on more education to nurses, physician and ER physicians.

We are planning to add an alert to our EMR system within 24 hours of the patient being on IV medication with intact oral intake.

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Sarwan Kumar, MBBS, FACP

Presenter: Hashim Alwash

Additional Authors: Israa Ali, MD, Mhd hussam al jandali, MD, Hussam Sabbagh, MD, Zain Kulairi, MD, Sarwan Kumar, MD

Mycobacterium Chelonae: A Very Rare Cause of Aortic Graft Infection

Introduction:

Mycobacterium chelonae is a very rare pathogen that causes infection among humans. Infection of aortic stent graft with this bacteria has never been reported before. We present a case of aortic graft infection with *M. Chelonae*.

Case:

A 64-year-old male with a history of intra-aortic graft placement for abdominal aortic aneurysm presented with intermittent fever, chills, and unintentional weight loss. Vancomycin and Zosyn were started. CT abdomen/pelvis showed a left psoas muscle seroma adjacent to the intra-aortic bypass graft, suspicious for abscess formation. CT-guided drainage was performed, and cultures yielded acid-fast bacteria with subsequent growth of *Mycobacterium Chelonae*. Blood cultures grew Coagulase Negative Staphylococcus. The patient was started and discharged on clarithromycin, rifampin, and ethambutol for 6 weeks. The patient responded well, and his symptoms resolved.

Discussion

Aortic graft infections (AGI) are very serious complications of arterial reconstructive surgery. The incidence is reported between 0.6–3 % and recently the incidence of endograft infections after endovascular aneurysm repair (EVAR) is growing with an average of 0.5–0.7 %. The grafts are colonized by microorganisms via direct invasion or via hematogenous seeding. The most commonly isolated microorganisms in AGIs are *Staphylococcus aureus* followed by Streptococci, Enterococci, and gram-negative organisms. Keep in mind the rare organism like *Mycobacterium Chelonae*, which is a gram-positive bacillus, opportunistic, non-tuberculosis, *Mycobacterium* which is exceptionally pathogenic. *M. Chelonae* is considered the most drug-resistant of the NTM group that commonly involved in community-acquired infections of skin and soft tissue. An optimal drug regimen for *Mycobacterium chelonae* infection has not been established.

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Sarwan Kumar, MBBS, FACP

Presenter: Jacob Salman

Additional Authors: Alicja Sobilo MD, Kushal Shah MD

A Shared Channelopathy: Brugada and Long QT Syndrome

Introduction: Genetic mutations encoding the voltage-gated cardiac sodium channels may cause Long QT Syndrome (LQTS) and Brugada Syndrome (BrS). Prolonged QT-intervals may occur by direct blockage of potassium channels or sodium hH1 channels; ultimately leading to ventricular arrhythmias. Ondansetron is known to act upon both these channels and in doses >16mg known to cause QT-interval prolongation.

Case: A 44yo African American male diagnosed with acute myelomonocytic leukemia underwent his first cycle cytarabine and vorinostat chemotherapy and received generous amounts of Ondansetron for treatment induced emesis. Electrocardiogram (EKG) before initiation of Ondansetron was normal. One week later, repeat EKG showed a brugada pattern with 2mm ST-elevations in leads V1, V2 with T-wave inversions and corrected QT-interval (QTc) of 507ms. He had cardiac arrest with torsades de pointes, was resuscitated and given magnesium despite no electrolyte derangements. He was transferred to telemetry and Ondansetron discontinued. Upon discharge, EKG showed normalization of ST and T-wave abnormalities and a corrected QTc of 464ms.

Discussion: The SCN5A gene encodes the voltage gated sodium channel; its mutations leading to numerous diseases. Namely, LQTS, BrS, dilated cardiomyopathy, sinus node disease and cardiac conduction defect disease (CCD). Each SCN5A mutation is linked to a particular disease although combined phenotypes such as BrS+LQTS and BrS+CCD have been described. EKG phenotypes overlapping between healthy and affected patients further complicate clinical diagnosis. Here a patient exhibited combined BrS+LQTS EKG findings after high doses of 5HT3 antagonist Ondansetron, suggesting a common pathway in these channelopathies and room to further research their connections.

Saturday Poster # 78

Category: CQI/EBM

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Sarwan Kumar, MBBS, FACP

Presenter: Toribiong Uchel

Additional Authors: Mohammad Al-Fityan, Noor Naji, and Hashim Alwash

Reducing Intravenous Fluid Use in a Community Hospital

Intravenous fluid (IVF) is one of the most commonly prescribed therapies in the hospital. Current guidelines provide specific indications of IVF consisting of unstable hemodynamics, electrolyte disturbance, hypovolemic-induced end organ damage, or patients undergoing a procedure and thus have an NPO (nil per os, nothing by mouth) diet. Each liter of IVF costs approximately \$10. On average, 10 patients are admitted to the general medical floor (GMF) daily at Crittenton Hospital. IVF are then discontinued the next day, after 2.9L. This costs the hospital over \$100,000 per year. The aim of the quality improvement project is to decrease the prescription of inappropriate IVF therapy. In order to reach our goal, we retrospectively reviewed patient charts and found that 38% of patients were receiving IVF with no clear indications. Education was presented to residency programs in the hospital regarding clear indications with extra emphasis on patient safety when IVF could be detrimental, extra costs when harm from the IVF has been done (i.e. fluid overload), and how much health care dollars saved when cutting down on unnecessary prescriptions.

Following education, we reviewed random charts of 50 patients who were admitted to GMF and results show 26% increase from pre-implementation data. We concluded that more education as well as expanding the study to include emergency department in order to reach our aim of decreasing inappropriate IV fluid therapy. After reduction, we will implement the project in the electronic medical records so providers will be alerted when ordering IVF therapy.

Institution: Wayne State University - DMC - Detroit

Program Director: Jarrett Weinberger, MD, FACP

Presenter: Abubaker Hassan

Additional Authors: Abdel Aziz Mohamed, Walid Ibrahim , Ahmed Subahi

Hookah Smoking as a Presumed Cause of Idiopathic Acute Eosinophilic Pneumonia (IAEP)

Acute eosinophilic pneumonia (IAEP) is a sudden and severe febrile illness.

It may be caused by drugs, tobacco smoke, or other inhaled substances; however, in the majority of patients, the condition is idiopathic.

It can cause acute respiratory failure, and mimic other common respiratory diseases like pneumonia hence it may result in delay or even missing the diagnosis.

Hookah, also known as a water pipe or argchile, is a bowl-shaped device with a tubular pipe. Charcoal-heated air is passed through a tobacco mixture and then through a water-filled chamber and, ultimately, through the pipe for the user to inhale.

In an hour-long smoking session of hookah, users consume about 100 to 200 times the volume of smoke of a cigarette.

We are reporting a case of 22 years old gentleman who has no notable history of respiratory or allergic disease.

He presented with two days history of fever, dry cough and shortness of breath that is increasing in severity and not related to exercise.

He started to smoke recently for the past one month and mainly he smoked hookah (hukkā or huqqah).

He was treated as community-acquired pneumonia, but his condition rapidly deteriorated within two days of admission as he developed acute respiratory distress syndrome required intubation and intensive care admission.

At the intensive care unit, he underwent bronchoscopy and bronchoalveolar lavage revealed eosinophil counts of 64% consistent with (IAEP).

Treatment with corticosteroids was established resulted in rapid resolution of respiratory failure and complete recovery.

Saturday Poster # 80

Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Eric Ayers, MD, FACP

Presenter: Jane Philip

Additional Authors: Ghulam Saydain; Kimberly Herrmann

Severe Hemoptysis and Respiratory Failure in a Patient with Severe Thrombocytopenia: To Bronch or Not?

Idiopathic thrombocytopenic purpura (ITP) can lead to life-threatening sequelae. There are three documented case reports of ITP presenting as diffuse alveolar hemorrhage (DAH). Bronchoscopy with bronchoalveolar lavage (BAL) was employed for the diagnosis of DAH, despite severe thrombocytopenia (STP). These patients were only treated with standard therapy for ITP and showed clinical improvement. We present a case of a 66 year-old male who presented with hemoptysis, petechiae, STP (platelet $<1000/m^3$), bilateral worsening infiltrates on chest CT and respiratory failure. Infectious and vasculitic testings were negative and a bone marrow biopsy confirmed the diagnosis of ITP. However, given his STP and increasing supplemental oxygen requirements, bronchoscopy was deferred. He was treated with standard therapy for ITP with steroids, IVIG and Rituximab with subsequent resolution of symptoms.

This case served as a lesson for assessing the risks and benefits of BAL in a patient with ITP and hemoptysis. In hemoptysis, bronchoscopy can serve as a diagnostic and therapeutic tool. In the appropriate clinical scenario, bronchoscopy is necessitated – when the cause is unknown and there is concern for malignancy or opportunistic infection. BAL neither adds further clinical value nor changes the management in diagnosed ITP with diffuse infiltrates on CT scan. The risk of further bleeding and worsening respiratory failure outweighed any benefit of the procedure. Ultimately, the pathogenesis of DAH in a patient with ITP can be medically managed without the need for invasive bronchoscopy, which should be reserved only in situations where therapy is likely to change after the procedure.

Institution: Wayne State University - DMC - Detroit

Program Director: Jarrett Weinberger, MD, FACP

Presenter: Muhammad Sheikh

Additional Authors: RAMANJIT KAUR, WALID IBRAHIM, HOSSAM ABUBAKER, ANUPAMA KOTTAM

Intramural Mitral Paravalvular Abscess – An Uncommon Complication of a Common Disease

Paravalvular abscess is a rare and dangerous complication of Infective Endocarditis usually seen in aortic valve, discovered mostly intra- or post-operatively during repair or replacement of infected valve. We report a case of paravalvular abscess of mitral valve with intramural extension into atrioventricular groove diagnosed with transesophageal echocardiography. A 36-year-old gentleman with end stage renal disease on hemodialysis who had an arteriovenous graft infection with methicillin-resistant staphalococcus aureus (MRSA) one month prior and had already undergone graft explanation and antibiotic treatment. TEE at the time showed mitral annular and leaflet calcification but no vegetations. He presented one month later with fever and vomiting. He was febrile (39.4 F) and tachycardic (120 beats/min). Blood cultures were positive for MRSA and remained positive for 5 days. He was started on antibiotics. TTE did not show vegetations. TEE showed several mobile vegetations attached to the atrial aspect of the basal posterior mitral leaflet and posterior mitral annulus. A large mitral paravalvular abscess (3.4 x 1.8 x 0.8 cm) with echogenic wall was also seen along the lateral mitral annulus extending into the lateral atrio-ventricular groove. Hypoechoic thickening of the adjacent atrial wall endocardium suggested intramural extension. The patient required surgical mitral valve replacement and made full recovery. The case highlights the role of early TEE imaging in patients with persistent bacteremia even when previous TEE imaging has been negative, as the infection can spread rapidly in the valve and paravalvular area going from no vegetations to intramural abscess even within a month.

Saturday Poster # 82

Category: Research

Institution: Wayne State University - DMC - Detroit

Program Director: Jarrett Weinberger, MD, FACP

Presenter: Brandon Twardy

Additional Authors: Lea Monday, MD, PharmD, Shahram Maroof, MD, Nichole Chakur, DPT, Jarrett Weinberger, MD, Jennifer Veltman, MD

Assessing Residents' Perception of Their Ability to Manage Chronic Musculoskeletal Pain in HIV Infected Patients

Background: Chronic pain in HIV patients is common and mostly musculoskeletal (MSK) in nature but is often not adequately addressed. HIV patients with chronic non-cancer pain (CNCP) have an increased risk of opioid misuse compared to the general population. We examined the extent of pain complaints in our HIV clinic and assessed the ability of residents to develop a pain regimen.

Methods: We performed a chart review of patients seen by Internal Medicine (IM) residents in the HIV primary care clinic in Detroit, MI. We surveyed residents on developing management plans for CNCP. IRB waiver obtained.

Results: 249 HIV patients were seen from 1/17-5/17. 41/249 (16%) of patients were identified with CNCP and received opioids. MSK symptoms encompassed 28/41 (68%) of total complaints. This included back (n=20), lower extremity (n=10), and upper extremity pain (n=2). 5/41 (17%) patients were prescribed physical therapy for their pain. 15/20 (75%) residents responded to a survey on their comfort treating CNCP. 0/15 (0%) felt completely comfortable developing a plan for CNCP, 2/15 (13%) felt their examination skills were adequate. 12/15 (80%) felt working with a physical therapist (PT) would be beneficial and 10/15 (67%) felt collaboration with PT would further develop their examination skills.

Conclusions: A survey of residents found gaps in knowledge and comfort in CNCP management. We provide evidence that IM residents require additional training in treating CNCP in HIV patients and are interested in multidisciplinary approaches to develop treatment plans for these patients.

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Joanne Baker, DO, Member

Presenter: Suceil Sivsammie

Additional Authors: Chris Jacob DO, Robert Lapenna MD, Susan Bannon MD

A Rare Congenital Cause of Myocardial Infarction in an Adult

Anomalous origin of the left coronary artery from the pulmonary artery (ALCAPA) is an uncommon and lethal disease. It has an incidence of 1 in 300,000 live births and accounts for 0.4% of patients with congenital heart disease. It carries a 90% mortality within the first year of life making it a rare diagnosis into adulthood.

A 33- year old man presented with a complaint of acute left-sided chest pain precipitated by emotional stress. Pain radiated to his left upper extremity and lasted several minutes. Troponin was elevated at 0.038 and rose to 0.928. EKG showed a nonspecific intraventricular conduction delay. During heart catheterization the left main coronary artery (LCA) was not visualized on injection of the aortic root, but was indirectly visualized on left ventricular angiography and right coronary artery angiography as originating from the pulmonary artery. His ejection fraction was 40% and he had anterior wall hypokinesis. He subsequently underwent repair of the ALCAPA by tunneling of the LCA into the aorta with autologous pericardium.

Only 10-15% of patients with ALCAPA survive into adulthood. In the adult type intercoronary collaterals are a prerequisite. No history of cardiac complaints and a nearly normal EKG are common findings. Diagnosis is primarily by echocardiography and heart catheterization. Early surgical repair to create a dual coronary system is the standard of care for long term survival. Prognostic outcome is related to the preoperative myocardial damage as measured by the left ventricular function.

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Joanne Baker, DO, Member

Presenter: Tooba Tariq

Additional Authors:

A Case of Hashimoto's Encephalopathy Treated with Intravenous Immunoglobulins

Hashimoto's encephalopathy (HE) is a rare progressive and/or relapsing encephalopathy with neuropsychiatric manifestations which is associated with chronic autoimmune thyroiditis and which responds well to steroid therapy. Plasmapheresis and IVIG might be used as an alternative treatment modality in patients with HE however limited data exists regarding the beneficial effect of these treatments.

We present the case of a 57 year old woman with family history of Grave's disease and thyroid cancer who presented with progressive right sided, weakness with numbness, unsteadiness of gait, expressive aphasia and confusion. She underwent an extensive work up including CT scan, MRI, EEG, EMG, lumbar puncture, myasthenia panel and NMDA receptor antibodies which were all unremarkable. However, she did have elevated thyroid peroxidase (TPO) antibodies. She was treated with steroids in the past for psoriasis but later developed steroid induced mood instability. Hence, she was started on IVIG treatment (0.4 g/kg body weight daily for 5 days and later once a month) instead of glucocorticoid therapy. Gradual improvement was noted (aphasia and confusion resolved completely) with stability in rest of the symptoms. Patient's TPO antibody level remained elevated throughout the clinical course.

Hence, our case report supports that IVIG can be used as an efficacious alternative treatment modality in patients with HE who cannot be treated with steroids due to any reason (steroid resistant HE, intolerance to steroids etc).

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Joanne Baker, DO, Member

Presenter: Scott Timmer

Additional Authors: Dr. Mark Schauer

Pelvic Actinomycosis: A Rare Mimic of Gynecologic Cancer

Introduction: Pelvic actinomycosis is a rare cause of chronic tubo-ovarian abscess that has an association with IUD use. It has an indolent course and mass-like appearance on imaging and is therefore frequently mistaken for gynecologic malignancy.

Case Description:

A 25 year old woman presented to the ED with severe lower abdominal/pelvic pain of 3 months duration (gradual in onset, but progressively worsening). Associated symptoms included bloating, anorexia, night sweats, 25 pound weight loss, dyspareunia, post-coital bleeding, and vaginal discharge. A Copper IUD had been placed 3 years prior.

Physical exam was significant for cachexia, lower abdominal distension and guarding, and cervical motion tenderness. WBC was 47,000. Ultrasound showed a 10 cm x 9 cm x 12cm right adnexal mass with solid and cystic components.

Abdominal laparotomy with right salpingo-oophrectomy was performed for suspected ovarian malignancy. Histopathology showed granulomatous inflammation with abscess formation, epithelioid histiocytes with suppuration, and colonies of filamentous bacteria consistent with actinomyces.

The IUD was removed. She received IV antibiotics of ertapenem and metronidazole for 6 weeks followed by oral penicillin for 6 months with resolution of her symptoms.

Discussion:

Pelvic actinomycosis is a rare form of an uncommon disease. Medical providers should be aware of this pathogenic bacteria to facilitate prompt diagnosis and treatment. This diagnosis should be considered in patients with appropriate risk factors who are suspected to have gynecologic malignancy. Lastly, patients who are considering IUD placement should be counseled regarding the small but increased risk for pelvic infection including actinomycosis.

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Joanne Baker, DO, Member

Presenter: Lokesh Yadav

Additional Authors: Guramrinder Thind, Aness Al-Khateeb, Ross Driscoll

Calciophylaxis: An Imitator of Coumadin Skin Necrosis

Calciophylaxis is seen in 1-4% of the population with ESRD, especially in those who are noncompliant with dietary, medical, and/or dialysis prescriptions. Mortality rate as high as 60-80% in patients with ulcerative disease. It is extremely rare in non ESRD population. Differential diagnoses include coumadin necrosis, polyarteritis nodosa, cholesterol emboli, bacterial endocarditis, DIC and cryoglobulinemia.

72 year old woman was admitted to the general floor with gangrenous looking patches on both thighs. She developed erythematous lesions on the thighs 4 weeks ago and they progressively became darker and exquisitely tender and painful. Past medical history was significant for paroxysmal Afib, idiopathic pulmonary hypertension, CKD stage 3, nicotine dependence and congestive heart failure. Significant medications included Sildenafil, warfarin, Lisinopril, atorvastatin, metoprolol and metformin. On exam of the lower extremities, there was a 10x15 cm clearly demarcated eschar on the right mid thigh surrounded by deep erythema and a 2x2 cm crater at lower border with foul smelling, greenish discharge. There was a 5x5 cm eschar on the left thigh with the same appearance. A surgical debridement was performed. Biopsy showed circumferential medial calcification and other features of calciophylaxis. She died sec to sepsis.

Warfarin therapy has been associated with calciophylaxis. Warfarin may lower protein C concentrations, leading to a procoagulant condition in the calcified vessel. May also inhibit carboxylation of matrix Gla protein, an important inhibitor of calcification. A surgical biopsy is needed for diagnosis but wound healing is extremely poor. Sodium thiosulphate, a potent antioxidant has off label use.

Saturday Poster # 87

Category: Clinical Vignette

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Joanne Baker, DO, Member

Presenter: Carleigh Zahn

Additional Authors: Dr. Lauren Lamie, Dr. Diane Peirce

An Unexpected Case of Lactic Acidosis: Beta Agonist Induced Asymptomatic Lactic Acidosis

Case: 58 year old female with pertinent past medical history of atrial fibrillation, gastrointestinal arteriovenous malformations (AVM), chronic obstructive pulmonary disease (COPD) on home oxygen, end-stage renal disease on hemodialysis, and morbid obesity presented for chief complaint of acute on chronic shortness of breath. She had a recent admission for a COPD exacerbation. Discharge medications included scheduled ipratropium/albuterol (DuoNeb) four times daily. Patient was admitted and continued to receive patient scheduled DuoNeb as well as albuterol for her ongoing shortness of breath. Laboratory studies were unremarkable aside from lactate of 4.1 which rose to 8.4 during her hospital stay. With the rising lactate, infectious and ischemic work up were pursued and were negative. Intensivist team was consulted and recommended decrease in beta agonist dosing with resultant normalization of serum lactate.

Discussion: Although the mechanism is poorly understood, an uncommonly recognized adverse effect of beta agonist administration is asymptomatic lactic acidosis. Lactic acidosis secondary to beta agonist use may be more common than anticipated and may easily confuse the clinical scenario. This may lead to unnecessary interventions and testing. Recognizing beta agonist asymptomatic lactic acidosis may prevent undue patient harm.