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Category: Clinical Vignette

Institution: Allegiance Health

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Ciprofloxacin Inhibition of Clozapine Metabolism Induces Rhabdomyolysis: A Case Report

CYP450 monooxygenase system is the main pathway in drug metabolism, which is often influenced by drugs itself. Ciprofloxacin inhibition of CYP450 induces rhabdomyolysis by increasing Clozapine bioavailability.

A 62-year-old male with past medical history of development delay, schizoaffective disorder, hypertension, chronic obstructive pulmonary disease and cerebrovascular accident on Aspirin, Clozapine, Citalopram and Tamsulosin presented with confusion and urinary incontinence. Patient was diagnosed with urinary tract infection and was sent home on ciprofloxacin. After ten days, patient was presented again with altered mental status. Patients lab studies showed elevated creatinine phosphokinase (CPK) levels at >20,000 U/L and serum myoglobin levels 22,389 ng/ml, WBC count 13.9x10³/μl, hemoglobin 11.2g/dl, platelets 193x10³/μl, sodium 147mmol/L, BUN 25mg/dl, creatinine 1.4mg/dl (baseline 0.7-0.8 mg/dl), ALT 141U/L, and AST 614U/L. Urine analysis showed ketones 40mg/dl, hemoglobin small A, protein 30mg/dl, RBC 1/HPF, nitrite negative, WBC 3/HPF, WBC esterase negative. CT head without contrast was performed which showed no acute intracranial process. Initially based on the patient's presentation and high level of CPK NMS was entertained and Clozapine was stopped. Based on lack of fever, rigidity and WBC elevations Clozapine was resumed and Ciprofloxacin was stopped. CPK levels started declining, and on the day of discharge CPK level was 178 U/L and patient's mental status improved significantly.

Clozapine is metabolized mainly by CYP450 and inhibition of CYP450 isoenzymes results in increased bioavailability when used with quinolones. Monitoring plasma level of Clozapine can be helpful when the patient is on medications that also inhibits cytochrome p450 enzymes.

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Upper Gastrointestinal Bleeding from a Sinistral Cause

INTRODUCTION

Sinistral or left sided portal hypertension (LSPH) is a rare entity, different from generalized portal hypertension due to confinement to left side portal system only. Among many, pancreatic lesions are the most common cause of Portal vein obstruction/occlusion leading to LSPH. It can cause potentially life threatening Upper GI hemorrhage from isolated gastric varices.

CASE

A 62 year old male with PMH of Stage IV Pancreatic Cancer, AOCD and PE presented to ER with abdominal pain for 1 day. On admission patient was found to be anemic (Hb 6.0) and elevated lactic acid. CT abdomen/pelvis showed worsening metastatic disease of liver and pancreas but no acute process. Subsequently patient had two episodes of hematochezia and required multiple transfusions raising concerns for ongoing bleed. EGD showed fresh blood in the proximal stomach without identification of source. Patient was referred to Interventional radiology for angiographic identification and possible embolization. Patient was found to have splenic vein occlusion leading to development of a large gastric varix draining from splenic vein to SMV along with additional small varices. Finally patient underwent splenic artery embolization with a goal to decrease blood flow through varices, with resultant resolution of variceal bleed.

CONCLUSION

LSPH should be considered in all with Upper GI bleed associated with splenomegaly in the absence of chronic liver disease. Traditional management involves surgical removal of the cause, combined with splenectomy. However, Partial splenic artery embolization is another treatment modality suggested in poor surgical candidates or pre-operatively to reduce intraoperative blood loss.

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Kindling Syndrome Exacerbated by Benzodiazepine Therapy in a Case of Alcohol Withdrawal

Introduction:

Kindling syndrome entails worsening hyperexcitability following repeated, intermittent exposure to a sensitizing agent. It relates to alcohol withdrawal (AW), as chronic alcoholism leads to an upregulation of excitatory neurotransmitters and a downregulation of inhibitory neurotransmitters, thereby overcoming alcohol's depressant effect. However, during sobriety, these adaptations cause hyperexcitability manifesting as worsening AW.

Case:

A 59 year old patient with past history of chronic alcoholism, and schizophrenia presented to the ER intoxicated. Owing to history of severe AW he was admitted on his home medications of risperidone and mirtazapine and started on CIWA protocol with lorazepam therapy. Following admission, the patient evidenced progressive agitation and worsening CIWA scores culminating in the need for restraints, despite graduation to a lorazepam infusion. His symptoms worsened to include tremors and hallucinations despite multiple pharmacotherapeutics including dexmedetomidine, propofol, and various antipsychotics.

Finally, psychiatry assessed the patient with kindling syndrome, secondary to chronic alcohol abuse, compounded by long-term intermittent benzodiazepine administration. The patient was subsequently started on valproate and olanzapine and evidenced resolution of agitation with decreasing need for sedatives and improvement in orientation.

Discussion:

Kindling syndrome should be considered in recalcitrant cases of AW, especially in patients with long histories of frequent episodes. Recurrent AW predisposes patients to a progressively "kindled" hyperexcitable state and escalates risk for eventual seizures. Benzodiazepine therapy should be judiciously used in these cases owing to similar receptor targeting and possible potentiation of the kindling process. Anticonvulsants would be more appropriate in these patients to avoid such complications.

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Puff of Smoke in the Brain

Introduction: Moyamoya disease, known as 'puff of smoke' in Japanese, is chronic progressive cerebrovascular disease characterized by bilateral stenosis or occlusion of the arteries around the circle of Willis with prominent arterial collateral circulation.

Case description: 56 year old lady with history of atrial flutter and hypertension, presented with 15-day history of recurrent fronto-temporal headaches. In the emergency department she developed brief altered mentation and dysarthria. On exam patient had episodic dysarthria with resolution. Ct head revealed chronic infarct of left frontal lobe. MRI revealed a subacute infarct in left frontal lobe, multiple small focal abnormal signal intensities involving deep white matter in the periventricular region and centrum semiovale bilaterally. Subsequent CTA showed hypoplastic bilateral supraclinoid internal carotid arteries with collateral flow of the bilateral middle and anterior cerebral arteries, suggestive of moyamoya disease.

Discussion: Primary moyamoya is familial. Whereas, secondary moyamoya occurs in association with multiple conditions. Cerebral arteriography is the standard diagnostic tool. Ischemic cerebrovascular events are more prevalent in children with moyamoya disease. Adults have a greater tendency to have hemorrhagic events due to rupture of the tiny blood vessels due to higher blood pressures. It is important to be vigilant about moyamoya in patients with recurrent symptoms consistent with ischemic stroke.

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Tumid Lupus Erythematosus- A Rare Dermatopathological Entity

Tumid lupus erythematosus (TLE) is an uncommon disorder, clinically a rare variant of cutaneous lupus erythematosus. Clinically, it lacks typical changes found in discoid lupus and ANA levels are elevated in only 10% of the patients. We present a case in which a patient with chronic rash was diagnosed with tumid lupus.

A 48 year old Caucasian female with a past medical history of nephrolithiasis, GERD, anxiety and hyperlipidemia was referred to rheumatology clinic for evaluation of chronic facial rash that started two years ago. She had maculopapular rash on submandibular area, both maxillary areas and nasal bridge. She also reported intermittent oral ulcers, joint pain with morning stiffness, and unintentional 10 pounds weight loss over the last three months. Labs showed ANA positive at 1:640, elevated ESR and rest of the serologies were negative. The patient's skin biopsy of right lateral mandibular area showed superficial and deep dense lymphocytic infiltrate and mucin deposition with overall histopathologic impression favoring tumid lupus. The patient was started on hydroxychloroquine and aspirin, with improvement in her condition within a few weeks.

Ultraviolet light exposure, immune system dysregulation, anti TNF alpha agents, thiazide diuretics, highly active antiretroviral therapy and angiotensin converting enzyme inhibitors have been proven to play an important role in pathogenesis of tumid lupus. Tumid lupus usually responds to photoprotection, topical treatment or oral antimalarial therapy. Proper use of sunscreen and sun protective measures is paramount in treatment of tumid lupus.

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Hypercalcemia, Not your Usual Suspect

INTRODUCTION:

Hypercalcemia due to malignancies is induced by direct bone infiltration by tumor or through calcium liberation from the skeleton by a humoral mediator, which includes PTHrP. We present a case of Chronic Lymphocytic Leukemia (CLL) presenting with humoral mediated hypercalcemia.

CASE

62 year male with history of prostate cancer with resection 5 years ago, chronic lumbago, and 50 pack year smoking history, presented with generalized weakness, and confusion. He reported increased urination and water intake. On admission day, patient had WBC of 9.9, Hemoglobin 8.5, platelet count of 142. He was diagnosed with pneumonia based on radiological and lab evidence and treated with antibiotics. His CMP showed calcium 13.6, acute renal failure. During previous hospital visits, calcium and GFR were in the normal range. With low PTH levels there was a concern for a malignant process, Multiple Myeloma and metastatic prostate cancer were suspected, CT chest was positive for mediastinal, hilar lymphadenopathy. Vitamin D levels, SPEP were noncontributory. Skeletal survey demonstrated no radiographic evidence of multiple myeloma. Patient's PTHrP was elevated at 45, the cause was still unclear. Endoscopic bronchial ultrasound guided biopsy of the subcarinal lymph node was done, which showed predominantly lymphocytes. Bone biopsy was performed, it showed 75% lymphocytes. The cells were positive for expression of CD5, CD19, CD20. He had 11q deletion, indicating aggressive disease. Patient had findings suggestive of Rai stage 3 CLL.

DISCUSSION:

The incidence of hypercalcemia is 50-90% in adult T-cell leukemia/lymphoma, 27-35% in lung cancer, 25-30% in breast cancer, 7-30% in multiple myeloma, and less than 10% in other types of cancers. Hypercalcemia is rarely described as a feature in CLL.

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Methotrexate Induced Interstitial Pneumonitis

Introduction: Methotrexate (MTX) induced lung toxicity is an uncommon disease that can occur weeks to months after initiation of treatment. We are presenting a case of MTX induced pneumonitis in a patient with a high suspicion of Pneumocystis pneumonia (PCP). Case: 79 Y/O female with a history of Rheumatoid arthritis on methotrexate came to the ED with few days history of non-productive cough, and fever. Her Pulse Oximetry on admission was 89% on RA. Ct scan of the chest showed extensive bilateral multifocal infiltrates. Methotrexate was discontinued and the patient was treated for community acquired pneumonia and started also on Trimethoprim/sulfamethoxazole and steroids for possible PCP infection. Initially the patient showed good clinical response and repeated CXR demonstrated interval improvement. Shortly after tapering the steroids the patient's oxygen requirement increased and her symptoms worsened. Bronchoscopy was done and the BAL results came back negative for PCP infection. The lack of response to the antibiotic treatment and the negative work up for fungal infections led to the diagnosis of MTX induced pneumonitis. The patient was started on intravenous Methylprednisolone and was discharged to long term facility. The follow up CT chest demonstrated marked improvement in the bilateral infiltrates, and the patient continued to show clinical improvement during her follow up visits. Conclusion: MTX induced pneumonitis may present in an acute, subacute, or chronic form. The prognosis is usually good once the patient is started on steroids. Bronchoscopy and BAL are used to rule out other diseases that can mimic MTX induced pneumonitis.

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Extra-Hepatic Presentations As B Cell NHL and Cryoglobulinemic MPGN in Hepatitis C

Hepatitis C virus (HCV) is a well known etiology for chronic hepatitis, cirrhosis and hepatocellular carcinoma; furthermore HCV has also been implicated in extra-hepatic manifestations. A 51-year-old male, with a history of prior IV drug abuse and hepatitis C, presented with abrupt purpura, uncontrolled hypertension and anasarca. His hepatitis C had never been treated due to financial reasons. He has been diagnosed with marginal zone BCNHL in 2012, which represents the most common histological type of HCV-associated lymphoma. He was treated with Rituximab leading to a complete response. He developed acute kidney failure with proteinuria although his liver function tests were normal. His HCV load was significantly increased comparing to six months ago. Cryoglobulinemia was confirmed in his serum as well as low C4, normal C3 and positive rheumatoid factor. Kidney biopsy was performed and revealed cryoglobulinemic MPGN with 35% global glomerulosclerosis. Patient was started on Harvoni after 2-week treatment of Rituximab and steroid. Unfortunately, patient did not improve and died of kidney failure 2 months later.

Chronic HCV infection results in persistent B cell stimulation and proliferation. Epidemiological studies have demonstrated frequent associations of hepatitis C with B cell lymphoproliferative disorders. However, very few cases of HCV-induced BCNHL and cryoglobulinemic MPGN presenting in the same patient have been reported. Early implement of anti-HCV treatment is crucial for better prognosis. While eradication of HCV was proven to induce complete remission of indolent BCNHL, end stage kidney disease will not respond well to antiviral therapy.

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A Rare Case of Bleeding Duodenal Arteriovenous Malformations in Association with Amyloidosis

Amyloidosis is a rare disease caused by accumulation of abnormal amyloid fibrils in extracellular matrix of tissues leading to their structural and functional disruption. Primary amyloidosis (AL subtype) is associated typically with plasma cell dyscrasias while secondary amyloidosis (AA subtype) occurs in association with chronic inflammatory processes. GI bleeding is the presenting symptom in 25 to 45 percent of patients with known GI tract amyloidosis. AVM (arterial-venous malformations) in association with amyloidosis is a rare cause of GI bleed.

An 82-year old Caucasian male presented with 3 day history of melena. Patient had Iron deficiency anemia with hemoglobin of 7.9 g/dL and serum Iron of 20 ug/dL. Emergent EGD showed thickened small bowel mucosal folds with multiple AVM's in 2nd and 3rd portion of duodenum, few of which were bleeding actively. Duodenal mucosal biopsy results demonstrated amyloidosis involving the muscularis mucosa and vessels, which were positive for apple green birefringence under polarized light microscopy of Congo red stain. Urine immunofixation was negative for monoclonal free κ and λ light chains. Mass spectroscopy revealed AL type amyloidosis, however, multiple myeloma was ruled out.

Rarely AVM have been found to be associated with amyloidosis. Thus far the published data has shown such association as gastric amyloidosis; pulmonary AVM's with amyloidosis; and cerebral amyloid angiopathy. This is the first reported case of bleeding duodenal AVM's with amyloidosis. Hence, we recommend that in the presence of AVM's with thickened small bowel folds should prompt the endoscopist to perform mucosal biopsies to rule out amyloidosis.

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Brain on Fire: Unusual Case of Striational Antibody Positive Autoimmune Limbic Encephalitis

Autoimmune encephalitis is increasingly being recognized as a cause of non-infectious encephalitides. Multiple antibodies have been recently recognized in association, responsible for myriad of neurological manifestations. We report a rare case of striational antibody positive autoimmune limbic encephalitis.

68 year old female with history of papillary thyroid cancer status post total thyroidectomy was admitted to the hospital in month of July with acute onset of confusion and high grade fever after a recent travel to Philadelphia. She also complained of generalized weakness, appetite loss and excessive sleepiness. Lumbar puncture on admission revealed lymphocytic pleocytosis and presence of oligo clonal bands. Brain MRI did not show any lesions. Patient was started on broad spectrum antibiotics. No infective etiology was found after extensive work up. Patient continued to spike fever, progressively deteriorated with increasing confusion, labile mood, incomprehensible speech and decreased speech output over days which progressed to mutism. Continuous EEG monitoring showed evidence of on non-convulsive status epilepticus. Thyroid antibodies were negative. Diagnosis of paraneoplastic/autoimmune encephalitis was considered. Serum paraneoplastic antibody panel came back positive for striational antibodies. Patient was treated with intravenous immunoglobulins with remarkable improvement in symptoms. Work up for malignancy including thymoma remained negative on follow up.

Striational antibody positivity concomitantly with other neuronal antibodies has been reported in cases of autoimmune encephalitis especially in cases of late onset myasthenia gravis and thymoma. To our knowledge, this is the first case of limbic encephalitis solely caused by striational antibodies.

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Clomiphene: Infertility and Infarction

49 years old man with no previous medical history presented to the hospital with sub sternal chest pain that felt like heavy pressure and radiated to his left upper extremity. It woke him up from sleep. His only home medication was clomiphene from 4 weeks which he was taking for infertility. His initial EKG showed nonspecific ST-T changes. Troponin T level was elevated at 0.23 NG/ML (0.00-0.04). To complete the risk profile, blood tests were done. HDL was low at 16 mg/dl. Other tests were normal. Patient underwent emergent coronary angiography showing 99% occlusion of the left circumflex artery. He received a drug eluting stent and was discharged on standard regimen for acute coronary syndrome.

Discussion: We are presenting a possible case of Clomiphene induced myocardial infarction in patient who did not had significant cardiac risk factor. Clomiphene citrate, a selective estrogen receptor modulator, prevents estrogen binding to its receptors in hypothalamus resulting in gonadotropin release and increases serum testosterone. Its known that testosterone replacement therapy can lower HDL1 as seen in this patient. We suggest further studies are needed to prove that association with clomiphene.

On reviewing the literature few cases reported of similar complications with use Clomiphene citrate (including thromboembolism disorders, cerebrovascular accidents and myocardial infarction).

Clomiphene is considered safe, with minimal side effects. Thromboembolism is a rare but life-threatening complication that has been reported using clomiphene citrate.

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Category: Clinical Vignette

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Squamous Cell Carcinoma of the Pancreas- An Unfamiliar Disease

Introduction: Of the pancreatic carcinomas of ductal origin, primary squamous cell carcinoma (SCC) of the pancreas is rarely described in the literature, as opposed to the more common adenocarcinoma of the pancreas. SCC is rare and little is known about its risk factors, course, and response to chemotherapy, however it has been identified as having worse survival rates than adenocarcinoma. The median survival of non- resectable SCC of the pancreas is 3 months. This is in part due to the absence of clear guidelines on its management, and oncologists often resort to case reports for management of the disease.

Case Description: We present a case of primary SCC of the pancreas in a 59-year-old male patient with chronic abdominal pain, generalized back pain and fatigue. Imaging studies revealed a left upper quadrant mass arising from the pancreatic tail, with innumerable liver metastases. Pathologic exam of the liver lesions confirmed the diagnosis of metastatic poorly differentiated SCC of pancreatic origin.

Discussion: Further workup did not detect any lesion that could have represented a different primary source of SCC with metastases to the pancreas and liver. We concluded that this is case should be diagnosed as primary SCC of the pancreas. Pancreatic SCC poses a challenge as there are no clear management plans with evidence of the superiority of certain chemotherapy agents over others. The patient decided to pursue medical care at another hospital and follow up was lost after the diagnosis.

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Category: Clinical Vignette

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Are Breast Cancer Guidelines Failing our Patients?

Introduction:

US National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) has found a significant increase in breast cancer with metastasis in women aged 25 to 39 from 1976 to 2009. The American Society of Clinical Oncology (ASCO) recommends against CT, PET, or bone scan in patients with Stage I or II Breast Cancer for the identification of occult metastatic disease, unless worrisome signs or symptoms are present, because the risk of metastasis at diagnosis is low. This is extrapolated, however, based primarily on cancers diagnosed by screening women above the age of 40.

Case Presentation:

A 37 year old female presented with left sided, positional chest pain. Physical exam identified a tender and fixed mass in the left breast that was later diagnosed as Stage IIa invasive ductal breast adenocarcinoma T2 N0, ER/PR positive and HER II negative. Per National Comprehensive Cancer Network guidelines, no further imaging was warranted, because the patient was asymptomatic. Within one month of the lumpectomy, prior to start of hormonal therapy, she presented with worsening shortness of breath. Workup diagnosed metastasis with a malignant left sided pleural effusion, subcentimeter pulmonary nodules, and spinal lytic lesions.

Discussion:

We challenge the national guidelines recommending against further imaging studies for patients with Stage II breast cancer, which do not comment specifically on patients that have been diagnosed with breast cancer outside the screening criteria. Up to 5% of asymptomatic breast cancer patients have been diagnosed with metastasis, allowing for earlier treatment strategies, possibly with improved prognosis.

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The Devastating Cytokines Storm: A Case Report of HLH Full Spectrum of Complications and Review of Literature

Introduction

Hemophagocytic lymphohistiocytosis (HLH) is a disease that results from hypercytokinemia. It is present with high non-remitting fever, hepatosplenomegaly, lymphadenopathy, neurological, renal, pulmonary and cardiac involvement. Laboratory findings include pancytopenia, high serum ferritin and triglycerides levels, soluble interleukin-2 receptor known as soluble CD25 and hemophagocytic cells in the bone marrow.

Case

An 18 year old Vietnamese male presented with complicated multiple hospitalizations. He was diagnosed with Still's disease in view of skin rash, joint swelling, elevated serum ferritin level. He was started on Prednisone and Methotrexate. Patient was hospitalized for cellulitis and resolved with treatment. Again he was brought in unconscious with fever and hepatomegaly and was intubated for angioedema. Laboratory testing showed pancytopenia, elevated serum ferritin level of 215,400, Hypertriglyceridemia, hypofibrinogenemia and elevated soluble CD25 soluble (IL-2). Bone marrow biopsy was compatible with HLH and patient was started on Decadron & Etoposide with good response to treatment however two months later patient presented with status epilepticus. MRI showed a left occipital lesion and brain biopsy revealed hemophagocytic cells. He was started on Alemtuzumab and intrathecal methotrexate. He improved and was discharged for rehabilitative therapy. He presented again with abdominal pain, elevated lipase and triglycerides levels. He was diagnosed with acute pancreatitis managed accordingly.

Discussion:

HLH is a fatal disease and lacks pathognomonic features. A high index of suspicion is crucial to early diagnose this condition with urgent immunosuppressive treatment initiated to help prevent complications. Pancreatitis is a complication that should be anticipated in patients with HLH and properly managed.

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Category: Clinical Vignette

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Bupropion-Induced Angioedema

Introduction

Angioedema can be a life threatening complication of various drugs, most commonly ACE inhibitors¹. Here, we describe a case of angioedema secondary to bupropion use.

Case Presentation

A fifty-three year-old African-American female with a PMH of depression presented to emergency via EMS with facial swelling, dysphagia, pruritic rash, and dyspnea beginning six hours prior. The patient denied new foods. Her medications included alprazolam and bupropion. Although she had been taking aprazolam many years, she started bupropion fourteen days prior to presentation.

Her vitals and physical exam were notable for tachycardia, tachypnea, lip, chin, tongue, and uvula edema and a widespread rash. ENT performed bedside fiberoptic laryngoscopy, observing a posteriorly pushed epiglottis secondary to lingual tonsils and tongue fullness. The patient was started on Decadron 10mg Q6, Benadryl 50mg Q12 and admitted to ICU stepdown. Bupropion were stopped. Her angioedema resolved within 24 hours, and she has not had a similar event in two months.

Discussion

Angioedema is a rare side effect of bupropion, noted on product labeling as, “anaphylactoid/anaphylactic reactions have occurred during clinical trials”². Case reports of bupropion-induced angioedema describe symptoms beginning seven to 20 days from drug commencement³⁻⁶. A recent analysis of bupropion serious adverse reactions (SARs) identified angioedema with a median 12-14 days to SARs⁷. Thus, clinicians should monitor patients closely in the first few weeks after drug initiation.

Conclusion

Angioedema, albeit rare, is a life threatening complication of bupropion and is thus important for prescribers to monitor and recognize.

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Pan-Colitis Due to an Unusual Pathogen in Michigan

INTRODUCTION: In United States, 60% of E.Coli hemorrhagic diarrhea are caused by E. coli O157:H7, the remaining 40% are attributed to Non-O157 serotypes. Since 1983, among Non-O157 group, CDC reports O26 to be the most prevalent (22%) and O145 the least prevalent (5%).

CASE: A 22-year-old male with no PMH presented with 3-day history of excruciating RLQ abdominal pain and bloody diarrhea after attending a country side festival where he handled raw beef and ingested raw beef juice, brought from Midland Michigan but no other cases reported since meat was well done. Exam: Tachycardia and RLQ abdominal tenderness. Diagnostics: CT abdomen showed severe pan-colitis. Stool cultures revealed shiga-toxin-1 producing E.Coli O45. Treatment: Empiric antibiotics, hygiene and contact isolation. Symptoms resolved within 5-7 days.

Discussion: CDC reported that since 1983 only 7% of hemorrhagic colitis cases were related to E.Coli O45. One outbreak of E.Coli O45 reported in Michigan due to processed beef meet from Wisconsin in 2005. This bacteria attaches to colonic epithelium, enters blood circulation, causing vascular damage due to Shiga-toxin. Shiga-toxin-2 is more cytotoxic than Shiga-toxin-1. Supportive measures are enough for treatment. Proper hand hygiene, properly cooked meat and contact precautions are important to prevent spread.

Conclusion: Non-O157 E.Coli hemorrhagic diarrhea is a major public health concern since it constitute 40% of all cases reported. All such cases should be reported to local health department for source detection. Proper hand hygiene, meat cooking and contact precautions are effective to prevent spread.

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Challenges in Treating Autoimmune Diseases in the Settings of Immunodeficiency

Common Variable Immunodeficiency (CVID) is the most common primary immunodeficiency in USA. Rheumatoid Arthritis (RA) is not uncommon, occurring in 1-10% of patients with CVID.

A 29-year-old male with PMH of CVID diagnosed 2012 on IVIG that is complicated by bronchiectasis. One year later he was complaining of fatigue and symmetric polyarthrits. His vitals were normal. physical exam revealed swelling, redness, warmth, and tenderness involving bilateral wrists and multiple MCPs. X-ray showed periarticular osteopenia of the MCPs compatible with early inflammatory arthritis. Serology was negative for rheumatoid factor and anti-CCP. Ultrasonography of the elbows showed active synovitis which confirmed the seronegative RA. He was commenced on Sulfasalazine, Methotrexate, and Hydroxychloroquine and then Etanercept without improvement of his symptoms. He was then switched to Adalimumab with minimal improvement of his symptoms but unfortunately, he developed recurrent severe infections necessitating frequent hospitalizations and interruption of Adalimumab treatment. Meanwhile he developed recurrent severe flares of rheumatoid arthritis which were treated with steroids.

literature suggests treating CVID with IVIG and using the same treatment as for individuals who are not immune deficient to treat a concurrent RA. This may be very challenging as in our patient who continues to get recurrent infections that require frequent hospitalizations despite adequate doses of IVIG and who is hence unable to tolerate immunosuppressive therapy to achieve remission of his erosive RA. In such cases the only practical solution will be high dose of steroids for acute flares and low dose maintenance of steroids to prevent recurrence.

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Category: Clinical Vignette

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Factor V Leiden Mutation and Arterial Thromboembolism: An Evidence-Based Review

Introduction: About 3% of world population is heterozygous for factor V Leiden (FVL) mutation, found in 25 % of patients with recurrent venous thromboembolism. Its contribution to arterial thromboembolism has not been studied well but is highlighted in this case of NSTEMI and ischemic stroke.

Case Description: A 37 year old Caucasian male presented with diplopia secondary to basilar artery thrombosis. He was simultaneously diagnosed with NSTEMI, cardiac catheterization revealed triple vessel disease with EF of 25% and apical hypokinesis. No mural thrombus was found on echocardiogram. Lab work showed LDL 92 mg/dl and total cholesterol 138 mg/dl. His only risk factor was a smoking history. Hematology study revealed one normal FVL gene and one R506Q mutation. The prothrombin G20210A mutation was not detected.

Discussion: An evidence-based argument can be made to support that FVL mutation contributes to primary arterial thromboembolism in CAD and stroke. The pathophysiology of FVL associated hypercoagulability lies in a mutation that resists degradation of factor V by activated protein C. This leads to a 5–10 times increased risk of venous thromboembolism in patients heterozygous for FVL mutation. Homozygosity further increases the risk. The penetrance of FVL mutation in heterozygous patients is 12-20%. FVL mutation is also not associated with mural thrombus formation in AMI. Ischemic stroke in this patient can be independently linked to FVL mutation and not to the low EF found on echocardiogram.

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Pregnancy and Lactation Associated Osteoporosis

Introduction: Pregnancy and lactation associated osteoporosis (PLO) is a rare disease of late pregnancy, puerperium and lactation. It occurs with the first pregnancy but can recur with subsequent pregnancies. PLO typically presents with back pain.

Case presentation: 30 years old woman presented with acute onset back pain two months after the delivery of her first child. She was exclusively breast feeding her newborn. Imaging showed acute multiple vertebral compression fractures. The patient underwent kyphoplasty. A variety of work up ruled out secondary causes of osteoporosis including metabolic bone disease, genetic disorders and malignancy. Diagnosis of PLO was made. Breast feeding was discontinued and treatment was started with Calcium, Vitamin D supplements and Calcitonin nasally. Bone density scan in 6 months demonstrated minimal improvement. Accordingly, decision was made to change treatment to Forteo.

Discussion: The main focus of our discussion will point towards diagnosis and treatment of PLO. Our initial work up would aim for explaining why a premenopausal woman would develop osteoporotic compression fractures. Overall, we have limited data on efficacy, long term outcomes and safety profile for most of the anti-resorptive medications in premenopausal women. Alternative medication, namely Forteo, has been highly recommended in numerous case reports and studies with very good outcomes.

Conclusion: PLO is a diagnosis of exclusion. Therefore, it requires having high suspicion index especially in premenopausal women with acute back pain during pregnancy or lactation. Timely diagnosis and treatment is essential because of the severe morbidity associated with PLO.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Dearborn

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Presenter: Kais Zakharia

Additional Authors: Chelsea A Luther, Hassan Alsabbak, Adnan Malik, Sartaj Singh

Gastrointestinal Limited Mastocytosis, Misdiagnosed As Crohn's Disease

Introduction: Mastocytosis is characterized by accumulation of mast cells in different organ tissues. Mastocytosis can present in two forms cutaneous and systemic (SM).[1] In this case report we present a patient with GI-limited mastocytosis who was misdiagnosed as crohn's disease and treated with steroids with no significant improvement until biopsy confirmed the diagnosis.

Case presentation:

77-y/o female with PMH of colon cancer presented complaining of abdominal pain with alternating diarrhea and constipation and 10 pounds' weight loss over 2 months. Pain started 2 days before admission, diarrhea and constipation started 3 months earlier. No nausea, vomiting, fever or chills. Vitals stable. PE: diffuse minimal abdominal tenderness with deep palpation, FOBT positive. WBCs 5.7, hemoglobin 12.7. CMP WNL. Imaging negative. Colonoscopy ruled out recurrence of colon cancer, instead it showed cobble stone appearance extending from the splenic flexure up to the ilium with pinhead size ulcerations in the ilium. The patient was started on prednisone and mesalamine with no improvement. The impression was granulomatous colitis until the biopsies showed mast cells infiltrations. A diagnosis of SM was made.

Discussion:

SM involves extracutaneous tissues most commonly the bone marrow and sometimes the GI tract. The most common symptom is diarrhea then abdominal pain, n/v and weight loss.[2] our patient presented with relatively atypical symptoms of mastocytosis exclusively limited to GI tract mimicking IBS (alternating diarrhea and constipation) and IBD (cobble stone appearance on colonoscopy).

Conclusion:

GI-limited SM can mimic other diseases particularly IBD and biopsy is necessary for diagnosis.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Dearborn

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A Case of Burkitt's Lymphoma Presenting As Peritoneal Carcinomatosis

Introduction: Burkitt's Lymphoma (BL) is a highly aggressive Non-Hodgkin's B cell lymphoma affecting less than 1 percent of adults in the US. Doubling time of BL is 24 hours, therefore recognition and quick treatment is essential for survival. Involvement of the omentum and the peritoneum is a rare disease presentation. We present a case which was initially concerning for carcinomatosis secondary to solid tumor later confirmed to be Burkitt's lymphoma.

Case Presentation: A 43-year-old woman presented with abdominal pain and distention. Workup included a CT Abdomen/Pelvis demonstrating extensive peritoneal and mesenteric nodularity with omental caking concerning for peritoneal carcinomatosis. Omental biopsy showed high grade B cell lymphoma with a “starry sky” appearance. It was CD10 and CD20 positive. The growth factor as measured by KI67, approached a 100%. A translocation of C-Myc t(8:14) confirmed by FISH. Staging include bone marrow biopsy, CT scan of chest and central spinal fluid was negative for lymphoma involvement. She was critically ill with respiratory distress and labile blood pressure. Chemo-immunotherapy was initiated and she completed 6 rounds of dose adjusted REPOCH(Rituximab, Etoposide, prednisone, Vincristine, Cyclophosphamide, and Doxorubicin) with prophylactic intrathecal chemotherapy with Methotrexate. She achieved complete remission and currently on surveillance.

Discussion: Our discussion will focus on the diagnosis of BL and treatment advances including: 1. Recognition of peritoneal carcinomatosis as a presentation of BL. 2. Better prognostic outcomes associated with CD-20 positive BL treated with Rituximab. 3. Dose Adjusted EPOCH as a 1st line chemo-induction regimen in BL.

Poster: 22

Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

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Additional Authors: Siddhartha Yadav, MD

Bartonella Henselae, Overwhelming the Kidneys Through the Heart

Bartonella henselae is one of the most common culture negative endocarditis in the United States. It is most commonly seen in patients with exposure to cat or cat flea.

A 47 year old male with exposure to cat presented with left flank pain, low grade fever and cola colored urine. He had a 2/6 decrescendo diastolic heart murmur best heard in left sternal border. His initial laboratory workup showed hemoglobin of 7.7 g/dL, platelet count of 89 bil/L and creatinine of 2.36 mg/dL. Urine examination demonstrated glomerular casts supporting glomerulonephritis (GN). CT abdomen revealed a splenic infarct. ANCA was negative with contrasting high Proteinase 3 Antibody titre. Kidney biopsy revealed non necrotizing crescents with subtle IgM deposits. Blood cultures yielded no growth, while transthoracic echocardiogram (TTE) showed bicuspid aortic valve with moderate aortic regurgitation and mild mitral regurgitation without the presence of vegetations. Transesophageal echocardiogram (TEE) ordered due to high suspicion of endocarditis demonstrated multiple vegetations in the aortic valve along with early abscess formation. Patient received IV Vancomycin and ceftriaxone empirically, which was later narrowed to Doxycycline and Rifampin upon positive *Bartonella henselae* IgG at >1:1024. He underwent mechanical aortic valve replacement. The diagnosis was further confirmed by positive tissue PCR and Warthin-Starry stain.

Early diagnosis of *Bartonella henselae* endocarditis often remains a challenge due to its culture negativity and multisystem involvement. Obtaining TEE in suspected cases remains essential for diagnosis. Endocarditis-associated GN may show the histopathology of immune complex-mediated glomerulonephritis as well as pauci-immune glomerulonephritis.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Presenter: Fatima Ali-Ahmed

Additional Authors: Fatima Ali-Ahmed, MD; Emilian Cristea, MD; Nicole Marijanovich, MD, FACP

This is No Ordinary Headache: A Diagnostic Dilemma

The differential of thunderclap headache (TCH) is broad and includes subarachnoid hemorrhage (SAH) and stroke. An underappreciated and frequently misdiagnosed cause of TCH is reversible cerebral vasospasm syndrome (RCVS). RCVS is associated with non-aneurysmal SAH and exposure to vasoactive drugs, especially marijuana. The primary diagnostic dilemma is distinguishing RCVS from primary CNS arteritis.

A 32-year-old male with a history of marijuana abuse presented with sudden severe TCH associated with nausea and vomiting. He presented to multiple emergency departments where he was given a migraine “cocktail”; his headache improved and he was discharged home. The patient presented again with recurrent severe TCH, now associated with left leg numbness and blurry vision. A MRI/MRA brain and cerebral angiogram was consistent with RCVS associated non-aneurysmal SAH; vasculitis could not be excluded. The patient was immediately started on IV steroids, and his symptoms improved. Rheumatologic and infectious workups were negative. He underwent a sural nerve biopsy, which was negative for a vasculitis. The patient was diagnosed with RCVS, presumably from marijuana abuse.

RCVS is characterized by sudden and severe TCH with or without focal neurological deficits with multifocal reversible narrowing of the intracranial arteries on neuroradiology. Compared to RCVS, primary CNS arteritis usually has an insidious onset. There is no specific treatment; calcium channel blockers and steroids have been used without clear benefit. A high clinical suspicion should be maintained in any patient with recurrent TCH or cryptogenic stroke, especially after the use of vasoactive drugs, such as marijuana.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Additional Authors:

A Gigantic Anal Mass: Buschke-Lowenstein Tumor

Buschke-lowenstein tumor of anorectal and perianal area is a rare but highly aggressive tumor frequently associated with Human Papillomavirus (HPV) type 6 and 11. It is often slow growing but highly destructive to local tissue.

A 61-year-old male with HIV presented with foul smelling mass and worsening pain in the anorectal area. He had history of anal squamous cell carcinoma (SCC) of rectum 10 years back treated with chemo-radio therapy and was on complete remission. Physical examination revealed approximately 15 cm x 10cm fungating mass involving entire right buttock and perineum. MRI of pelvis revealed extension of mass through the right greater sciatic foramen into the gluteal area posteriorly with sciatic nerve involvement. Biopsy showed fragments of squamous epithelium with positive P16 suggestive of HPV infection, compatible with diagnosis of condyloma. Treponema pallidum immunostains were negative. A diagnosis of Buschke-Lowenstein tumor was made due to the huge size of the mass and histological findings consistent with condyloma.

Buschke-Lowenstein tumor, often called giant condyloma accuminatum, is considered by some authors as intermediate between condylomas and squamous cell carcinoma. Histologically, they appear benign with hyperpapillomatosis, epithelial hyperplasia and koilocytosis but clinically they behave aggressively with extensive infiltration. Typically, slow growing in immune-competent individuals, it can grow rapidly in immunocompromised individuals as in our patient. Small fraction of these tumors can transform into invasive carcinoma hence early diagnosis and treatment is crucial. Common treatment approach includes radical surgical resection with tumor free resection margins.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Rebecca Chacko

Additional Authors:

When a Rare Disease Presents Like a Common Cold

Introduction:

Langerhans cell histiocytosis (LCH) is a rare neoplastic proliferative disorder. The presenting symptoms of LCH can vary, and signs are often nonspecific.

Case Presentation:

A 28-year-old Asian female presented with nausea, headaches, and malaise. Initial diagnosis was viral syndrome and supportive treatment was offered. Laboratory studies revealed electrolyte derangement, suggesting metabolic encephalopathy. The patient also exhibited polyuria and polydipsia, and admitted to amenorrhea. Hypopituitarism was confirmed with decreased FSH (1.3) and TSH (0.24), with undetectable LH and random cortisol. Head CT showed 2.8 x 2.7 x 2.1 cm mass in the suprasellar/hypothalamic region, with cerebral edema. Stereotactic biopsy of the mass was completed and pathology revealed histiocytic cell aggregates (positive for S100, CD1a, Langerin). A reference laboratory confirmed the diagnosis of LCH.

Discussion:

LCH usually presents with bone involvement, less frequently with involvement of the lymph nodes, skin, or lungs. CNS involvement is encountered at diagnosis in only six percent of patients. Young children are more likely to have multi-system involvement, while older children and adults often experience an indolent disease course. Involvement of a single-system may delay recognition of LCH until there is systemic dysfunction, as in our patient. Clinical vigilance is essential in approaching patients presenting with nonspecific CNS symptoms, as early diagnosis and management of such a rare disease as LCH can favorably alter the prognosis.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

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Iatrogenic DIC Causing Splenic Hemorrhage: An Unexpected Complication of Peritoneovenous Shunt Placement

Disseminated intravascular coagulation (DIC) is a life threatening systemic process. Once diagnosed, the challenge lies in treating the precipitating cause. Peritoneovenous (Denver) shunt placement for the management of recurrent ascites refractory to regular paracentesis is a rare cause of DIC.

A 69 year old male with a history significant for coronary artery disease status post CABG and abdominal aortic aneurysm (AAA) with repair suffered from recurrent chylous ascites requiring weekly paracentesis one year following AAA repair. Multiple lymphangiograms were performed but no leak was found. The patient opted for a Denver shunt. He had dramatic improvement following shunt placement with resolution of ascites. However less than one month later he was admitted for splenic hemorrhage requiring emergent arterial embolization. At that time, hematology confirmed the diagnosed disseminated intravascular coagulation (DIC) which was deemed to be secondary to the shunt itself. The shunt was closed and the patient had moderate recovery. DIC ensued once again on re-opening of the shunt, therefore it was eventually removed.

Disseminated intravascular coagulation is commonly seen in the setting of sepsis, malignancy, and obstetrical complications. However, there are less notable causes of DIC, such as peritoneovenous shunt placement. The coagulopathy is presumed to be due to excess tissue plasminogen factors shunted into the blood from the peritoneal fluid. Post shunt coagulopathy is reported in up to 5% of patients following shunt placement. It is crucial to monitor patients with shunt placement for DIC as the risk of serious complications is high.

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Category: Research

Institution: Beaumont Hospital – Royal Oak

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Presenter: Shaiva Ginoya Meka

Additional Authors: Lihua Qu, Matthew Sims, Bhavinkumar Dalal

Venous Thromboembolism is an Independent Risk Factor for Mortality in Critically-Ill Patients with Respiratory Viral Infections

There are many established risk factors for venous thromboembolism (VTE) such as trauma, immobilization and malignancy. However, it is unclear whether viruses such as influenza also predispose individuals to VTE. To date, there is very little supporting literature. In fact, there have been no studies exploring association of VTE in patients with non-influenza viral infections.

This retrospective study analyzed 226 patients with respiratory viral illness admitted to the intensive care unit from 2011 to 2016. Adults (18 to 90 years old) with positive influenza or respiratory viral panel were included. VTE locations included deep venous thrombosis (DVT) or superficial venous thrombosis (SVT) in the upper/lower extremities along with pulmonary embolism (PE).

The prevalence of VTE (including DVT, SVT and PE) in this cohort was 34.45% (79/226). 16.37% of patients with influenza and 18.58% of patients with non-influenza infection were found to have VTE. Hospital length of stay was significantly higher for patients with VTE (20.70 vs 13.37 days, $p=0.0001$). Overall mortality at discharge was 25.66%. Patients with VTE had higher mortality (36.7% vs. 19.7%, $p=0.005$). Multivariate logistic regression analysis identified VTE to be a statistically significant ($p=0.015$) independent risk factor associated with mortality along with diabetes, active cancer and age.

This study demonstrates the importance of recognizing the prevalence of VTE in patients admitted for respiratory viral infection (influenza and non-influenza). VTE has a significant impact on mortality, and therefore early assessment for VTE is recommended.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Presenter: Adam Hafeez

Additional Authors: Ahmed Edhi, Muaz Osman, Adam Hafeez, Sabrina Qazi.

It is Not Always a Bug: SAPHO Syndrome

An 18-year-old female, a veterinary medicine student, with no significant PMH presented to the emergency room with a two-month history of left hip and low back pain; and new-onset facial acne. No fever, blurry vision, conjunctivitis, diarrhea, or other joint pain. She had exposure to sick animals.

Upon examination, vital signs were normal. She had severe nodular and pustular facial acne. Musculoskeletal exam revealed significantly restricted range-of-motion of the left hip, and tenderness upon palpating the left sacroiliac joint. She was not able to ambulate secondary to pain.

Laboratory investigations revealed Hemoglobin level of 11. ESR and CRP were elevated, 52 and 3.7 respectively. Anti-DS DNA, ANA, CCP, RF were negative. HLA B27 was positive. With her history of animal exposure, Lyme, Brucella, Coxiella burnetti and yersinia antibodies were negative. X-rays of the left hip, femur, and lumbosacral spine were unremarkable. Pelvis and left hip MRI noted bone marrow edema, small left hip joint effusion, and bilateral sacroiliitis. She underwent left hip-joint aspiration. Fluid analysis for cell count, crystals, and culture was unremarkable.

She was started on Naproxen for pain relief, and Minocycline for acne. Her symptoms were believed to be due to SAPHO (synovitis–acne–pustulosis–hyperostosis–osteitis) syndrome. After being discharged, she was started on Infliximab. She had significant improvement in her symptoms at 8-month follow up.

SAPHO syndrome is a rare and complex disorder, characterized by peculiar combinations of bone lesions and dermatologic manifestations. Prompt SAPHO syndrome recognition, followed by appropriate therapy may result in long-lasting symptom relief.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Aortitis - Endovascular Complication of Non-Typhoid Salmonella

65-year-old Japanese male with past medical history of hypertension and hepatitis B presented with diffuse body aches, fever up to 102, chills and acute intermittent lower back and abdominal pain that is not related to meals. Physical examination revealed stable vital data, no jaundice, or pallor, soft non-tender abdomen and no localized tenderness over the spine with no limitation of mobility. Laboratory analysis revealed WBC=10.1bil/L, Hgb=16.4gm/dl and platelets=266bil/L. Kidney function tests were normal, sodium=131mmol/l, AST=74U/L, ALT=81U/L and ALKP=101U/L with normal bilirubin and albumin. CT scan of the abdomen with intravenous contrast showed inflammatory changes affecting the infra-renal portion of the aorta suggestive of aortitis. Blood cultures grew Salmonella Enteritidis. Ceftriaxone was given for 6 weeks. The patient had a follow-up CT scan of the abdomen after 1 week, which showed stable inflammatory changes affecting the same segment of the aorta. Vascular surgery did not recommend doing surgical intervention as long as there is no signs of aortic dilatation or aneurysm formation and no septic emboli with close follow-up.

Endovascular complication of non-typhoid Salmonella bacteremia has been reported multiple times before. Also there are few retrospective studies about prognosis and outcomes but there is no randomized trial to establish treatment guidelines. The most frequently involved site is the infra-renal aorta. Most of the patients underwent surgical repair of the affected aortic part with survival rate of 50% at 90-day period. Those who did not have surgical repair had worse outcomes with lower 90-day survival rate.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Presenter: Shirisha Kamidi

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Laughing Gas in Whippets has Affects Beyond Laughing

Nitrous Oxide also called as laughing gas, is used as an anesthetic in dentistry, ambulatory medicine and childbirth. Recreational use of N₂O is increasing in popularity, particularly at music festivals as it is legal, inexpensive and widely available. Also known as “whippets” provides transient euphoria, but the side effects can be long lasting including loss of coordination, impaired memory, cognition, and weakness in the legs. Oxidation of cobalt ions in vitamin B12 causes functional deficiency. Ultimately, this causes demyelination within the central and peripheral nervous systems. Similar to an absolute vitamin B12 deficiency, patients experience subacute combined degeneration of the spinal cord.

A 29-year-old previously healthy male presented with 4 weeks of limb paresthesia and 2 weeks of worsening ataxia. He had no recent illness or incontinence or visual changes or autonomic symptoms. His social history is significant for intermittent use of nitrous oxide inhalant through “whippets”, smoking -2 packs of cigarettes/day. Physical examination is significant for decreased muscle strength, decreased vibratory and light touch sensation in the bilateral lower extremities, abnormal cerebellar examination, decreased deep tendon reflexes and unsteady gait.

Pertinent positive blood work is low B12 level, 226 pg/ml with normal CBC. MRI showed hyper intensity of dorsal column of cervical spinal cord. He was treated with IM B12 injections.

It is important to change the legalization of such substances, as it is legal, easily available and low cost, making it high likelihood for abusing.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Presenter: Dillon Karmo

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Acute Hepatitis Triggered by Cassia Cinnamon Use

In the most recent National Health Interview Survey (NHIS), 33.2% of adults employed complementary health approaches, while 17.7% used supplements. Physicians must recognize the adverse effects of these agents. Our patient presented with hepatitis triggered by the use of a seemingly-innocent supplement.

A 51 year-old male presented to the Emergency Department after 10 days of right upper quadrant pain, nausea, jaundice, yellow stools, and dark urine. He denied alcohol or illicit drug use. Medications included aspirin, allopurinol, atorvastatin, metformin, paroxetine, and red yeast rice. His wife had also been giving him cassia cinnamon supplements for the past month. Examination demonstrated scleral icterus, jaundice, abdominal distention, and RUQ tenderness. He had a normal CBC, Albumin = 4.3 g/dL, Alkaline phosphatase = 281 U/L, AST = 287 U/L, ALT = 906 U/L, Bilirubin, total = 5.9 mg/dL, Bilirubin, direct = 4.0 mg/dL, PT = 10.8, with INR = 1. Viral serologies as well as an abdominal ultrasound were negative. Atorvastatin, cinnamon and red yeast rice were held. MRCP revealed no biliary obstruction. His clinical and laboratory status improved over two days. He was discharged home with red yeast rice and cassia cinnamon discontinued and atorvastatin held.

This case illustrates that a thorough history must include documentation of the use of all medications, herbs, and supplements, and that physicians stay current on the adverse effects of complementary and alternative medicines. Emphasis must be placed on evidence-based assessment of the risks and benefits of alternative medical practices.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Only Once in a Blue Moon: Intraabdominal Squamous Cell Carcinoma of Unknown Primary Site Presenting with Epigastric Pain

Squamous cell carcinoma of unknown primary site (SCCUP) is usually found in cervical and inguinal lymph nodes. Involvement of other sites is very rare and usually occurs due to metastasis from a primary lung cancer.

A 56-year-old lady with history of HIV and hepatitis C, presented with epigastric abdominal pain, vomiting and diarrhea for one day. Physical examination was unremarkable except mild epigastric tenderness. Basic labs including lipase and stool studies were normal. She was treated for suspected viral gastroenteritis with IV hydration, anti-emetics and analgesics. Nausea, vomiting and diarrhea resolved but epigastric pain persisted. CT abdomen revealed 3.3 x 3.4 cm mass in gastrohepatic ligament. Biopsy of the mass via endoscopic ultrasound revealed poorly differentiated squamous cell cancer with tumor cells positive for CK5/6 and p40 indicative of squamous differentiation. Further workup including upper GI endoscopy, laryngoscopy, CT scans, and PET scan were unable to localize the primary tumor. She was started on chemotherapy with carboplatin and paclitaxel. However, the mass continued to increase in size with worsening symptoms. Nivolumab was started as a second line agent.

SCCUP is a rare malignant tumor with unclear histogenesis and generally poor response to treatment. To the best of our knowledge, this type of carcinoma with this presentation has not previously been described in literature. It's unclear if the underlying HIV and hepatitis C had a role in its development. Additional case reports are required to better understand the pathogenesis, and devise appropriate treatment plan for affected patients.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Cocaine-Levamisole Induced Vasculitis

Levamisole is an immunomodulator drug that is no longer approved for human use in North America. About 30 % to 70% cocaine in USA is adulterated with levamisole. We describe a case with levamisole induced vasculitis mimicking cellulitis. 37 year old female with history of cocaine use and hepatitis c presented with five day history of painful skin lesions in her bilateral legs, ear lobes and cheeks. She had run out of her pain medication about a week before and restarted using cocaine and heroin. She recently treated with antibiotics for similar skin lesions without much improvement. Examination revealed multiple skin lesions with central necrotic patch and surrounding erythema on bilateral lower extremities. Similar smaller lesions were present on cheeks and bilateral ear lobes. Laboratory examination showed thrombocytopenia, mild neutropenia. ESR was normal and CRP was elevated. ANA was negative. Perinuclear anti neutrophil cytoplasmic antibody (p-ANCA), Proteinase-3 autoantibody (PR-3) and anti-cardiolipin antibody were positive. Temporal relationship between cocaine use and development of skin lesions with positive p-ANCA and PR-3 antibodies led to the diagnosis. Levamisole induced vasculitis can mimic cellulitis as well as other primary vasculitis and correct diagnosis can lead to avoidance of unnecessary antibiotics and early avoidance of cocaine exposure

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

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Primary Signet Ring Cell Carcinoma of the Lung; A Rare Malignancy with a Poor Prognosis

Signet ring cell morphology is usually found in tumors of the stomach and colon, and metastasizes to distant sites mostly through lymphatic spread. Primary signet ring cell carcinoma of the lung is a rare entity whose incidence ranges from 0.14% to 1.9% of all lung carcinomas.

A 57-year-old man with a one hundred pack year smoking history and polysubstance abuse presented to the Emergency Room with right hip pain, weight loss, and nonproductive cough. Radiographs confirmed a displaced hip fracture and a left upper lobe consolidation. The patient had successful closed reduction and percutaneous pinning of the right hip. Empiric treatment for HCAP seemed to resolve his symptoms, but the patient again developed cough and chest pain. Chest CT demonstrated a pulmonary embolism, left upper lobe lung mass, skeletal lesions, and hypodensity in the liver. Bronchoscopy showed an 80% obstruction of the airway in the apical posterior segment of the left upper lobe. Biopsies and bronchioalveolar lavage were obtained and revealed adenocarcinoma with signet ring features. Esophagogastroduodenoscopy and colonoscopy did not elucidate a primary site. The patient was diagnosed with primary lung signet ring cell carcinoma. Throughout this time, the patient's clinical status continued to worsen despite treatment for post-obstructive pneumonia.

Signet ring cell components of lung adenocarcinoma are positively correlated with the aggressiveness of the disease. This malignancy has been shown to respond to chemotherapy, albeit to varying degrees. It is important to make a prompt diagnosis to gain the most benefit from treatment.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Additional Authors: Rebecca Chacko

Painless Jaundice in Sickle Cell Anemia

Introduction

Sickle cell hepatopathy (SCH), a rare complication of sickle cell anemia (SCA), is caused by sickling of cells within hepatic sinusoids, resulting in hypoxic damage and intrahepatic cholestasis.

Case

A 27 year old African-American male with a history of SCA, avascular necrosis of both hips, autosplenectomy and cholecystectomy presented to the ED with bilateral hip pain, dark urine and pale stools. He was hemodynamically stable. The patient was afebrile, with scleral icterus, yellow discoloration of the palms and no abdominal tenderness. Chest x-ray was negative for pulmonary congestion. His transaminases were mildly elevated, and conjugated bilirubin was 10 (total bilirubin of 15). Abdominal ultrasound demonstrated a mildly dilated common bile duct. The patient underwent ERCP with sphincterotomy and stone extraction, but the conjugated bilirubin level continued to increase, peaking at 28.4. Despite his atypical presentation, a presumptive diagnosis of SCH was made and the patient underwent RBC exchange transfusion.

Discussion

Conjugated hyperbilirubinemia is a hallmark finding of SCH. Although the typical presentation includes fever, abdominal pain, nausea, vomiting, and leukocytosis, SCH must be considered in the setting of sickle cell crisis with hyperbilirubinemia. Although SCH is currently not an indication for exchange transfusion, it should be considered in SCH to prevent fulminant acute liver failure.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Additional Authors: Mihajlo Gjeorgjievski, MD; Paul Bozyk, MD

Osmotic Demyelination Syndrome: Be Gentle with Your Hyponatremias!

A 38-year-old alcoholic male presented with an episode of loss of consciousness and sodium of 105 meq/L. He was started on 3% hypertonic saline followed by fluid restriction. Sodium was gradually corrected over 6 days from 105 meq/L to 135 meq/L. The fastest correction was 9 meq in one of the 24 hour periods from 126 meq/L to 135 meq/L on day 6. He developed dysphagia and bilateral extremity weakness, prominent on the right side. Brain MRI revealed confluent patchy areas of hyperintensities in bilateral pons and thalami which were very consistent findings of osmotic demyelination syndrome. Subsequently, he developed recurrent pneumonia that progressed to hypoxic respiratory failure and shock. He ultimately went into a cardiac arrest with unsuccessful resuscitation. Osmotic demyelination syndrome or cerebral pontine myelinolysis is the neurologic manifestation of rapid correction of sodium. The majority of cases of osmotic demyelination syndrome occur in patients whose sodium is rapidly corrected >12 meq in 24 hours. This has been reported in observational studies and case reports. The risk of ODS is high with sodium less than 120 meq/L. Our patient presented with typical findings of ODS after correction of hyponatremia at a rate that never exceeded 9 meq in any 24 hour period. This case illustrates the risk for ODS even when sodium is corrected according to guidelines, and suggest that the rate of correction of hyponatremia should not exceed 6 to 8 meq/L in any 24-hour period. Slow correction over time is challenging but critical.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

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Presenter: Marsel Matka

Additional Authors: Omar Alhalabi

Recurrent Thromboembolic Events and Diffuse Alveolar Hemorrhage in Antiphospholipid Syndrome: A Case Report

A 56 year-old male with a history of atrial fibrillation and recurrent thromboembolic events presented with massive hemoptysis. The first episode occurred 4 years prior while on warfarin. Anti-cardiolipin antibody (ACA) as well as antinuclear antibody were strongly positive at that time. He was effectively treated with oral steroid taper but a definitive diagnosis was not established. The patient experienced persistent cough with intermittent hemoptysis in the interim. Pulmonary function testing revealed a restrictive pattern. A transbronchial biopsy was non-diagnostic. The second episode occurred while on apixaban for acute DVT. Serology demonstrated low complement levels, positive ACA and beta-2-glycoprotein 1. Renal biopsy was performed for declining function which demonstrated mild tubular injury without evidence of immune glomerular disease. He was treated with an oral steroid taper for suspected lupus nephropathy. Patient deferred restarting anticoagulation at the time. The third episode of massive hemoptysis occurred one week later. An open lung biopsy was obtained, findings were reviewed by three pathologists, and a final diagnosis of capillaritis from primary antiphospholipid syndrome (PAPS) was made. Effective treatment was achieved with high dose IV pulse steroid taper and cyclophosphamide without further recurrence of hemoptysis. Diffuse alveolar hemorrhage in the absence of thrombosis is an uncommon complication of PAPS. A high index of suspicion with timely diagnostic and therapeutic intervention is required to avoid potentially grave consequences. Further investigation is needed to shed light on the interplay of pro-thrombotic and anti-thrombotic factors in PAPS in order to guide future therapies and prevent such paradoxical complications.

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Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Yifan Pang

Additional Authors: Carl Lauter, MD

Darier Disease Complicated by Chickenpox

Introduction: Darier disease is a rare autosomal-dominant dermatological disorder. With abnormal keratosis, patients are highly-susceptible to disseminated herpes simplex virus (HSV) infection and disseminated zoster. However, varicella in Darier disease was not reported previously.

Case presentation: A 48-year-old Caucasian male presented with rash. He had Darier disease and was on topical corticosteroids, as well as Crohn's disease on oral budesonide and mesalamine. No chickenpox, varicella vaccination, or recent sick contact noted in history. A week before presentation he was bitten by an insect and soon developed fever (101.8 F), chills, malaise, and a non-confluent, maculopapular and vesicular, intensely pruritic rash. It initially appeared on his abdomen and gradually progressed to four extremities, face and scalp. Systemic prednisone was initiated for allergic reaction or Darier disease flare-up. The rash then became painful and pustular. Vesicular fluid PCR was positive for varicella-zoster virus (VZV), negative for HSV. VZV-IgM was positive at 1.11; VZV-IgG negative. Skin biopsy showed herpetic viral infection. Chest X-ray showed subtle left-sided infiltrate, labs showed mild transaminase elevation.

Treatment and outcome: Prednisone was discontinued. The patient received antiviral therapy for 10 days, after which the rash and pulmonary infiltrate resolved, and liver enzymes normalized.

Conclusion: This is the first reported case of Darier disease associated with varicella to our knowledge. Delayed diagnosis and the administration of prednisone might have further complicated the disease course. Early recognition and thoughtful usage of corticosteroid therapy should be considered.

Poster: 39

Category: Clinical Vignette

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

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Additional Authors: Otavio Rodrigues, Abhishek Swami, MD, Paul Christensen, MD, Girish B Nair, MD

Tis NOT the Season: A Case of Leptospirosis Presenting As Septic Shock During Winter

Leptospirosis is a zoonotic disease with worldwide distribution, but endemic in countries with tropical climates. Human cases peak seasonally in the summer and early autumn. We present an unusual case of leptospirosis presenting as septic shock with multi-organ dysfunction in late December.

A 60 year-old man with generalized weakness and intermittent fever of one-week duration. He had recently arrived from Lebanon. On arrival, he was found to be hypotensive with no response to crystalloids. He was started on vasopressors. Laboratory investigation revealed: lactic acid 5.2 mmol/L, WBC 18.3/ μ L, platelets 52 000/ μ L, Cr 3.31 mg/dl, total bilirubin was 5.7 mg/dl, but AST and ALT were normal. Chest X-ray showed bilateral patchy opacities. A non-contrast CT of the abdomen was unremarkable. Mechanical ventilator support was initiated for respiratory distress. He was transferred to the ICU and treated with piperacillin-tazobactam, doxycycline and vancomycin. Continuous renal replacement therapy was initiated. All cultures and serology for atypical infection were negative. A liver biopsy reported nonspecific hepatitis. A diagnosis of leptospirosis was considered given his recent travel from an endemic area, the presence of hyper-bilirubinemia without biliary obstruction and anuria. Initial testing was negative, however on day 10 of his hospitalization, he seroconverted. He showed a steady improvement. He was extubated on day 5 of hospitalization and transferred to a step-down unit on day 14.

This case illustrates the need for a high index of suspicion and early empiric therapy for atypical infections in patients traveling from endemic regions even in a non-endemic season.

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

Program Director: Patricia Dhar, MD, FACP

Presenter: Shafia Beg

Additional Authors: Shafia Beg, MD. Paritharsh Ghantasala, MD. Dhara Patel, MD. Abhizith Deoker, MD.

Heyde your Vessels, It's the Aortic Stenosis!

Introduction: Heyde syndrome is a rare condition where aortic stenosis (AS) leads to acquired von willebrand deficiency and angiodysplasia. This syndrome has not been studied well and incidence in retrospective studies is between 0.9-1.5%.

Case Description: 64 year old female who presented with worsening shortness of breath and bloody stools with an acute drop in hemoglobin to 7.0 which was stable after 2 units PRBC transfusions. She had history of AS with valve area of 1.2 cm² three months ago. Repeat echo showed severe AS with valve area of 0.9cm² and ejection fraction of 55%. Gastroenterology performed an EGD which showed atrophic gastritis and colonoscopy which showed angiodysplasia without active bleeding. Vonwillebrand factor (VWF) and Factor VIII were ordered and were not found to be deficient. Cardiothoracic surgery was consulted since patient had significant dyspnea on exertion and decision was made to perform surgical aortic valve replacement with biological valve.

Discussion: Heyde syndrome is a rare disorder that shows up as angiodysplasia in the GI tract secondary to aortic stenosis. Most common location of angiodysplasia is small bowel however it was noted to be in the large intestine in our patient. The aortic stenosis causes acquired VWF deficiency by clipping off the uncoiled VWF by ADAMTS13, which then gradually leads to the angiodysplasia. The false negative rate for VWF test is high since it is an acute phase reactant. Furthermore, as with our patient, emergent PRBC transfusions can also alter the VWF and factor VIII levels.

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

Program Director: Patricia Dhar, MD, FACP

Presenter: Smitha Gudipati

Additional Authors: Swapna Gudipati; Emily Cobb; Palaniandy Kogulan, MD, FACP

Trich or Treat?

Trichomonas are anaerobic protozoans capable of infecting human mucous membranes. Most commonly, *Trichomonas vaginalis* infects females causing bacterial vaginosis. Another pathogen in this family includes *Trichomonas tenax* of the human oropharynx. *T. tenax* is a parasite that spreads via infected saliva typically causing periodontitis or empyema in immunocompromised patients.

We present a 33-year-old female with bilateral nephrolithiasis, presenting with left upper quadrant abdominal pain for two weeks. Patient was febrile with a rigid and distended abdomen. One week prior to onset of pain, the patient had experimented with anal intercourse and instrumentation with a new partner. CT abdomen demonstrated free air under the diaphragm, massive ascites and a pelvic abscess. Ultrasound-guided paracentesis revealed purulent peritonitis secondary to *Trichomonas*. Further analysis by the CDC reported that the homology was most consistent with *T. tenax*. The patient was started on metronidazole and underwent an exploratory laparoscopy, revealing a perforated enterocutaneous fistula at the mid transverse colon. The fistula was repaired and the patient recovered. HIV, chlamydia and gonorrhea were all negative.

This case presents an atypical etiology of peritonitis in an immunocompetent patient. As *T. tenax* typically resides in human oropharynx, previous cases have only documented the pathogen to cause infections of the oral cavity or respiratory tract. To our knowledge, this is the first case of *T. tenax* causing peritonitis in an immunocompetent patient, with only cases of *T. faecalis*, typically found in horse intestine, being reported. The source of the *T. tenax* peritonitis is still under investigation.

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

Program Director: Patricia Dhar, MD, FACP

Presenter: Ankita Kapoor

Additional Authors: Dhara Patel, Suhasini Gudipati, J Patricia Dhar, Maria C Kaisler, Juliette Perzhinsky

Idiopathic ABCs of a Demyelinating Disease: Ataxia, Bulbar Involvement and Chronicity

INTRODUCTION

Chronic Inflammatory Demyelinating polyneuropathy (CIDP) is an acquired disorder of peripheral nerves and nerve roots. This case describes an atypical presentation of CIDP showing signs of both upper motor neuron and lower motor neuron involvement.

CASE DESCRIPTION

This is a 53 years old female who presented with progressive bilateral Upper and lower extremity weakness for 6 months. She had an acute worsening of symptoms 2 months prior to admission when she became wheelchair bound. On physical exam, there was bilateral symmetric hypertonia, hyperreflexia and positive Babinski signs. There were fasciculations in both upper extremities and decreased strength in all extremities, but no sensory deficits. Cranial Nerve examination revealed ptosis of the left eyelid indicating bulbar involvement. MRI brain and spine was unremarkable. Lumbar Puncture revealed albumin cytological dissociation. CSF IgG was normal. Work up for autoimmune, infectious and malignant etiologies including Lyme disease, HIV, Hepatitis, HPV, CMV, ANA and ganglioside IgM, was negative. EMG showed demyelinating polyneuropathy. Patient was started on IVIG 2g/kg for 5 days, that resulted in improved strength in all extremities and the patient was discharged to subacute rehabilitation.

DISCUSSION:

In CIDP, motor system involvement is more pronounced than sensory. Cranial nerve and bulbar involvement occurs in 10-20% of patients. Its worldwide prevalence is 0.8-8.9 per 100,000.

This idiopathic case raises the concern that this disease can lead to significant deterioration of quality of life and reinforces the need to do a comprehensive diagnostic work up and appropriate treatment when indicated.

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

Program Director: Patricia Dhar, MD, FACP

Presenter: Sharanjit Khaira

Additional Authors: Sukhmanpreet Singh, PGYI; Srinandan Guntupalli, PGYII, Asma Taj, MD

Coagulopathy in Multiple Myeloma- Preventing the Million-Dollar Work Up!

Introduction: Multiple Myeloma (MM) is characterized by proliferation of malignant plasma cells leading to an overabundance of monoclonal paraproteins (M-protein). These M-protein interferes with the normal production of blood cells, resulting in leukopenia, anemia, and thrombocytopenia. Herein, we present a case of bleeding diathesis secondary to underlying MM.

Case: 66-year-old-gentleman was referred to hematology for evaluation of normocytic-normochromic-anemia with elevated serum proteins, concerning for MM. Further testing revealed elevated IgG, and lambda serum free light chain, suspicious for IgG lambda MM. Bone-marrow biopsy (BMB) was scheduled, however, pre-surgical lab testing revealed elevated PT of 120 (9.1-12.3) and INR of >11.4. Secondary to the coagulopathy, BMB was canceled and mixing study showed >100% correction. Patient denied any liver disorder or use of anticoagulation and hypercoagulable-workup was within-normal-limits. PT/INR continued to remain elevated irrespective of administration of vitamin K and FFP. Hence, it was considered that the likely cause of patient's coagulopathy was underlying MM. Patient was started on treatment with bortezomib, post which his protein level improved, and INR/PT level decreased significantly to 1.9/21.4. BMB was performed without any complications, which confirmed multiple myeloma.

Discussion: MM patients have complex disorders of hemostasis—characterized by a tendency to hyper-and-hypo-coagulate simultaneously. As shown in this case, post chemotherapy once the paraproteinemia was controlled, it led to improvement in the coagulation state. Hence, physicians need to be aware of this poorly comprehensible subject of bleeding diathesis related to multiple myeloma in-order to prevent life threatening implications and unnecessary testing.

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

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Is the Heart of Intravenous Drug User More Vulnerable to Streptococcus Sanguis than Staphylococcus Aureus?

Staphylococcus aureus is the most common and aggressive organism causing acute native valve infective endocarditis(IE) in intravenous drug user(IVDU). Here, we are presenting a case of very aggressive clinical course of acute native valves IE in IVDU caused by Streptococcus sanguis.

This is a 59-year-old Caucasian male with past medical history of hepatitis C infection and chronic IVDU was admitted for acute encephalopathy. UDS was positive for opiate. CT scan of the head was negative for acute intracranial pathology. Lumbar puncture was done and CSF culture was negative. MRI of the head showed acute and subacute infarct. Blood culture grew Streptococcus sanguis which was sensitive to cefepime. He was treated with cefepime. Neurologic status improved. Transesophageal echocardiogram showed 1.7cm aortic valve vegetation and 2.2cm tricuspid valve vegetation. He had a new onset atrial fibrillation with rapid ventricular rate and was treated with amiodarone and heparin. CT chest showed pulmonary congestion with multiple septic emboli. His respiratory status was deteriorated. Repeated Chest X-ray showed significant bilateral pleural effusion and pulmonary congestion which is unresponsive to diuretics. Thoracentesis was done and transudative pleural fluid was obtained. He died 5 weeks after the first presenting symptom.

The incidence of native valves IE caused by Viridans streptococcus is trending up in past 50 years. The aggressiveness of Viridans group was also trending up together with the incidence. This case raises a question whether Streptococcus sanguis can cause as aggressive as or even more aggressive IE than Staphylococcus aureus in IVDU.

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

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Recurrent Hemoptysis- A Case of Pulmonary Mycobacterium Szulgai, Not Contaminant

The incidence of Non-tuberculous mycobacterium (NTM) infections is increasing as compared to Mycobacterium tuberculosis in US. Environmental factor is the common source of these infections with water body being the main source.

A 61 year old male presented with hemoptysis, intermittently for 2 weeks. The patient had a history of chronic obstructive pulmonary disease, 40 pack year smoking history and hypertension. On examination, chest revealed normal breath sounds. Chest X-ray and CT chest showed cavitory nodules in bilateral lung apices and medial left lower lobe. Past records from 2 years, Chest X-ray and CT scan showed large cavities in left upper lobe, multiple cavitory lesions in the right apex and bronchoalveolar lavage fluid for acid fast bacilli culture yielded mycobacterium szulgai in one of three corresponding cultures which was considered to be contaminant. Two year later, fungal serology, TB Quantiferon, mycobacterium tuberculosis complex PCR was negative. Broncholveolar lavage fluid analysis for cytology and fungal culture were negative but three of three corresponding cultures yielded M.Szulgai. Treatment was started with rifampicin 600 mg and ethambutol 1400mg daily plus clarithromycin 500mg twice daily for 18 months. The patient's hemoptysis diminished and radiological abnormalities had improved after 6 months of therapy.

Mycobacterium Szulgai is slow growing NTM organism. It mainly causes pulmonary infection in adults with history of smoking and chronic lung disorders. Clinical presentation is similar to tuberculosis. The diagnosis is made as per the guidelines published by American Thoracic Society (ATS).

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

Program Director: Patricia Dhar, MD, FACP

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A Broken Heart from Thyroidectomy: A Case of Takotsobu Cardiomyopathy

Takotsobu cardiomyopathy (TC) is transient motion wall abnormality of mid ventricular and left ventricular apex in absence of occluding coronary artery disease which presents after any physical or emotional trigger. We present a rare case of TC in a female with cardiac arrest immediately following thyroidectomy.

60 year old female with past medical history of asthma and multinodular goiter underwent total thyroidectomy and left inferior parathyroidectomy. Immediately following surgery, patient had a cardiac arrest and went into pulseless electrical activity. She was resuscitated following ACLS protocol and receiving chest compressions. She was intubated for hypoxia likely due to laryngeal spasm. Post-operative labs were unremarkable. EKG showed normal sinus rhythm with RBBB pattern; however pre-operatively EKG showed normal sinus rhythm. 2D echocardiogram immediately after resuscitation revealed apical ballooning syndrome with akinesis of the distal anterior wall, apex and anterolateral wall. LVEf was noted to be 30-35%. Troponin was 1.390. Cardiac catheterization revealed stress cardiomyopathy consistent with Takotsubo Cardiomyopathy. No evidence of significant obstructive coronary artery disease was noted.

The exact underlying cause of TC is not known; however multiple theories have been listed as probable causes. These include catecholamine release, coronary artery spasm and/or coronary microvascular dysfunction. This case is of particular importance as the patient did not have typical emotional triggers associated with TC; however she underwent significant stress due to surgery and cardiac arrest. It is important to distinguish TC from STEMI as management greatly differs.

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

Program Director: Patricia Dhar, MD, FACP

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Additional Authors: Michele Lafave FNP, Shauna Federico FNP, Covenant Hospitalist Group, and Palaniandy Kogulan MD

A Case of Pellagra

Introduction:

Pellagra is a systemic disease which results from niacin deficiency. The disorder is not unusual in Africa, China and Indonesia but is rarely diagnosed in North America. Although treatment can be straightforward, delayed diagnosis often results to life-threatening complications.

Case Presentation:

A 76-year-old Caucasian male with no significant past medical history presented with confusion, rashes and diarrhea after being transferred from an outlying center. He lived alone and had scarce social and familial support. Patient is not an alcohol drinker but does have poor diet. On physical examination, patient appeared unkempt with muscle wasting. He was weak, irritable, occasionally confused and emotionally labile. He had symmetrical, erythematous rashes with thickened and scaly areas on the face, palms, arms, legs, neck, upper back and chest with sharp demarcation between the lesions and the healthy skin. Initial work-up showed anemia and hypoalbuminemia. Further work-up revealed multiple nutrient deficiencies including iron deficiency, mild vitamin B1, B6 and vitamin D deficiencies. Niacin level was undetectable. Nicotinuric acid, an active metabolite of niacin, was also undetectable. Hepatic and renal functions were normal. Skin biopsies revealed mild spongiotic dermatitis with lichenoid features, vacuolar interface dermatitis with focal parakeratosis. Patient was started on nicotinamide replacement and had improvement of his rashes and mentation over the next two weeks.

Conclusion:

Pellagra can be life-threatening if left undiagnosed and untreated. Diagnosis is primarily based on clinical presentation and rapid response to Niacin replacement. Serum-based testing of niacin and its metabolites also help in supporting the diagnosis.

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

Program Director: Patricia Dhar, MD, FACP

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What Caused the PE-Disease or Treatment?

INTRODUCTION

ITP is characterized by autoimmune-mediated platelet destruction and impairment of platelet production. Patients with ITP paradoxically have increased risk of thrombosis. Eltrombopag, a thrombopoietin receptor agonist used for treatment of ITP, stimulate megakaryocyte differentiation and increase the platelet production. It has been shown to increase the risk of thromboembolic disorders.

CASE DESCRIPTION

A 78 year old gentleman with history of ITP on eltrombopag , presented with hypoxic respiratory failure and was intubated. CTA chest showed saddle embolus and EKG showed S1Q3T3 pattern. Platelet count was normal. The patient was treated with EKOS and heparin infusion. He was also continued on Eltrombopag. During the hospital course he developed pneumonia and ARDS. The patient was later made comfort care and passed away.

CONCLUSION

Thromboembolic disease should be high on the list of differential diagnosis in patients with ITP irrespective of the treatment status. Thrombotic events have been reported in up to 8% patients with ITP. Studies have shown up to 6.7% of thromboembolic events have been reported with eltrombopag treatment compared to placebo. In the treatment of ITP patients, it is important to understand risk of thromboembolism, which could be due to the inflammatory state, treatment of ITP or antiphospholipid antibody. Further analysis of clinical and safety data is required to clarify pathophysiology of thromboembolism in ITP patients treated with thrombopoietin receptor agonists. Also anticoagulation therapy of thrombosis in patients with ITP should be considered based on platelet counts and bleeding status.

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Category: Clinical Vignette

Institution: Central Michigan University – Saginaw

Program Director: Patricia Dhar, MD, FACP

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Return of the Prodigal Son - The Ultimate Nafcillin Warfarin Battle

Introduction:

Nafcillin is a beta-lactam semisynthetic penicillin which is highly resistant to penicillinase producing strains of staphylococcus aureus (SA). Warfarin is an anticoagulant metabolized mainly in liver. This case signifies importance of drug-drug interactions and their impact on healthcare and patient-safety.

Case:

25-year-old-female with PMH significant of IV drug use presents with two-day history of subjective fevers and generalized weakness. Patient has history of ESRD on dialysis and aortic-valve replacement on chronic treatment with warfarin. Physical exam revealed track marks on bilateral antecubital fossa and core-temperature of 101.3. Initial lab work-up including CBC, CMP, INR and chest x-ray were within-normal-limits. Patient was empirically started on Vancomycin and Piperacillin/Tazobactam. Blood cultures came positive for Methicillin-sensitive SA, and hence antibiotics were changed to Nafcillin. Two-days after Nafcillin was started, patient's INR became sub-therapeutic, in spite of, increasing the dose of Warfarin. Heparin drip was started along with warfarin to which PTT responded, however INR remained sub-therapeutic. At this time, the likely cause of resistant sub-therapeutic INR was thought to be secondary to Nafcillin-Warfarin interaction. Nafcillin was promptly changed to vancomycin. Four-days after Nafcillin discontinuation, patient's INR became therapeutic.

Discussion:

Nafcillin shares many characteristics with other penicillin drugs, except it is primarily-metabolized in liver and causes microsomal enzyme induction, which leads to shortened warfarin half-life. With fading use of Nafcillin in 21st century, physicians are forgetting this once known drug-drug interaction. Currently >25 million patients are on warfarin for anticoagulation, hence it is important for physician to be aware of this easily preventable, yet fatal drug-drug interaction.

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Category: Clinical Vignette

Institution: Grand Rapids Medical Education Partners/MSU - Grand Rapids

Program Director: Talawnda Bragg, MD, Member

Presenter: Erik Bobeda

Additional Authors: Jeevarantha Subramanian, MD; Kathleen V. Jarrett, MD

Autoimmune Hepatitis in a Patient with CREST Syndrome

Autoimmune hepatitis has been linked with a number of illnesses, including DM type 1. The link between AIH and connective tissue disease has not been well studied. SSc has been linked with PBC, especially in the presence of anti-centromere antibodies. There are sporadic case reports of AIH in the setting of CREST syndrome, but the link remains controversial. Here we present a case of biopsy-confirmed AIH in a patient with CREST.

Patient is a 48-year-old female with history of CREST syndrome, manifestations of which included calcinosis cutis, Raynaud's phenomenon, and esophageal dysmotility. Not currently on any immunosuppressive therapy. Presented with worsening sharp, stabbing right upper quadrant abdominal pain and jaundice of 2 months' duration.

Patient was treated with a gradual prednisone taper over the course of six weeks. Follow-up hepatic laboratory values completely normalized.

Though rarely reported, an association between CREST syndrome and AIH is suggested by this case. It is possible that further investigation would reveal AIH to be a hepatic manifestation of CREST, perhaps warranting routine laboratory surveillance in this patient population.

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Category: Clinical Vignette

Institution: Grand Rapids Medical Education Partners/MSU - Grand Rapids

Program Director: Talawnda Bragg, MD, Member

Presenter: Aparna Das

Additional Authors: COURTNEY MYERS MD, ANNUM FAISAL MD, JORGELINA DE SANCTIS MD, ANUPAM KUMAR MD

Infected Pyocele and Secondary Meningitis Presenting As Frontal Lobe Syndrome

A 39-year-old male was admitted for acute onset of combative behavior and disorientation. He was emergently intubated due to encephalopathy. There was no history of recreational drug abuse or recent travel. On exam, he was afebrile with neck rigidity. Laboratory data: WBC $17,000 \times 10^3/\text{microL}$ with neutrophilia. CT head demonstrated a large expansile left frontal sinus mass with erosion of the posterior wall of the sinus. Lumbar puncture showed: WBC-15/microL, RBC- 530/microL, Segs CSF- 86 cells , bands csf – 2 cells , protein csf- 38 g/dl and glucose csf – 66 g/DL. MRI brain revealed large frontal lobe mucocele. He underwent emergent left maxillary antrostomy and left with left anterior and posterior ethmoidectomy. Tissue culture showed group C beta hemolytic streptococci. He was treated with antibiotics (ceftriaxone and metronidazole) for six weeks' duration. After completion of antibiotic course, patient had returned to baseline mental status. Mucoceles are mucus filled cysts that form in paranasal sinuses. They are usually seen between the fourth and seventh decades of life. Most common clinical features are headache, maxillofacial pressure, proptosis and peri-orbital pain. Extremely rarely it can also cause features of frontal lobe syndrome (language disorders, mood swings, personality changes and loss of inhibition). Ct scan of head and sinuses is the best initial diagnostic test-mucoceleles are identified by the presence of homogeneous and isodense contents in the sinus cavity. Definitive treatment of mucocele involves surgery and removal of the mucocele followed by antibiotics according to microbiology.

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Category: Clinical Vignette

Institution: Grand Rapids Medical Education Partners/MSU - Grand Rapids

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Levamisole-Induced Vasculitis in a Pregnant Patient

ABSTRACT

Introduction:

Levamisole, originally an antihelminthic agent is commonly used to “cut” cocaine. The use of this agent is particularly attractive as Amniorex , a psychostimulant metabolite of Levamisole has a half life longer than that of cocaine and its effect sets in when cocaine starts wearing off. Approximately 70% of the cocaine in USA is laced with Levamisole. The vasculopathic, immunologic, hematologic, dermatologic and nephrologic side effects of Levamisole are described in literature . However, its effect on mother and fetus during pregnancy is not well studied.

Case Presentation:

We present the case of a 25 year old African American female sex worker with a history of daily crack cocaine use for 8 years who presented with non healing ulcers on the legs and face for three years. She was confirmed to have levamisole induced vasculitis on biopsy. She had positive ANA, Anti dsDNA, p-ANCA and c-ANCA antibodies but no renal involvement. She was incidentally found to be 23 weeks pregnant by Ultrasound.

Discussion:

Levamisole induced vasculitis is leukocytoclastic in nature. There is no information available on its effect on pregnancy. There are some reports of pregnant patients with other non-systemic leukocytoclastic vasculitides who have had spontaneous labor and normal vaginal deliveries. This observation seems to be consistent with our case where the woman had three previous normal deliveries and had a current healthy pregnancy without complications. Whether pregnancy has any effect on exacerbating levamisole induced vasculitis remains uncertain.

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Category: Clinical Vignette

Institution: Grand Rapids Medical Education Partners/MSU - Grand Rapids

Program Director: Talawnda Bragg, MD, Member

Presenter: Roger Harty

Additional Authors: Caroline Howe MD, Courtney Myers MD, Mohammed Saleh MD

A Unique Presentation of a Mycobacterium Mucogenicum Infection

Mycobacterium mucogenicum, a rapidly growing mycobacteria, represents an emerging pathogen. It causes an array of infections in both immunocompetent and immunosuppressed individuals ranging from catheter-associated infections to skin and soft tissue infections. We present the case of a 19 year old woman found to have a pancreatic abscess secondary to *Mycobacterium mucogenicum* hereto unreported in the literature.

The patient presented to an urgent care facility with abdominal pain. Ultrasound examination detected a 4 cm pancreatic mass concerning for malignancy and she was admitted for further evaluation. She underwent confirmatory imaging as well as a biopsy which was negative for malignancy, and was initially discharge home. Cultures sent to the state lab came back positive for an atypical mycobacterium (ultimately it returned as *Mycobacterium mucogenicum*) and the patient was readmitted for treatment for a pancreatic abscess. She was discharged on a prolonged course of antimicrobials. Repeat imaging showed improvement in the size of her abscess and she continues to be on Bactrim and azithromycin therapy per Infectious Disease.

Mycobacterium mucogenicum infections have historically been reported as peritoneal dialysis catheter related infections, central nervous system infections, and post traumatic skin infections. It is felt to be ubiquitous and is found readily in water. This case represents a unique and previously unreported infectious presentation of this organism.

This case highlights the need for awareness of atypical presentations of emerging pathogens. It indicates the need for further research to understand the pathophysiology of how *Mycobacterium mucogenicum* causes its various pathologic presentations.

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Category: Clinical Vignette

Institution: Grand Rapids Medical Education Partners/MSU - Grand Rapids

Program Director: Talawnda Bragg, MD, Member

Presenter: Courtney Myers

Additional Authors: Dr. Andrew Jameson, Dr. Minerva Galang, Dr. Caroline Howe, Dr. Roger Harty

Cocaine with LINES: An Emerging Health Concern

Levamisole is an anti-helminthic and immunomodulatory medication that was removed from the US market for use in humans in 2000 by the FDA due to adverse effects. However, it is still used in veterinary medicine and has emerged as a common cocaine-adulterant, as it is believed to increase the high of cocaine, is a cheap additive, and is difficult to distinguish from pure cocaine. In the past decade, the literature describes an emerging picture of levamisole-associated adverse effects in cocaine users, including levamisole-induced necrosis syndrome (LINES), neutropenia with agranulocytosis, as well as a likely association with nephropathy, and pericardial and pleural effusions.

We present a 46 year-old woman with history of cocaine use, who presented to an infectious disease clinic with a history of current and intermittent necrotic skin lesions beginning 5 years prior to presentation, self-attributed to brown recluse spider bites, and unresponsive to antibiotic therapy. History was also significant for an apparently spontaneous pericarditis with pericardial effusion, neutropenia with agranulocytosis, and AKI, which occurred one year prior to presentation. Renal biopsy performed concurrently was suggestive of secondary membranous glomerulonephropathy with positive P-ANCA. She had elevated treponemal specific antibodies and was empirically treated for syphilis. She was also counseled on cocaine cessation and given information regarding resources. Skin biopsy was consistent with levamisole vasculitis and patient was lost to follow up.

Reports indicate that the majority of cocaine in the US may currently contain levamisole, making recognition of levamisole-associated morbidity increasingly important, as drug-use histories are often equivocal.

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Category: Clinical Vignette

Institution: Grand Rapids Medical Education Partners/MSU - Grand Rapids

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Potentially Benign Tums Leading to Severe Complications!!

Introduction: Milk-alkali syndrome (MAS) was originally described when milk and alkali were used as therapy for Peptic ulcer disease (PUD). Recent resurgence of this entity is because of the popularity of Calcium supplements. We present a rare case of MAS induced by calcium carbonate containing antacids (Tums).

Case Description: A 41-year-old woman with history significant for Rheumatoid Arthritis presented to the Emergency Department (ED) with chief concern of increasing lethargy, fatigue, nausea, and acutely worsened back and hip pain. Workup in the ED revealed acute kidney injury (AKI), calcium level of 17.1mg/dl and Hemoglobin of 6.2. She was resuscitated with intravenous fluids and diuretics which lead to gradual improvement in mental status with resolution of AKI and hypercalcemia. Extensive workup performed during hospitalization ruled out other etiologies of hypercalcemia. Further history during hospitalization revealed that she had been taking fifteen to twenty tablets of Tums daily for symptomatic relief of PUD. EGD performed demonstrated erosive gastric ulcer extending to the duodenum for which pantoprazole infusion was initiated. Diagnosis of milk-alkali syndrome due to excessive tums intake was eventually made. She was discharged home in stable condition.

Discussion: Recent increasing use of calcium containing medications has led to a rise in the incidence of MAS. We would like to raise the attention to this syndrome since it is the third leading cause of hypercalcemia and missing the diagnosis can lead to catastrophic consequences. This case highlights the value of detailed history taking in this era of high value care.

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Category: Clinical Vignette

Institution: Grand Rapids Medical Education Partners/MSU - Grand Rapids

Program Director: Talawnda Bragg, MD, Member

Presenter: Jubran Afzal Khan Rind

Additional Authors: Annum Faisal, MD; Munis Raza, MD; Ryan Grayburn, MD; Nagib Chalfoun, MD; Richard McNamara, MD

Cardiac Amyloidosis: The Great Masquerader

Introduction: Cardiac amyloidosis is an elusive diagnosis and has many different manifestations. In rare cases, it can even mimic hypertrophic cardiomyopathy on the echocardiogram.

Case: A 76-year-old man with CAD presented for a scheduled right heart catheterization for suspected cardiac congestive hepatopathy. The RHC revealed right > left filling pressures, PAWP 21 and a Fick CI 1.16. ScvO₂ was 48%. Hemodynamic monitoring and treatment of the low cardiac output syndrome were initiated. A TTE showed LVEF 30%, new severe asymmetric septal hypertrophy concerning for late-onset vs burned-out hypertrophic cardiomyopathy (HCM). The EKG showed, at various times, low-voltage QRS, atrial flutter and 1st degree AV block. A cardiac MRI was performed which showed asymmetric septal hypertrophy but diffuse, global peak gadolinium enhancement of the LV myocardium, consistent with cardiac amyloidosis. Work up for multiple myeloma was negative. Endomyocardial biopsy was consistent with amyloidosis. A diagnosis of ATTR amyloidosis was thus made.

Discussion: Cardiac amyloidosis is notorious for mimicking various cardiovascular conditions including heart failure, heart block, pericarditis and thromboembolic stroke. LVH in amyloidosis is typically diffuse however rare reports of echocardiographic resemblances with HCM, like asymmetric septal hypertrophy and LVOT obstruction exist (1, 2, 3]. Cardiac MRI can help differentiate amyloidosis from HCM. This differentiation from HCM and other forms of cardiomyopathy has important treatment implications, e.g., use of typical cardiac remodeling medications, ICD implantation and even advanced therapies such as LVAD or heart transplantation are ineffective or even detrimental in cardiac amyloidosis.

Poster: 57

Category: Clinical Vignette

Institution: Grand Rapids Medical Education Partners/MSU - Grand Rapids

Program Director: Talawnda Bragg, MD, Member

Presenter: Lauren VanDam

Additional Authors: Jeeva Subramanian

If Not Panic then Why Does She Scream

If Not Panic Then Why Does She Scream

Lauren VanDam, PGY-1, Internal Medicine, Grand Rapids Medical Education Partners, Grand Rapids MI.

Panic Disorder is a common condition that can mimic unusual disease processes. As a result, an underlying problem may be overlooked and diagnosis delayed.

A 19-year-old woman presented to her primary care office with worsening panic attacks. Since the age of two years, she had recurrent episodes of sudden fear, shaking, screaming, and crying. These would last a few minutes, occurring several times daily during sleep and wakefulness. Episodes appeared in clusters throughout her childhood and high school years. She was diagnosed with Adjustment Disorder, then Panic Disorder with anxiety and depression. Multiple medications and psychotherapy were unsuccessful. She was hospitalized after her primary care physician witnessed an episode. A head CT was negative, but she had an episode on the table and fell, resulting in a shoulder dislocation. MRI brain was unremarkable. 24-hour EEG captured 17 partial seizures with associated facial expressions of fear, grimacing, agitation, and screaming without postictal confusion. She was diagnosed with location-related epilepsy with probable right frontal or frontotemporal epileptogenic focus. These were thought to be Gelastic-Dacrystic seizures, a rare form of epilepsy characterized by uncontrollable laughing or crying. Antiepileptic medication was started and successfully controlled her seizures.

This case highlights the difficulty in differentiating Panic Disorder from some partial seizures, as both can present with fear, crying, and agitation. It also illustrates the importance of evaluation for biological causes of psychiatric symptoms.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Detroit

Program Director: Sean Drake, MD, FACP

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Additional Authors: Sagger Mawri, Yelena Selektor

Ocular Myasthenia Gravis Complicating Left Ventricular Assist Device Placement

Background:

Myasthenia gravis (MG) is an uncommon autoimmune neurological disorder that presents with weakness and fatigability. It has been reported to occur after cardiac surgery due to thymic damage during sternotomy. This is a case of a patient with ocular myasthenia gravis (OMG) presenting after a left ventricular assist device (LVAD) placement.

Case description:

A 54-year-old female with a history of ischemic cardiomyopathy with stage D heart failure presents to the hospital with progressive shortness of breath, orthopnoea and pitting lower extremity edema despite being on milrinone at home. She was admitted to the cardiac intensive care unit and a LVAD HeartMate II, was placed with no post-operative events. Two weeks after the procedure, she started to complain of ocular problems such as double vision and trouble opening her eyes, but reported no weakness elsewhere. Her exam showed bilateral ptosis with impaired left eye abduction. Tensilon test was positive and a repetitive nerve stimulation showed typical findings of myasthenia gravis. She was diagnosed with OMG and was started on pyridostigmine and prednisone. At the 2 month follow up, she had resolution of her ocular complaints without other reported neurological symptoms.

Discussion:

OMG presents with ptosis and/or diplopia without weakness elsewhere. OMG can rarely complicate cardiac surgical procedures where damage of the thymic remnants lead to activation of immune response culminating into OMG. It is important to recognize such complication since severe cases of myasthenic crisis with respiratory failure have been reported.

Poster: 59

Category: CQI/EBM

Institution: Henry Ford Health System – Detroit

Program Director: Sean Drake, MD, FACP

Presenter: Emmanouil Alimpertis

Additional Authors: Amal Hejab, Raju Kumar Vaddepally, Haythem Y. Ali

Institutional Adherence to NCCN Guidelines in Neoadjuvant Treatment of Breast Cancer and Its Correlation to Outcomes

The aim of the study is to assess the adherence to NCCN guidelines in breast cancer patients treated with neoadjuvant chemotherapy and evaluate its correlation to outcomes. Higher adherence rates correlate with improved survival and are a potential measure of quality of care. Methods: We screened patients treated with neoadjuvant chemotherapy at our institution during 2015 & 2016 with 46 patients meeting the criteria. We tabulated 8 adherence categories per NCCN and screened patients who were only eligible to receive the treatment specific to a certain adherence category. An adherence rate was calculated by dividing the number of categories for which they underwent intervention by the total number of eligible adherence categories. Rates of pathologic complete response (PCR) and Breast Conservation surgery (BCS) were calculated. Results: We had 100% adherence in appropriate pre-chemotherapy evaluation, completeness of histopathology report (n = 46), use of anti-Her2 antibody drug in patients with Her2 overexpression positive by IHC or FISH (n = 28) and adjuvant radiation therapy (n = 39). In the following categories adherence rates were as follows, 70% (n = 33) genetic consult, 69% (n = 32) reconstructive surgery, 65% (n = 46) cancer distress screen performed. Our median total adherence rates were 85% for all of the adherence categories in eligible patients. We had PCR and BCS rates of 39% & 41% respectively. Conclusions: Adherence to NCCN guidelines leads to improved outcomes. To improve quality of care, institutions should closely monitor the adherence to NCCN or other alternative national guidelines.

Poster: 60

Category: Research

Institution: Henry Ford Health System – Detroit

Program Director: Sean Drake, MD, FACP

Presenter: Paul Nona

Additional Authors: Adam Tawney, Deepthi Tirunagari, Chad Klochko, Syed Ahsan, Vinay Shah, Stacy Ellsworth, Scott Kaatz

Comparison of Pulmonary Embolism Severity Index Score and Hestia Criteria to Identify PE Patients for Outpatient Treatment

Guidelines recommend out of hospital treatment of low risk pulmonary embolism (PE) if home circumstances are adequate. The Pulmonary Embolism Severity Index (PESI) score is a validated risk assessment model that predicts early mortality. The Hestia criteria is a list of conditions that preclude outpatient treatment.

The aim of the study is to quantify the amount of agreement of low risk PESI scores and eligibility for outpatient treatment per Hestia criteria in PE patients.

Elements of the PESI score and Hestia criteria were abstracted from consecutive patients with confirmed PE from May 2015 to May 2016. PESI scores were classified as very low, low, intermediate, high and very high and dichotomized into low risk (very low and low) and high risk (intermediate, high and very high). Patients were deemed candidates for outpatient treatment if they had none of the 11 elements of the Hestia criteria. Of 367 patients, 164 (44.7%) had a low risk PESI score and 97 (26.4%) were candidates for outpatient treatment per Hestia criteria and 62 (16.8%) met both criteria. 168 (45.7%) had either a high PESI score or were precluded from outpatient treatment per Hestia. 137 (37.3%) patients had a mismatch of estimates of mortality and ability to receive outpatient treatment.

Only 16.8% of our patients were deemed to be candidates for outpatient PE treatment and had low mortality risk using standard risk assessment tools. Further research is needed to define the optimal candidate for out of hospital PE treatment.

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Category: Research

Institution: Henry Ford Health System – Detroit

Program Director: Sean Drake, 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.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Detroit

Program Director: Sean Drake, MD, FACP

Presenter: Mansur Pathan

Additional Authors: Junior Uduman, MD

Refractory Hyponatremia - Subtle Connections

Hyponatremia is a disorder commonly understood in the context of total body water and volume status. However, total body potassium and serum magnesium levels have an important role to play in the management of hyponatremia.

A 51-year-old male with ethanol-induced liver cirrhosis was admitted to the hospital for refractory ascites. He had also been chronically treated with fludrocortisone for postural orthostatic tachycardia syndrome. His hypervolemia was treated with loop and thiazide diuretics. After several days, the patient began to develop profound hyponatremia, hypokalemia, and hypomagnesemia. His serum sodium [Na⁺] decreased to 121 mmol/L, plasma [K⁺] concentration to 2.4 mmol/L, and serum magnesium [Mg²⁺] to 1.4 mg/dL. Diuretics were withheld and fluid restriction was instituted to correct his hyponatremia. However, his hyponatremia continued to worsen and his hypokalemia was refractory to replacement.

Simultaneous replacement of both his magnesium and potassium deficits was instituted. His serum [Mg²⁺] and [K⁺] levels began to rise, and importantly led to correction of his hyponatremia. The observed increase in serum [Na⁺] was within 1 mmol of expected values.

Diuresis with concomitant use of a mineralocorticoid made our patient susceptible to these electrolyte derangements. Hypokalemia can instigate development of hyponatremia as serum [Na⁺] is equal to the sum of total body Na⁺ and K⁺ divided by total body water. In addition, magnesium replacement facilitated urinary potassium retention by inhibition of renal potassium secretion via tubular ROMK channels. Clinicians should remain mindful of these relationships when treating what appear to be refractory hyponatremia and hypokalemia.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Thi Bui

Additional Authors: Britni Souther, DO. Junior Uduman, MD

Diffuse Alveolar Hemorrhage Precipitated by Supratherapeutic Warfarin Therapy in RSV Respiratory Infection

Introduction:

Oral anticoagulants such as warfarin are used for the prevention of thrombo-embolic complications in various hypercoagulable conditions such as atrial fibrillation. A significant adverse effect of anticoagulation therapy is hemorrhage. However, diffuse alveolar hemorrhage (DAH) is rarely reported as a complication of warfarin therapy. Diffuse alveolar hemorrhage (DAH) is rare but is more commonly associated with pulmonary infections, granulomatosis with polyangiitis, Behcets syndrome, anti-GBM disease, and Systemic Lupus Erythematosus. We report a case of Respiratory Syncytial virus (RSV) pneumonitis complicated by DAH in the setting of supratherapeutic warfarin therapy.

Case:

A 75-year-old man presented with persistent cough for 1 month and new onset respiratory failure and hemoptysis. CT scan revealed diffuse ground glass opacities bilaterally. The patient was intubated due to worsening hemoptysis and hypoxia. The diagnosis of DAH was confirmed by bronchoscopy after intubation. Vasculitis and autoimmune causes of DAH was ruled out with serologic testing but work up was positive for RSV infection confirmed by PCR.. The patient was noted to have a supratherapeutic INR of 4.63 on warfarin for atrial fibrillation.

Conclusion:

Diffuse alveolar hemorrhage (DAH) is a rare yet fatal medical emergency that requires immediate intervention. Diagnosis of DAH is difficult as chest radiographs often reveal findings that are indistinguishable from pulmonary edema or diffuse infectious process. DAH precipitated by a supratherapeutic INR is a rare complication of RSV respiratory infection. It is vital to recognize DAH and proceed with reversing the warfarin-induced coagulopathy and provide the patient with adequate respiratory support.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Robert Curtis

Additional Authors: Ahkil Patel, D.O.; Niluka Weerakoon, M.D.

A Rare Case of Primary Non-Hodgkin's Lymphoma of the Cranium

Non-Hodgkin lymphoma (NHL) is the most common hematologic malignancy. The majority of NHLs are of B-cell origin, specifically Diffuse large B-cell Lymphoma (DLBCL). NHL arises from a skeletal location in up to 4% of cases, particularly in the long bones. Literature review revealed approximately thirty cases involving primary lymphomas of the cranial vault.

A 56 year old immunocompetent female presents with a large, rapidly growing scalp mass that appeared 2 weeks prior. On presentation the mass was an irregularly shaped 7.2x5.8 cm mass. MRI showed heterogeneous mass on the posterior scalp with enhancement of the adjacent left posterior parietal bone and epidural space. Patient ultimately underwent parietal craniotomy with resection of the mass. Pathology from both the skull and dura mass showed B-cell lymphoma with high-grade features consistent with DLBCL. PET scan was obtained and unremarkable for any concerning lymphadenopathy.

Clinically the mass appeared to be arising from the cranium and extending to the subcutaneous tissue and dura in an exophytic fashion. The irregular shape, size, and rate of growth are features of high grade lymphomas. Although skull lesions are rare, the possibility of a primary malignancy must be kept in the differential diagnosis. A physician must have a high degree of suspicion and must include lymphoma in a working diagnosis when a rapidly growing mass appears in unusual locations. High suspicion and reporting of such cases allows for better understanding of such rare presentations and help redirect management for more effective treatment.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Michael Fackler

Additional Authors: Paraminder Sarao, DO

Is There a Prognostic Significance of Neuroendocrine Differentiation in Patients with Colorectal Cancer

Introduction: The prognostic significance of neuroendocrine differentiation in poorly differentiated colorectal cancer remains uncertain. Research articles present conflicting evidence regarding the prognostic value of neuroendocrine differentiation in patients with colorectal cancer. The following case report explores the clinical course of stage III poorly differentiated colon cancer with neuroendocrine cell differentiation.

Case: The patient is a 67 year old male who presented to the hospital in April 2016 for epigastric abdominal pain that had been present for one month. He reported associated nausea but denied diarrhea, melena and hematochezia. The patient stated that he had never had a colonoscopy and was a former smoker with minimal alcohol intake. He was admitted, and the colonoscopy at that time revealed an obstruction at the ileocecal valve which was biopsied. Pathology revealed poorly differentiated adenocarcinoma with neuroendocrine differentiation with metastasis to 7/21 resected lymph nodes. There were no signs of metastasis on CT chest/abdomen/pelvis imaging.

Conclusion: Upon review of this case, further investigation into the impact of neuroendocrine differentiation on the prognosis of colorectal cancer is warranted. The disaccord among research articles regarding the prognostic value of neuroendocrine differentiation is evident as some studies have concluded that neuroendocrine differentiation for colorectal cancer is associated with a poor prognosis while other studies have found no prognostic value for neuroendocrine differentiation for colorectal cancer. As in the patient above, further research and analysis is warranted to determine what impact neuroendocrine differentiation has in the primary outcome of patients with colorectal cancer.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Amal Khalife

Additional Authors: Jelena Arnautovic, Rajika Munasinghe,

Stroke and Endocarditis: A Cancerous Combination?

Stroke and nonbacterial thrombotic endocarditis may both be complications of cancer, rarely are they simultaneous signs of an occult malignancy. We report a case of nonbacterial thrombotic endocarditis complicated by embolic strokes as the first manifestation of adenocarcinoma of the lung.

69 year old former smoker with history of atrial fibrillation was diagnosed with embolic strokes, right lower extremity deep vein thrombosis, mitral and aortic vegetations and transferred to our cardiovascular service for upper level of care. Lack of stigmata of infective endocarditis prompted further work up which confirmed stage IIIB (T1bN3M0) adenocarcinoma. Brain lesions represented small subacute/acute embolic infarcts rather than metastasis, as there was no significant vasogenic edema. The vegetation seen on his cardiac valves were thought to be secondary to hypercoagulable state secondary to lung cancer. Patient was discharged with arranged proper oncological follow up and anticoagulation with Coumadin. The previously identified mitral and aortic valve vegetation were not seen on the echocardiogram.

Nonbacterial thrombotic endocarditis is overlooked and it can lead to valvular dysfunction, heart failure, and systemic embolization. It is necessary to distinguish between infective and non-infective etiologies to institute appropriate therapy. It is generally associated with adenocarcinomatous malignancies. Surgery unlikely influences outcome in non-infective etiology, and patients should be started on continuous anticoagulation. This phenomenon is important, as it raises the clinicians' suspicion of occult cancer for systemic thromboembolism; thereby decreasing morbidity and implementing appropriate treatment in patients with adenocarcinoma.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Areej Mazhar

Additional Authors: J. Arnautovic, DO; Rajika Munasinghe, MD

A Bitter Case of Sweet's Syndrome

Sweet's syndrome is one of the great imitators in medicine. With the presence of neutrophilia and pyrexia, it is easily mistaken for infection. We present an interesting case of Hydralazine induced Sweet's syndrome with biopsy proven diagnosis later complicated by sepsis.

A 72 year old female with history of hypertension presented to our hospital with excessive weight loss, tender cervical adenopathy and nodular rash of the extremities associated with eye swelling and arthralgia. She reported long term use of Hydralazine, 100 mg three times per day. Detailed systematic investigation of infectious, malignancy, autoimmune, and drug induced etiology was performed. Infectious work up was significant for multilobular *Pseudomonas pneumonia*. Autoimmune work up significant for positive anti neutrophil cytoplasmic antibody (anti MPO), anti dsDNA antibody, and anti histone antibody. Her skin findings progressed to diffuse eyelid thickening, palpebral and conjunctival hyperemia, and pseudomembrane formation bilaterally. In addition to antibiotic therapy, the patient was started on high dose steroids. Biopsy of the lesions revealed neutrophilic infiltrate consistent with fulminant Sweet's syndrome. The patient eventually developed multisystem organ failure secondary to septic shock. The family pursued comfort measures and the patient passed peacefully thereafter.

This was a very challenging case that involved extensive work up and a multidisciplinary approach. Usually, sweet syndrome has favorable outcome once the underlying cause is identified and addressed. Despite prompt diagnosis and adequate treatment our patient had a fatal outcome secondary to profound sepsis. The importance of drug review and early recognition can not be stressed enough.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Akhil Patel

Additional Authors: Britni Souther D.O.

Milk-Alkali Syndrome Causing Hypercalcemia Leading to Acute Pancreatitis in a Patient with a History of Papillary Thyroid Cancer

The milk-alkali syndrome consists of the triad of hypercalcemia, metabolic alkalosis, and acute kidney injury associated with excess ingestion of calcium. Hypercalcemia is an uncommon cause of pancreatitis, and exogenous intake of calcium as a cause of pancreatitis is far less common however the mechanisms by which hypercalcemia causes pancreatitis may be ubiquitous. We present a patient who developed acute pancreatitis in the setting of excessive oral calcium supplementation.

A 27 year old female with a history of papillary thyroid carcinoma with pulmonary metastases status post anterior neck dissection and tumor debulking presented with abdominal pain, nausea, and vomiting. She had been taking up to 46 calcium carbonate supplements daily when she noted perioral numbness, fatigue, and locking of her interphalangeal joints. On presentation she was found to have a calcium of 22.8 and a lipase of 18,710 in addition to acute kidney injury. She was treated with aggressive IV fluid hydration and Zometa. Her calcium corrected in 48 hours with added resolution of her symptoms and AKI. Other causes of her pancreatitis including gallstones, alcohol, malignancy, sarcoidosis, renal failure, hypertriglyceridemia, and other medications were ruled out.

It has been proposed that hypercalcemia may cause pancreatitis through deposition of calcium in the pancreatic duct causing obstruction. Elevated calcium levels may also lead to the activation of trypsinogen leading to autodigestion of the pancreas. The direct association between hypercalcemia due to milk-alkali syndrome causing pancreatitis is unclear; our case however demonstrates the importance of continuing to investigate rare cases of pancreatitis.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Shoaib Rasheed

Additional Authors: Akhil B. Patel, Lynette Sutkowi-Toomajian, Shannon Wills, Rajika L. Munasinghe

Leukocytoclastic Vasculitis: An Unusual Presentation of Acute Myeloid Leukemia

Introduction: This case of acute myeloid leukemia (AML) presented with an unusual symptom of skin rash diagnosed as leukocytoclastic vasculitis. This paper reviews leukocytoclastic vasculitis's macroscopic and microscopic characteristics, and explores its association with malignancy.

Description: An 84 year old male with no significant past medical history presented to his primary care physician for a three-month history of “rash” on his arms. Skin lesions were located on the extensor surfaces of bilateral forearms and varied, consisting of two 1.5x2.5 cm raised palpable ecchymoses, and multiple flat erythematous patches 0.5-2 cm in diameter. CBC showed marked leukocytosis with WBC 67.1, anemia with Hgb 9.6 g/dL, and thrombocytopenia with Platelets of 23. Peripheral Blood Smear showed 51% blasts. The patient was diagnosed with AML. Bone marrow biopsy was deferred as the patient opted for hospice and passed away shortly afterwards. Punch biopsy of the skin lesions revealed perivascular dermal and subcutaneous inflammation characteristic of leukocytoclastic vasculitis.

Discussion: Leukocytoclastic Vasculitis manifests on skin biopsy as neutrophilic perivascular inflammation in the dermal layer. Though found most commonly in drug reactions and infections, it is a rare manifestation in malignancy. It differs from leukemia cutis in that no direct infiltration of the skin with leukemic cells occurs. Its hallmark on gross skin exam is palpable purpura, discovery of which should warrant further work up.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Rita Shah

Additional Authors: Nehal Gheewala, DO; Amitha Aravapally, MD

Case of Adenomatous Polyp of Ampulla of Vater

Introduction: Primary ampullary tumors are a rare incidence approximately 4-6 cases per million. They can occur sporadically and progress by adenoma-carcinoma sequence, commonly found in patients in their 8th decade; can present with non-specific symptoms and/or painless jaundice. In this case, we suggest that a high index of suspicion is crucial for diagnosis.

Case Presentation: 91 yo female presented to clinic for wellness exam and was found to have scleral icterus and yellow tint of skin. On further evaluation, patient stated to have had decreased appetite and a 15 lb weight loss was noted since last visit. Lab studies revealed elevated alkaline phosphatase and total bilirubin. At one week, patient's jaundice has worsened; she complained of pruritus but denied abdominal pain. CT scan showed dilated hepatic ducts, patient underwent ERCP with sphincterotomy with stent placement in the bile duct. Biopsy and cytological test of necrotic mass noted at ampulla of Vater revealed adenomatous polyp with focal superficial high-grade dysplasia. Patient wished not to undergo aggressive therapy and elected palliative care.

Discussion/Conclusion: Adenomatous polyps in ampulla of Vater are rare neoplasms and high index of suspicion is essential for prompt diagnosis and treatment. Close follow up is essential that guides treatment. Due to their potential for malignant transformation, complete resection is highly recommended. Endoscopic ampullectomy is a high-risk procedure with high rates of bleeding. In patients with low-grade dysplasia or those, considering palliative care, periodic biopsies and endoscopic sphincterotomy is an option.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Nicholas Shuler

Additional Authors: Rajika Munasinghe

Small Cell Carcinoma Evolving from Treated Prostatic Adenocarcinoma - A Reprogramming of Prostate Cancer Cells

Prostate cancer is the most commonly diagnosed cancer in men and the second leading cause of cancer mortality in men. 95% of prostate cancer is adenocarcinoma with the remainder being small cell carcinoma. Prostate cancer progression is characterized by tumor dedifferentiation. We present a case report of prostate cancer progression from “differentiated” adenocarcinoma to “undifferentiated” small cell carcinoma.

Mr. P is a 74-year old male diagnosed one year prior with biopsy proven metastatic prostate adenocarcinoma. He was initiated on androgen deprivation therapy with leuprolide. He later presented to the hospital with worsening urinary and bowel obstructive symptoms. He underwent transurethral resection of the prostate and diverting colostomy. Pathology was consistent with small cell carcinoma evolving from prostatic adenocarcinoma. Biopsy was positive for TTF1, which can be seen in extrapulmonary small cell cancer, as well as negative staining for PSA and P501S, which also supports this diagnosis. Patient’s clinical course deteriorated rapidly and expired after enrolling in Hospice.

This case illustrates the histological transformation of prostate cancer from adenocarcinoma to small cell carcinoma. It has been postulated that this may occur in patients who have received androgen deprivation therapy. One hypothesis is that these drugs primarily target the bulk of neoplastic, fast-growing cancer cells, but not cancer stem cells. Cancer relapse may be due to preferential killing of more differentiated cells while leaving undifferentiated cancer stem cells to further proliferate. In order to treat cancer effectively, the stem-like cancer cells and cancer differentiation pathway need to be better understood.

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Category: Clinical Vignette

Institution: Henry Ford Health System – Macomb

Program Director: Amitha Aravapally, MD

Presenter: Britni Souther

Additional Authors: Akhil Patel, DO

Thrombotic Thrombocytopenic Purpura As a Result of Pancreatitis and Hypercalcemia

The initiating factor of thrombotic thrombocytopenic purpura (TTP) is only recognized in very few published cases. Known causes of TTP include pregnancy, autoimmune disorders, vasculitides, malignancy, and medications. We describe an interesting case of milk-alkali syndrome and pancreatitis as the cause of TTP.

A 27-year-old woman with a history of papillary thyroid carcinoma with pulmonary metastases status post tumor debulking presented with abdominal pain, nausea, and vomiting. She had been taking up to 46 calcium carbonate supplements for symptoms of perioral numbness and fatigue. On presentation, she was found to have a calcium of 22.8, severe pancreatitis, and acute kidney injury. With treatment, her hypercalcemia resolved within 48 hours. Two days after admission, she developed a fever and had a substantial drop in hemoglobin and platelets. She was found to have hemolytic anemia with marked schistocytes on peripheral smear. She was therefore treated for TTP with plasma exchange despite normal ADAMTS13 activity. Other causes of her presentation were ruled out including malignancy, sepsis, hyperparathyroidism, autoimmune vasculitides, sarcoidosis, malignancy, renal failure, hypertriglyceridemia, and medications.

It is our contention that the release of inflammatory cytokines from pancreatitis stimulates the release of vWF multimers from the endothelium which increases platelet adhesion, and therefore causes TTP. There have been few case reports suggesting an association between pancreatitis and TTP, however the role between milk alkali syndrome as a cause of pancreatitis preceding TTP has not been discovered.

Poster: 73

Category: CQI/EBM

Institution: Hurley Medical Center/MSU – Flint

Program Director: Ghassan Bachuwa, MD, FACP

Presenter: EzzAddin Al Wahsh

Additional Authors: Seetharamprasa Madala MD; Hossam Al-Zu'bi MD; Maneesh Gaddam MD, Yasmin Mahmoud MD; Thair Dawood MD; Tabrez Shaik Mohammed MD, Ba

Improving Chronic Prescription of Opiates at Hurley Medical Center Adult Internal Medicine Outpatient Clinic

Background Treatment with opiates is fraught with a multitude of risks ranging from prescription abuse, dependence and drug diversion to the potentially fatal drug overdose. Using contracts and urine drug screening are current practices in monitoring of chronic narcotic use in our clinic but strict adherence has been challenging due to lack of a standardized process.

Methods After establishing a case definition of chronic narcotic user, the clinic residents were educated about the process of flagging patients who meet this criteria through EMR. The main intervention was in the format of an order set on EPIC (our EMR system) that gets activated when the patient flagged as chronic narcotic user presents for an office visit. The order set reminds the resident to check for prescription abuse using urine drug screen, narcotic agreement and follow up visits. Apart from this, residents were educated via emails and presentations. Patient charts were reviewed both pre and post intervention.

Results Post-intervention results showed improvement in all of the criteria used for monitoring. The rate of urine drug screen went up from 12% to 56%, narcotic agreements signed by patients from 8% to 60% and rate of follow up visits to clinic from 60% to 96%.

Conclusions Monitoring rates improved by at least 30% on all parameters. The use of EMR has contributed to improvement of chronic narcotic prescription and monitoring its quality. Currently, another PDSA cycle is underway to expand the study to include additional interventions and expect to complete by May 2017.

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Category: Clinical Vignette

Institution: Hurley Medical Center/MSU – Flint

Program Director: Ghassan Bachuwa, MD, FACP

Presenter: Yanal Alnimer

Additional Authors: Dr Emad abu sitta, Dr Ghassan Bachuwa

Challenges in Diagnosing Primary Hyperparathyroidism

Challenges in diagnosing primary hyperparathyroidism

Discussion:

Urine calcium- creatinine ratio more than 0.02 is a characteristic of Primary hyperparathyroidism (PHP) which differentiates it from familial hypercalcemic hypocalciuric (FHH) where the ratio is less than 0.01, however coexisting vitamin D deficiency makes differentiation between both disorders challenging since low vitamin D level decreases urine calcium excretion in the former. We reported a case of PHP where the diagnosis uncovered after vitamin D replacement.

Case presentation:

A 68 years old female patient presented to the outpatient clinic complaining of shortness of breath, excessive thirst and frequent urination. On physical examination, her blood pressure was 160/90, mild crepitation at both lung bases and lower limb edema. Blood workup showed serum calcium level of 10.5 mg/dL (NL 8.7-10.4), phosphorus level of 2.2 (NL 2.7-4.5), serum creatinine of 0.6 mg/dL and PTH of 266 pg/ml (NL 14-72 pg/ml). spot urine calcium -creatinine ratio was 0.006. Her chest x ray showed minimal congestion.

Patient was given vitamin D 50,000 units once per week for 8 weeks. On regular follow-up. laboratory workup showed serum calcium level of 10.9 mg/dL, phosphorus level of 2.5 mg/dL, PTH of 180 pg/ml and vitamin D level of 30 ng/ml. Her spot urine calcium-creatinine ratio increased to 0.016.

Conclusion:

Vitamin D replacement is essential in making the distinction between both disorders since parathyroidectomy will not be helpful in FHH.

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Category: Research

Institution: Hurley Medical Center/MSU – Flint

Program Director: Ghassan Bachuwa, MD, FACP

Presenter: Mohammed Baig

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Determining the Statistically Significant Value in Safely Diagnosing Gestational Diabetes Mellitus (GDM) Using Hemoglobin A1C

Hemoglobin A1C (HbA1c) is used for the diagnosis of Diabetes Mellitus (DM).

However, there are no recommendations for the value of HbA1c to be used as a tool for screening or diagnosing GDM.

Aim-To determine the specificity and sensitivity of HbA1c values that can safely be used to screen and diagnose GDM before 24 weeks of gestation

Also determine a value of HbA1c at 24 -28 weeks gestation in all positive Oral glucose tolerance test to safely reduce or eliminate the need for OGTT.

Method- All pregnant patients seen at Hurley Medical Center, Obstetrics and gynecology clinic, during a period of 2 years are enrolled in to the retrospective cohort study.

Obtained HbA1c at the initial appointment.

75 gm 2 hour OGTT at 24 - 28 weeks gestation to determine if at a particular level of HbA1c we are able to make a diagnosis of GDM. If the diagnosis can be made at a particular HbA1c level then we will evaluate the sensitivity and specificity of the value for diagnosing GDM.

Conclusion- The traditional way of doing OGTT in 24-28 weeks of pregnancy may miss several patients with gestational diabetes.

Early intervention is crucial in preventing morbidity and mortality in both the child and the mother.

Further studies may be required to analyze the outcome of pregnancies who had low HbA1c in the beginning but developed diabetes at later stage.

We believe that doing OGTT early in pregnancy may identify more patients with GDM and help prevent serious complications.

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Category: Clinical Vignette

Institution: Hurley Medical Center/MSU – Flint

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Is a Bend the Mend for Neck Pain?

Introduction:

Head and neck pain are among the common reasons for a chiropractic visit. Evidence is inconclusive of the benefits of chiropractic manipulation in this condition, and at the same time, it has been associated with some disastrous adverse events.

Case:

A 34-year-old female with no significant past medical history presented with a two week history of intermittent, sharp, progressive right sided headache located around the occipital region and neck associated with vomiting. She was seeing a chiropractor for past two days for cervical spinal manipulation therapy. During the second session of therapy, she developed worsening of headache, blurry vision, and dizziness.

On examination, the patient's level of consciousness, cognition, and speech were normal. Vitals signs were within normal range. Tenderness was noted on the occipital region and the nape of the neck. Patient reported blurred vision on bilateral visual field testing but cranial nerves and extremities examination did not reveal focal neurological deficits.

Laboratory work was unremarkable. MRI angiography of the neck revealed non- occlusive dissection involving the V3 segment of the right vertebral artery.

The patient was anticoagulated with warfarin bridged with enoxaparin.

Discussion:

Chiropractic care is frequently sought by patients for relief of head and neck pain. Vertebral artery dissection (VAD) is a rare and serious adverse event that has been reported with cervical neck manipulation. It presents with unilateral headache, posterior cervical pain, dizziness, and brain or retinal TIAs or strokes. Patients should be informed about the potential risks of receiving the therapy.

Poster: 77

Category: Clinical Vignette

Institution: Hurley Medical Center/MSU – Flint

Program Director: Ghassan Bachuwa, MD, FACP

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Additional Authors: Ahmed Abdalla, Emad Abusitta, Khalid Ahmed, Ghassan Bachuwa

A Common Cause with Uncommon Suspicious: Lithium-Induced Leukocytosis

Introduction:

Lithium is an established drug for treatment of bipolar disorder. It has a narrow therapeutic window with many side effects. We report a lithium-induced leukocytosis in a patient with bipolar disorder. Although leukocytosis is commonly seen with lithium poisoning, severe leukocytosis is a rare side effect.

Case presentation:

A 57-year-old African American female with past medical history of bipolar disorder on lithium. She was brought to the emergency department because she was confused and combative. She also had vomiting and diarrhea for 3 days prior to admission. Her lithium dose was increased one week prior to her presentation. On examination, she was confused and not oriented. Rest of physical examinations were unremarkable. Her laboratory investigations revealed a white blood cell count of 46 (Ref:4-10.8 K/UL), neutrophil 68% (Ref: 36 – 75%), creatinine of 1.7 (Ref:0.5-1.1 MG/DL) and blood urea nitrogen of 26 (Ref: 6-20 MG/DL).

Septic work-up was negative. Also, metabolic and myeloproliferative disorders work-up including JAK2 and BCR-ABL were negative. Her lithium level was elevated at 1.8 (Ref:0.5-1.5MEQ/L). She was diagnosed with lithium-induced leukocytosis. The offender agent was discontinued and she made remarkable improvement in her clinical status and biochemical markers. Her leukocytosis after 9 days of lithium discontinuation was 12.5K/UL.

Conclusion:

Lithium-induced leukocytosis is a common side effect of lithium. In controversy to our case, the degree of leukocytosis is usually modest with up-to two-folds increase in leukocytes and neutrophils count. Beside investigating common causes of leukocytosis, medication side effects should be considered as a possible cause.

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Category: Clinical Vignette

Institution: Hurley Medical Center/MSU – Flint

Program Director: Ghassan Bachuwa, MD, FACP

Presenter: Htay Htay Kyi

Additional Authors: Ahmed Abdalla, Samer Al Hadidi, Ghassan Bachuwa, Carlos Rios-Bedoya

Pregabalin-Induced Myoclonus

Pregabalin is used to treat neuropathic pain, fibromyalgia, and epilepsy. Myoclonus is involuntary, jerky, shock-like brief movement results from interruption of muscular activity. Myoclonus has been reported in less than 4% of patients treated with pregabalin.

A 65- years- old African American female with past medical history of fibromyalgia on pregabalin for the two months prior to her presentation. She presented to the emergency department with twitching of her whole body for one day duration. It was so severe that she could not walk or do her daily activities. She denies dysphagia, slurring of speech or weakness. No family history of similar symptoms. On physical examination, myoclonic twitches were affecting her facial musculature as well as the arms, legs, and torso. Rest of neurological examination was unremarkable. Her laboratory investigations revealed normal liver, kidney, and thyroid function. Urine toxicology screen was negative. Electroencephalography did not show any epileptiform activity. Non-contrast computed tomography of the head showed no acute intracranial process. Patient's myoclonic activity resolved within 24 hours of discontinuation of pregabalin.

Pregabalin is gamma amino butyric acid (GABA) analogue, which is the main inhibitory neurotransmitter in the central nervous system. Pregabalin-induced myoclonus is not uncommon. Most of the cases reported were associated with acute /chronic renal failure in contrast to our patient who has normal renal function. The majority of those cases are mild and reversible. Physicians should be aware of reversible side effects of pregabalin as discontinuation of therapy will result in complete resolution of symptoms.

Poster: 79

Category: Research

Institution: Hurley Medical Center/MSU – Flint

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Use of CT Pulmonary Angiography to Diagnose Pulmonary Embolism in the Emergency Department of a Community Teaching Hospital

Background:

CT pulmonary angiography (CTPA) in patients at low risk for pulmonary embolism adds to the cost and leads to unnecessary radiation and contrast exposure. Guidelines recommend using pretest probability scores and high sensitivity d-dimer test to identify low risk patients who can safely forego CTPA. Modified wells score is commonly used to categorize suspected pulmonary embolism patients into high probability or low probability. The aim of our study was to investigate the inappropriate use of CTPA in the emergency department and adherence to the guidelines.

Methods:

We conducted a retrospective chart review of adult patients who underwent CTPA for suspected PE in the emergency department from January 1, 2015 to December 31, 2015. Pregnant and trauma patients were excluded. CTPA was considered appropriate if modified wells score (MWS) was greater than 4 or any score with high sensitivity d-dimer greater than 500. CTPA was considered inappropriate if MWS was less than or equal to 4 and d-dimer was either not ordered or value was less than 500.

Results:

A total of 295 encounters fulfilled the inclusion criteria. 203 (68.81%) were females and 92 (31.18%) were male patients. Only 16 (5.42%) cases of pulmonary embolism were diagnosed. 122 (41.35%) CTPA were inappropriately performed. D-dimer was not performed in 99% of patients with inappropriately performed CTPA.

Conclusion:

Adherence to published guidelines to diagnose pulmonary embolism is low. Application of modified wells score and d-dimer at initial presentation in the emergency department can avoid excessive ordering of CTPA.

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Category: Clinical Vignette

Institution: Hurley Medical Center/MSU – Flint

Program Director: Ghassan Bachuwa, MD, FACP

Presenter: Anas Salih

Additional Authors:

Peripheral Neuropathy in Arsenic Poisoning

Peripheral neuropathy is a common condition, diagnosing the etiology could be challenging in an outpatient setting. 57 years old lady with medical history of Peripheral neuropathy, heroin and cocaine abuse came in to the clinic for worsening numbness in her legs, and new tingling sensation in her eyes and left breasts for 2 months. The patient reported abstinence from alcohol, cocaine and heroin. Physical examination yield a petite malnourished lady with chronic dry skin in extremities. Workup done and due to the chronic nature of the symptoms, worsening severity and involvement of new parts of the body serum heavy metals levels was ordered. Results surprisingly showed Arsenic level of 62 mg/dL. The patient was called to be informed with the results and to come back to the clinic. Poison Control was involved and more focused history done to identify exposure. Patient admitted this time that she is still using cocaine. The patient was followed up closely with a repeat Arsenic level weekly until it came down to normal levels. It has been reported that Arsenic been used with cocaine as a bulking material. This case illustrates how peripheral neuropathy could be challenging in outpatient setting and how incidental findings leads to new history and more investigations exhausting clinic resources. The etiology could be challenging to identify and sometimes we need to think outside the box if symptoms are worsening without any known reason.

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Category: Clinical Vignette

Institution: Hurley Medical Center/MSU – Flint

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Additional Authors: Danielle Osterholzer, MD, FACP. Ghassan Bachuwa, MD, FACP.

From Face to Meninges: A Case of Primary Herpes Simplex Virus Type 2 Meningitis from a Hidden Facial Lesion

A 28-year-old healthy African American male presented to the hospital with two days of frontal headache, nausea, vomiting, fever, photosensitivity, and neck stiffness. He denied any similar episodes in the past, had not traveled and had no animal exposure. His vitals were normal except for a temperature of 38.1 Celsius. He had meningismus, tender submental lymphadenopathy, and a small crusted lesion on the chin hidden within his facial hair. The rest of the physical including the genital exam was normal. Lumbar puncture revealed 550 white blood cells, all mononuclear, 18 red blood cells, glucose 67 mg/dl and protein 65 mg/dl. Polymerase chain reaction was positive for herpes simplex virus (HSV) type 2 from the chin lesion as well as the spinal fluid. Serologies for HSV type 1/2 immunoglobulin G antibodies were negative indicating lack of previous HSV infection. Non-specific HSV immunoglobulin M antibodies were positive. On further questioning, his female partner recently had genital ulcerations with which he had contact. He thought his chin lesion was an ingrown hair and did not report it during the interview. HSV-2 causes about 17% of cases of aseptic meningitis. Approximately 85% of primary HSV-2 meningitis cases have active genital lesions at presentation. Our patient had no genital ulcers. Reports of a similar case of primary HSV-2 meningitis associated with a facial lesion were not found in our literature review but are likely under recognized. This highlights the importance of a careful skin examination in patients with aseptic meningitis.

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Category: Clinical Vignette

Institution: Huron Valley Medical Center – WSU-DMC

Program Director: Jeet Pillay, MD, Member

Presenter: Jeffrey Alent

Additional Authors:

Wrenching Ruggae: A Case Presentation of Acute Gastric Volvulus

Acute gastric volvulus is a rare, life threatening condition associated with high mortality, characterized by rotation of the stomach along its short or long axis. Dire complications ensue with rotation of the stomach more than 180 degrees, causing complete gastric outlet obstruction with the potential to strangulate bowel leading to necrosis, perforation, and septic shock.

The patient is an 86 year old woman with a history of GERD and hiatal hernia who presented to the hospital for acute abdominal pain and vomiting with development of frank hematemesis the day prior to admission. CT imaging would show mesentero axial gastric volvulus with evidence of necrosis from strangulation and severe portal venous air. NGT placement was attempted during which the patient became hypotensive, and aspirated copious coffee-ground emesis. She was coded, intubated, and would achieve ROSC following 10 minutes of CPR. The patient was admitted to the medical intensive care unit on vasopressor and sedative drips in critical condition.

Given the critical condition of the patient's condition surgery was deemed high risk with grave intra-operative prognosis. Comfort measures were instilled per request of the patient's family, and she would unfortunately expire shortly thereafter.

This case illustrates the importance of recognizing the signs and symptoms of acute gastric volvulus, as well as the significance of recognizing established risk factors not limited to hiatal hernia and advanced age, as in this patient. The value of prompt clinical diagnosis is essential to prevent associated morbidity and mortality of this rare condition.

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Category: Clinical Vignette

Institution: Huron Valley Medical Center – WSU-DMC

Program Director: Jeet Pillay, MD, Member

Presenter: Owen Culpepper

Additional Authors: Ben Lee D.O.; Scott Simecek D.O.

Altered Mental Status: A Case of Traumatic Fat Microemboli Due to Upper Extremity Injury from Seizure

Fat embolism syndrome (FES) is a syndrome in which fat globules enter the blood stream and ischemia in an embolic fashion. FES is associated with closed long bone fracture but can also be associated with trauma to adipose tissue. Once fat globules are introduced into the venous system via bone marrow or adipose tissue, it can enter the arterial system by a patent foramen ovale or as microemboli in the pulmonary vasculature. When microemboli occur, neurological manifestations are the primary presenting factors.

FES is diagnosed based on clinical presentation and exclusion of other pathology. Our patient is a 68-year-old female who was found obtunded and hallucinating in her home 48 hours after her last well known. X-Rays of the extremity revealed a comminuted fracture of the right humeral neck with dislocation of the humeral head posteriorly. Initial infectious and metabolic etiologies all were within normal limits. Further evaluation via an MRI of the patient's head revealed multiple scattered bilateral punctate foci of acute infarct, which raised suspicion for FES due to her humeral neck fracture. An echocardiogram was performed which showed absence of a patent foramen ovale, and her MRI and clinical findings were felt to be due to microemboli. Supportive care was continued and the patient progressed, returning to her baseline mental status.

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Category: Clinical Vignette

Institution: Huron Valley Medical Center – WSU-DMC

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When Lower Extremity Swelling Isn't Just Heart Failure or Cellulitis? An Insidious Presentation of Gas Gangrene

Clostridial myonecrosis (gas gangrene) is a life-threatening infection, carrying a mortality of 80-100% characterized by soft tissue destruction and intratissue gas production. The rapidly progressive course, nonspecific symptoms make the diagnosis and management of gas gangrene challenging. An 81 year-old woman with diabetes mellitus and HFrEF presented to the ER at HVSH with complaints of painful bilateral leg swelling and shortness of breath over the past three days. Over the course of presentation to ER to admission to the floor, the patient's physical exam progressed from significant non-pitting edema, worsening tenderness to palpation, non-palpable pulses, decreased sensation, and cold skin in her bilateral lower extremities. Her left leg revealed cyanotic discoloration and blistering. Initial laboratory studies revealed AKI, leukocytosis of 25.3, and a lactic acidosis of 4.8. Stat ultrasonography studies revealed a complex fluid collection in the right groin with air bubbles and bilateral soft tissue air in the thigh, which was confirmed on CT as well as extensive gas in superficial and deep soft tissue extending from the right foot to iliac crest and left foot to mid-thigh. Despite best medical efforts of broad spectrum antibiotics, central venous catheter placement, pressor and ventilatory support, the patient developed multi-organ system failure with worsening acidemia, hyperkalemia and positive troponins. Blood cultures ultimately revealed Clostridium species. Any delay in diagnosis of gas gangrene, which in turn leads to delay in intervention, contributes to the high mortality in this rapidly progressive infection.

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Category: Clinical Vignette

Institution: Huron Valley Medical Center – WSU-DMC

Program Director: Jeet Pillay, MD, Member

Presenter: Laura Leslie

Additional Authors: Sarah Woiderski, D.O. & Nabil Wehbe, D.O.

The Curious Case of the Transforming Liver Mass

Introduction: Solitary liver masses have a vast differential and are typically diagnosed via imaging or biopsy.

Case Description: A 76 year-old male without history of liver disease presented to the emergency department with altered mental status. The patient was accompanied by his son, who reported that his father had been somnolent and confused for one day. Patient was drowsy, but arousable, and denied any complaints. He had normal vital signs and was non-toxic appearing. Abdominal exam revealed a distended abdomen with diffuse tenderness, without fluid wave or organomegaly. Initial blood work was remarkable for WBC 13.1, AST 127, and ALT 103. CT abdomen/pelvis without contrast revealed an 11cm x 8cm mass in the right hepatic lobe of the liver. Hepatitis panel, alpha-fetoprotein, and amebiasis antigen were negative. CT-guided FNA of the lesion revealed fluid with numerous PMNs without organisms. Final pathology report was negative for malignant cells and showed hepatic parenchyma & neutrophilic exudate. With suspicion for abscess, CT-guided drainage of the lesion was attempted. However, the lesion was found to be solid at that time, and no fluid could be aspirated. Subsequently, several core biopsies were obtained. Cultures were again negative for organisms and pathology report revealed hepatic parenchyma with suppurative inflammation and necrosis.

Discussion: Diagnosis of a solitary liver mass is preferably made by imaging. However, our patient presented with an acute kidney injury and was therefore a poor candidate for a triphasic contrast CT. Unfortunately, despite undergoing two biopsies, no definitive diagnosis could be made.

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Category: Research

Institution: McLaren Regional Medical Center/MSU – Flint

Program Director: Susan Smith, MD, FACP

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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.

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Category: Clinical Vignette

Institution: McLaren Regional Medical Center/MSU – Flint

Program Director: Susan Smith, MD, FACP

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A Rare Case of Co-Existent Essential Thrombocytosis and Non-Hodgkin's Lymphoma

Introduction

We report a rare case of concomitant essential thrombocytosis (ET) and non-Hodgkin's lymphoma (NHL); the latter presenting as a parotid mass with initial false negative fine needle aspiration cytology (FNAC) and flow cytometry (FC).

Case Description

A 71-year-old Caucasian male presented with a right parotid mass noted five years earlier. He denied B symptoms. CBC showed elevated platelets of 736,000/uL. Neck CT revealed a 4.5 X 3.5 cm right parotid mass and a level II cervical lymph node (LN). FNAC of mass and LN were reported as reactive. FC showed normal immunophenotyping. BCR-ABL FISH was negative but JAK-2 mutation was positive for JAKV617F suggesting ET. Follow-up CT neck at ten months showed the parotid mass increased to 6 x 6 cm with extensive cervical lymphadenopathy. Repeat FNAC and parotid open biopsy were consistent with low grade follicular B-cell lymphoma. PET scan confirmed Stage III NHL. He was treated with bendamustine and rituximab.

Discussion

The rare association of ET and NHL has been reported sporadically in literature. A JAK2V617F mutated lymphoid-myeloid progenitor cell has been proposed as common cell of origin. Alternatively, a common carcinogen resulting in proliferation of both cell lineages has been suggested. Our patient likely developed both diseases concomitantly. Initial FNAC and FC were negative; probably from sampling error. FNAC sampling error in lymphomas is highest in head and neck region with a false negative rate of 32%. A recognition of the rare association between ET and NHL may have resulted in earlier open biopsy and diagnosis.

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Category: Clinical Vignette

Institution: McLaren Regional Medical Center/MSU – Flint

Program Director: Susan Smith, MD, FACP

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A Rare Case of Metachronous Advanced Stage Second Primary Lung Cancer

Introduction:

The development of second primary lung carcinomas, either simultaneously or after a cancer-free interval, is less common than multiple primary cancers in other paired organs. We present a case of an advanced-stage second primary lung cancer despite regular surveillance.

Case Summary:

A 58-year-old male with history of non-small cell lung cancer (Stage IIIB) treated with chemotherapy and radiation in 2005, attained complete remission and was followed regularly. He was re-admitted in 2016 with progressive cough. Chest CT showed right upper and middle lobe collapse with right hilar mass. Biopsy of an axillary lymph node revealed small cell lung cancer. The patient's hospital course was complicated by development of atrial flutter with hypotension and hypoxia. He then opted for palliative care.

Discussion:

A metachronous lung cancer is defined as a new pulmonary malignancy which fulfills any of the following: (1) histologically different from the index tumor; or (2) histologically similar as the index tumor but with a cancer-free interval of more than two years or (3) diagnosed within 2 years, but located in different lobes or segments, and not the result of metastases.

After complete remission of non-small cell lung carcinoma, only about 1% of individuals develop a second primary lung cancer. With the advent of CT scan, more than 90% of these cases are detected at an early stage and most are treated with definitive local therapy unlike our patient who presented with an advanced stage second primary despite proper surveillance, hence the poor outcome.

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Category: Clinical Vignette

Institution: McLaren Regional Medical Center/MSU – Flint

Program Director: Susan Smith, MD, FACP

Presenter: Hafiz Khan

Additional Authors: Ahsan Wahab, Siddique Chaudhary, Mahin Khan, Susan J. Smith

Metastasis to Prostatic Fossa from Adenocarcinoma of the Duodenum - A Rare Case Report

Metastases to the prostatic fossa (PF) from primary duodenal adenocarcinoma (DA) is a rare entity. As per our knowledge, there has been no previously reported case.

In 2014, a 76 year old African-American male with history of prostate cancer status-post surgery and radiotherapy presented with nausea, vomiting, abdominal pain and diagnosed with small bowel obstruction. CT abdomen showed 5x1 cm obstructing lower duodenal mass with mesenteric lymphadenopathy. CEA and CA 19-9 were 7.7 ng/mL and 431.6 U/mL, respectively. Exploratory laparotomy showed an obstructing mass adherent to the jejunum and left colon for which he underwent en-bloc duodeno-jejunal resection and left hemicolectomy with primary anastomoses. Histopathology showed adenocarcinoma. Chemotherapy FOLFOX was administered based on his Stage III-B disease. PET-CT and tumor markers were negative in May 2014. Follow up PET-CT's in 2016 showed increased metabolism in prostatic fossa with later involvement of the urinary bladder neck. Histopathology from the bladder neck biopsy showed adenocarcinoma. Immunostaining was positive for CK20 and CDX2 while negative for PSA and PSAP consistent with metastatic DA.

DA has a prevalence of only 0.35% among GI tumors. 40-65% of DA have regional nodal metastasis at diagnosis. It metastasizes to the liver, lungs and rarely to large vessels. PET-CT is useful for detecting both primary DA and metastasis. DA is usually treated with surgery while chemotherapy is used for metastasis. Patients with advanced stages have overall decreased survival. To the best of our knowledge, this case would be the first DA with PF metastasis to be reported.

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Category: Clinical Vignette

Institution: McLaren Regional Medical Center/MSU – Flint

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Rare Presentation of Bladder Cancer with Cutaneous Metastasis

Introduction:

Though not common, cutaneous metastases from visceral organ malignancies occur with an incidence documented to be 2.9-5.3%. The most common primary malignancies metastasizing to the skin are breast cancer in women and lung cancer in men. Genitourinary malignancies metastasizing to the skin are noted to be rare, more commonly originating in the kidneys than in the bladder.

Case report:

82 year old Caucasian male with hematuria of 2-3 years duration presented with obstructive urinary symptoms and an erythematous, tender swelling of his left flank. Renal ultrasound showed a dilated left ureter, hydronephrosis and a 12 x 10 x 13 cm left flank mass. Biopsy revealed metastatic epithelial carcinoma with immunostains confirming its urothelial origin. CT scan showed a collapsed urinary bladder containing a soft tissue mass suggesting bladder as the primary source. The patient was diagnosed with stage IV bladder cancer. Palliative chemo-radiotherapy was started.

Discussion

Cutaneous metastasis from bladder cancer is rare and has a poor prognosis with only 2% surviving more than 12 months. Bladder cancer most commonly metastasizes to regional lymph nodes, liver, lungs and bones. Cutaneous metastasis is more common in men and usually occurs as late manifestation but rarely occurs as early manifestation. They usually present as inflammatory plaques or hard nodules but sometimes they may be difficult to distinguish from common dermatological conditions. Misdiagnosis or delay in diagnosis can occur if evaluation is not thorough. Treatment is generally palliative

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Category: Clinical Vignette

Institution: McLaren Regional Medical Center/MSU – Flint

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Additional Authors: Siddique Chaudhary, Kamran Mushtaq, Mahin Khan, Hafiz Khan, Ahmad Munir, Kavitha Kesari, Susan Smith

Lipoma in the Superior Vena Cava, a Rare Occurrence

Most benign primary cardiac tumors are myxomas; non-myxomatous tumors are less common but comprise a wide variety. Cardiac lipoma (CL) is a rare non-myxomatous variety.

A 70-year-old Caucasian female with right breast cancer status-post partial mastectomy underwent surveillance MRI of the breast and was found to have a possible right atrial (RA) mass. She also had headaches, palpitations and was diagnosed with paroxysmal SVT. She underwent TEE which showed a 2.6x1.6x1.6 cm echogenic mass at the SVC and RA junction. She was anticoagulated for a possible thrombus without resolution. Surgical excision was undertaken in view of on-going symptoms and partial occlusion of the SVC. Intraoperatively, a 3-4 cm smoothly textured lobulated mass was found and histopathology showed lobulated adipose tissue consistent with lipoma. Postoperative course was uneventful and patient was discharged in stable condition.

The true incidence of CL is unknown and has been reported only in operative or autopsy series. However, one study has reported an incidence of 0.19 new cases per 100,000 per year. In contrast to IVC, SVC is an uncommon location. Presentation depends on site, size and presence of obstructive or embolic symptoms. CL can be investigated by CT, MRI, venography and echocardiogram. On echocardiogram, it appears as an echogenic mass without necrosis, hemorrhage or calcification. CL is usually asymptomatic and incidental in nature; however, it should be excised when symptomatic or when liposarcoma is suspected. Being a benign tumor, it is excisable with an excellent prognosis and rare recurrence.

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Category: Clinical Vignette

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

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Additional Authors: Lilit Karapetyan, MD

Cefdinir-Induced Acute Eosinophilic Pneumonia

Background:

Acute eosinophilic pneumonia (AEP) is characterized by respiratory failure, diffuse pulmonary infiltrates, and pulmonary eosinophilia. Pulmonary toxicity from cephalosporine is a rare finding. We report a case of AEP induced by Cefdinir which resolved completely after treatment with corticosteroids.

Case presentation:

A 44 year old male presented with progressively worsening shortness of breath. Three weeks ago he had URI symptoms including sinus pressure, watery eyes and sneezing. He was started on antibiotic therapy with Cefdinir 300mg BID and his symptoms have been improved. On day nine of cefdinir therapy, he developed new onset shortness of breath, dry cough, and wheezing. On admission he was tachypneic, hypoxemic (SpO₂ 80%), and was placed on 6L NC. CXR showed no acute pathology. CT chest per PE protocol did not show any evidence of PE and revealed diffuse bilateral ground glass opacities. Laboratories showed peripheral eosinophilia (11.7%). A concurrent extensive autoimmune and infectious work up was negative. Echocardiography showed normal values. He was started on IV methylprednisolone which resulted in resolution of clinical symptoms, and was discharged on tapering prednisone.

Discussion:

The underlying mechanism of medication-induced AEP is not well known. Cefdinir penetration to the lung tissue may induce local immunologic reactions resulting in pulmonary toxicities. Eosinophilic pneumonia should be considered as a differential diagnosis for patients presenting with pulmonary symptoms, normal CXR, abnormal CT findings and peripheral eosinophilia after recent use of cephalosporines.

Poster: 93

Category: Clinical Vignette

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Presenter: Subash Bastakoti

Additional Authors:

Rhinocerebral Mucormycosis, a Rare Presentation in Severe Diabetic Ketoacidosis

Introduction

Mucormycosis is an opportunistic fungal infection, which may manifest as rhinocerebral, pulmonary, cutaneous, gastrointestinal, central nervous system or disseminated forms. Rhinocerebral mucormycosis is life threatening as it may extend to the orbit and the brain.

Case Summary

62 year old female with known history of hypothyroidism and uncontrolled diabetes mellitus with medication noncompliance was found by her daughter confused and actively vomiting. At presentation, Temp 89.1F, RR 17/min, Pulse 90/min, BP 95/42 mmHg. WBC 23.7 k/mcL, Na 133 mEq/L, K 4.6 mEq/L, Glucose >1200 mg/dl, Arterial pH 6.92, pCO₂ 11, Bicarbonate 5.7 mmol/L, Anion Gap 33, Serum Osm 413 mOSm/L, HbA1C 15.8%.

On physical exam, right sided 3.5 mm fixed dilated pupil, proptosis, ophthalmoplegia and complete facial paralysis was noted.

CT head showed progressive sinusitis. MRI Brain revealed asymmetric low signaling involving the postero-superior right cavernous sinus. Otorhinolaryngology was consulted given high suspicion based on findings of sinusitis and diabetic ketoacidosis. Sinus CT showed bilateral obstructed ostiomeatal complexes. Emergency right ethmoidectomy and maxillary antrostomy was performed revealing black necrotic tissues at the right middle turbinate, nasal wall, ethmoid, maxillary sinus and hard palate. Frozen section showed necrosis and fungal organisms, favoring mucormycosis. She was deemed unsuitable for surgery and she ultimately passed away.

Discussion

Mucormycosis has been reported in various immunocompromised conditions including uncontrolled diabetes. Diagnosis is confirmed by histopathological demonstration of the organism in the affected tissue. Antifungal therapy combined with surgical debridement is the standard measure.

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Category: Clinical Vignette

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Presenter: Laura Bohatch

Additional Authors: Brandi Manning, DO, MPH

Saturday Night Palsy Due to an Upper Extremity Hematoma: An Extremely Rare Presentation of Alcoholic Cirrhosis

Spontaneous muscle hematomas (SMH) have been well-documented in patients with coagulopathies, particularly those taking oral anticoagulants. Documented cases of SMH in the setting of alcoholic cirrhosis are extremely rare and result in mortality in a majority of cases. In a 2015 review, less than twenty cases have been reported with a majority occurring in either rectus abdominis or iliopsoas muscles. We report a life and limb-threatening case of alcoholic cirrhosis that presented as a SMH in the upper extremity of a patient without known prior medical history. Our patient is a 44 year old female with 315g daily alcohol use. She developed pain after sleeping on her outstretched arm for an unknown period of time while intoxicated. She presented with ecchymosis extending the length of the arm with an ultrasound demonstrating a 9.5x4.2cm hematoma. The initial hemoglobin was 7.5g/dL with platelets 96x10³/uL. The coagulation studies were INR 1.4, PT 13.7s, and PTT 34.3s. She denied any family history of bleeding disorders. An abdominal ultrasound was suggestive of cirrhosis. Alcoholic cirrhosis was diagnosed once other etiologies were excluded, with a MELD score 19. She developed a wrist drop due to compartment syndrome confirmed by magnetic resonance imaging. Emergent fasciotomy occurred with a complicated postoperative course due to continued bleeding requiring several transfusions of packed red cells and fresh frozen plasma. She was ultimately discharged home in stable condition. This atypical presentation of alcoholic cirrhosis should be recognized as a rare life-threatening complication.

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Category: Clinical Vignette

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

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Additional Authors: Afshan Khan, DO, Prajwal Dhakal, MD, Supratik Rayamajhi, MD

A Patient with Dry Mouth: Is It Sarcoidosis and Monoclonal Gammopathy of Undetermined Significance (MGUS)?

Although lymphoproliferative disorders in sarcoidosis have been well described in literature, only a few cases of MGUS with sarcoidosis have been reported till date. We describe a case presenting with dry mouth that was diagnosed with both sarcoidosis and MGUS.

A 79-year-old male with no significant past medical history presented with dry mouth for four months. He recently had a lip biopsy showing non-necrotizing granulomas. Physical exam revealed dry mucous membranes. Initial labs were significant for calcium of 12.71 mg/dL, ionized calcium 1.9 mmol/L, creatinine 3.81 mg/dL, parathyroid hormone 6.5 pg/mL, and ESR 55 mm/hr. Antinuclear antibody was positive and 1,25 dihydroxyvitamin D was elevated at 72 pg/mL. Anti-cyclic citrullinated peptide, anti-neutrophil cytoplasmic antibodies, anti-dsDNA, rheumatoid factor and extractable nuclear antigen antibodies were negative. Angiotensin converting enzyme was elevated at 91 U/L. X-rays of hands and feet were normal. CT chest showed bilateral ground glass densities but no hilar adenopathy. Patient was started on steroids. Additional workup was positive for Bence Jones proteinuria. Serum protein electrophoresis showed IgG lambda monoclonal gammopathy with M-spike of 1.47. Parathyroid hormone-related protein and bone scan were normal. Bone marrow biopsy was consistent with MGUS. The patient responded significantly to steroid treatment and was advised to follow-up with hematology and oncology.

Immune dysregulation, thought to increase the risk of lymphoproliferative disorders in patients with sarcoidosis, may also be involved in pathogenesis of MGUS or multiple myeloma in similar patients. This association raises an important question; should patients with sarcoidosis be screened for MGUS and multiple myeloma?

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Category: Clinical Vignette

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Presenter: Lilit Karapetyan

Additional Authors: Manoj Rai, MD; Heather Laird-Fick, MD, MPH, FACP

Prescribing Calcium: Harmless Harm

Introduction: The differential diagnosis of hypercalcemia is extensive with primary hyperparathyroidism and malignancy accounting for the most cases. Milk-alkali syndrome, re-dubbed calcium-alkali syndrome in the modern era, is rarely seen. We report a case of drug-induced hypercalcemic crisis in an elderly female resulting from intake of calcium carbonate tablets and a thiazide diuretic. **Case Presentation:** 70 y/o female with hypothyroidism, hypertension, hyperlipidemia, Type II diabetes, and hypocalcemia secondary to inadvertent parathyroid removal during thyroidectomy presented with confusion, visual hallucinations, epigastric pain, nausea, dry mouth, and generalized weakness. The patient reported taking calcium carbonate 3600mg and HCTZ 50mg daily. Laboratories showed total calcium of 18.5mg/dL with increased ionized calcium of 2.08mmol/L. The PTH was <1pg/ml, PTHrp 0.3pmol/l, 25-Hydroxy D total 23ng/ml, phosphorous 3.6mg/dl, bicarbonate 31mmol/l, creatinine 1.57mg/dl, and eGFR 33ml/min. Serum protein electrophoresis was normal. Skeletal survey was negative with no focal lesions. The patient received aggressive fluid resuscitation and calcitonin. There was a gradual decrease in total calcium to 10.20mg/dl, and renal function normalized. **Discussion:** The cause of this patient's hypercalcemia was multifactorial: ingestion of very high doses of calcium; increased tubular reabsorption related to HCTZ; direct renal vasoconstriction secondary to hypercalcemia which then decreased its glomerular filtration; and volume depletion which also decreased glomerular filtration. Clinicians should consider individual patient's risk of calcium-alkali syndrome in the setting of high dose calcium supplements and thiazide diuretics.

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Category: Clinical Vignette

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Elisa Akagi

Additional Authors: Fazeena Shanaz, MD; Dimitrios Apostolou, MD, PC; Ramegowda Rajagopal, MD; Sarmad Almansour, MD; Camelia Arsene, MD, PhD, MH

Libman-Sacks Endocarditis with Severe Mitral Valve Regurgitation and Multiple Ischemic Strokes, Requiring Valve Replacement

Introduction: Libman-Sacks Endocarditis (LSE) is most frequently seen in patients with advanced malignancy (80% of cases). Second most frequent cause is SLE (prevalance 6-11% seen in TTE and 43 % in TEE). In the majority of patients, LSE has minor significance or slow progression, and cases requiring surgery are infrequent.

Case description: A 24 year old female presented to the Emergency Department (ED) with a history of behavioural changes, short term memory loss, low grade fever, pleuritic chest pain and shortness of breath for 1 week duration. Upon arrival to ED, the patient was tachycardic, hypertensive, afebrile, with no murmurs auscultated on cardiovascular examination. Initial ANA was 1:1280, with lupus anticoagulant, beta 2 glycoprotein and anticardiolipin positive. MRI of brain/brain stem showed multiple small acute and subacute lacunar infarcts with normal MRA of brain. The echocardiography reported a mobile mass of 3.5 x 2 cm on the posterior chordae, severe mitral regurgitation and markedly lowered ejection fraction of 35-40%, which required valve replacement using mosaic bioprosthesis and medical treatment. After the surgery, patient improved progressively with medical management, and was transferred to a rehabilitation facility and doing well now.

Discussion: There are only few reported cases of LSE requiring surgery. Controversy exists concerning indication for surgery, but severe valvular dysfunction, heart failure, and large vegetations are clear indications for valve replacment, which were present in our patient. Conservative surgeries were also suggested, but such surgeries will not alter the disease progression, and valve replacement will be needed ultimately.

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Category: CQI/EBM

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Maria R. Cortti Ferrari

Additional Authors: Elisa F. Akagi Fukushima MD, Irfan Omar MD, Cathy Saski RD, Camelia Arsene MD, PhD, MHS

Are We Aware of the Importance of Renal Diet in an End Stage Renal Disease Patient?

INTRODUCTION: Dietary counseling and nutritional interventions are important in the management of End Stage Renal Disease (ESRD) patients. Less phosphorus content with an adequate protein supply should be recommended in hemodialysis (HD) patients. In HD patients the recommended dietary protein intake is 1.2-1.5 g/kg/day, and the phosphorus intake is 800-1000mg daily. The best pre-dialysis serum potassium range associated with greater survival is 4.6-5.3 mEq/L. Potassium levels <4, and >6 are associated with increased mortality.

METHODS: We conducted a quality improvement study using a Plan-Do-Study-Act method. Questionnaires regarding nutritional contents for ESRD patients (Potassium, Phosphorus, Protein) were distributed to registered nurses, residents, medical students and attendings for a period of 1 month. Diet orders on admission in all ESRD patients were checked for the same period of time. Analyses were conducted using descriptive statistics methods.

RESULTS: A total of 140 ESRD patient charts were reviewed. Only 53% of patients had a renal diet order on admission. Questionnaires were given to 120 healthcare staff members. Three main questions regarding Potassium, Phosphorus, and Protein diet were asked. Only 11, 12 and one (1) person respectively answered correctly.

CONCLUSIONS: The knowledge regarding renal diet in ESRD patients is not at optimal levels. Patients that are on HD can get malnourished and have physiological imbalances if they are not on renal diet. Each patient cost \$88,000 per year according to the United States Renal Data System (USRDS). The project is currently on interventional stage with educational sessions and leaflets distribution to the health care staff.

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Category: CQI/EBM

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Anfal Fahim

Additional Authors: E.M. Malitha S. Hettiarachchi, MD; Rajika Munasinghe, MD, MBA, MS, FACP; Marc Feldman, MD, FACP; Camelia Arsene, MD, PhD, MHS;

Role of Empiric Antifungal Therapy in Critically Ill Patients with Sepsis

Introduction: Invasive fungal infections are the cause of increased morbidity and mortality among critically ill patients and *Candida* species are known to be the most common pathogen accounting for 70% to 90% of hospital cases. This evidence-based review highlights the role of empiric antifungal therapy in non neutropenic, critically ill patients with sepsis.

Methods: We preformed a literature search using Ovid Medline. The keywords used were: “Sepsis”, “Critically ill”, “Antifungal agents”. Twenty eight articles were found. All the available studies were selected and full papers were reviewed and analyzed.

Results: A meta analysis of 22 studies with 2761 participants, comparing different antifungal agents to placebo or no antifungal treatment demonstrated no significant reduction in total mortality among critically ill, non-neutropenic adults and children (RR 0.93, 95% CI 0.79 to 1.09, P value = 0.36; 19 studies), but there was a reduction in invasive fungal infections, as well as the risk of fungal colonization. In another small sized randomized clinical study, a decrease in the incidence of invasive fungal infection among patients who received Micafungin (12%) when compared with placebo (3%) was demonstrated with no difference in associated mortality at 28 days.

Conclusions: The use of empirical antifungal therapy does not contribute to mortality benefit. However, treating invasive fungal infections with targeted therapies may significantly contribute to decreasing the rates of such infections. Further Randomized Controlled Trials (RCTs) are needed to improve the evidence-based literature, especially in regards to drugs that have not been studied like Echinocandins.

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Category: Research

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

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Additional Authors: Peter J. Boström, Pekka Taimen , Kari Syvänen , Esa Kähkönen , Markku Kallajoki, Ileana Montoya Perez, Tommi Kauko, Jaakko Matom

Novel Biparametric MRI and Targeted Biopsy Improves Predictive Accuracy in Men with a Clinical Suspicion of Prostate Cancer (IMP)

Purpose

To evaluate the role of a three Tesla biparametric MRI (bpMRI, T2-weighted imaging and three separate diffusion weighted imaging acquisitions) combined with targeted biopsy (TB) for improving risk stratification of men with elevated PSA.

Methods

Between March 2013 and February 2015, 175 men with a clinical suspicion of prostate cancer (PCa), PSA the range 2.5-20.0 ng/ml, were offered bpMRI (NCT01864135). Men with an equivocal to high suspicion of PCa (Likert 3-5) had two TBs of the dominant lesion followed by systematic biopsy (SB). Men with a low to very low suspicion (Likert 1-2) had only SB. The primary end point was detection rates of PCa, clinically significant prostate cancer (SPCa) and clinically non-significant PCa using TB and SB. Three different definitions of SPCa were used for risk assessment.

Results

In total, 161 (161/175, 92%) prospectively enrolled men completed the trial and were included in the final analyses. Prostate cancer was diagnosed in 106 (66%) of the 161 fully completed studies. Restricting biopsy to men with Likert 3-5 bpMRI findings would have resulted in a 24% (38/161) reduction in the number of men undergoing biopsy while missing 0-4 (0-2%) with SPCa. TB in men with Likert 3-5 (n=123) upgraded the SB results from clinically non-significant PCa to SPCa in 16-25 (13%-20%) men, while the addition of SB to TB correspondingly upgraded only 4-12 (3-10%) men (p<0.05).

Conclusions

Rapid pre-biopsy bpMRI and TB in men with a clinical suspicion of PCa leads to increased detection of SPCa and improved risk stratification.

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Category: Clinical Vignette

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Mohammad Mohiddin

Additional Authors: Mohiddin Mohammad, MD; Farah Daneshvar, DO; Camelia Arsene, MD, PhD, MHS Geetha Krishnamoorthy, MD

Pneumococcal Septicemia with Multilobar Pneumonia Leading to Acute Interstitial Pneumonia

Introduction: Pneumonia is the most common illness due to pneumococcus. Empyema, bacteremia, ARDS, otitis media, meningitis, sinusitis, and pericarditis/endocarditis can also occur due to pneumococcus. We present a case of pneumococcal pneumonia leading to acute interstitial pneumonia.

Case Description: A 44-year-old female presented with acute onset cough, fever, chills and dyspnea. Chest x-ray showed multilobar infiltrates. Blood cultures and urine pneumococcal antigen were positive for *Streptococcus pneumoniae*. Patient had acute kidney injury (AKI) and pancytopenia due to septicemia. She was given high flow oxygen therapy and was treated with IV ceftriaxone. AKI and pancytopenia resolved, oxygen requirement decreased and blood cultures became negative, urine pneumococcal antigen became negative, but patient had persistent fever and dyspnea with worsening infiltrates. Patient was started on IV vancomycin. Endocarditis, lung abscess/empyema, and sinusitis were ruled out by imaging. Tagged WBC scan was also negative. Therefore, bronchoscopy was done and biopsy showed acute interstitial pneumonia. Patient was started on prednisone and antibiotic was stopped. Her fever and dyspnea resolved and she no longer required oxygen.

Discussion: The classic AIP, also called Hamman-Rich syndrome is an idiopathic condition that presents as idiopathic ARDS with pathology showing diffuse alveolar damage (DAD) and is associated with a poor prognosis. Secondary AIP with DAD can occur due to drugs and toxins, connective tissue disorders and infections. The infections usually reported to be associated with secondary AIP include legionella, mycoplasma and viral pneumonias. Our literature review showed a case of pneumococcal pneumonia with organizing pneumonia responding to steroids.

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Category: CQI/EBM

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Presenter: Swetha Murthi

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Is Insulin Degludec a More Appropriate Analogue than Insulin Glargine?

Introduction: Newer ultra-long insulin analogues like Degludec are constantly being developed for a more favorable pharmacokinetic profile than the existing long-acting insulin like Glargine, but their is always a debate. The main aim of this evidence-based review is to outline the efficacy and safety of Degludec versus Glargine.

Methods: A literature search using Ovid Medline and Cochrane databases was performed with the key words “Degludec” and “Glargine”. A total of 130 articles were found, out of which three studies were identified to be relevant; two were meta-analyses and one was a randomized clinical trial (RCT).

Results: A multinational RCT found that there was no significant difference in achieving target Hba1c between Degludec (N = 555) and Glargine (N = 278) groups. In a meta-analysis that involved 7 RCTs (N = 2044), it was found that Degludec was not inferior than Glargine in achieving target Hba1c <7%. It also found that Degludec was associated with a lower rate of nocturnal hypoglycemia (RR = 0.57, 95% CI 0.45-0.72) as well as overall hypoglycemia (RR = 0.79, 95% CI 0.68-0.92). Another meta-analysis that involved seven RCTs (N = 4317) also showed that Degludec had a lower rate of nocturnal hypoglycemia (RR = 0.75, 95% CI 0.65-0.85) and a better reduction in fasting plasma glucose level than Glargine.

Conclusions: Insulin Degludec and Glargine have similar efficacy in providing adequate glycemic control. However, Degludec is associated with less episodes of hypoglycemia and a better fasting plasma glucose level.

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Category: Clinical Vignette

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.

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Category: Clinical Vignette

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Mohammed Mustafa Nayeem

Additional Authors: Farah Daneshvar, DO; Camelia Arsene, MD, PhD, MHS; Geetha Krishnamoorthy, MD.

A Young Dying Heart

Introduction: Heart Failure (HF) plagues 5.7 million individuals in the US with a 5-year mortality rate of greater than 50%. Its effective cost burden on the US health system stands at \$39 billion annually. Nearly 45% of HF patients undergoing heart transplantation have Dilated cardiomyopathy (DCM) secondary to viral myocarditis. We present a rare case of acute class IV HF in a young healthy male with recent Epstein-Barr Virus infection.

Case presentation: A 32-year-old male with no past medical history presented with 2-week history of flu-like symptoms, fever, cough, worsening dyspnea and pedal edema. Chest X-ray was suggestive of acute HF. EKG revealed left atrial & ventricular hypertrophy. Elevated Troponin and BNP level indicated myocardial injury. A 2D echo revealed dilation of all 4 cardiac chambers with ejection fraction of <20%. Viral serology was positive for recent EBV infection.

The patient was treated with diuretics, ACEi and Digoxin. Despite maximal medical therapy, patient continued to be tachycardic and dyspneic at rest. Eventually, the patient was transferred to a tertiary center for cardiac transplantation.

Discussion: Morbidity and mortality resulting from DCM is very high leading to approximately 10,000 deaths and 46,000 hospitalizations in the US annually. Although myocarditis resulting from a viral infection is the most common cause of DCM, EBV viral genome was isolated in only 0.6% of all such. In addition to conventional therapy, administration of immune globulin may also be beneficial. Severe HF secondary to DCM unresponsive to medical therapy eventually requires cardiac transplantation.

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Category: Clinical Vignette

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Abdullah Rathur

Additional Authors: Abdullah Rathur, DO; Varun Yelamanchili, MD; Camelia Arsene, MD, PhD, MHS; Snigdha Sharma MD; Ramegowda Rajagopal, MD, F.A.C.C

Multiple Valve Perforations with Pseudoaneurysm - A Common Complication of Infective Endocarditis?

Introduction: Infective endocarditis (IE) may be associated with several complications such as valvular leaflet perforation, pseudoaneurysms and annular abscesses which are often overlooked without highly-sensitive imaging modalities like transesophageal echocardiography (TEE). The area between the mitral and aortic valves is fibrous tissue called intervalvular fibrosa and is prone to forming aneurysms and abscesses, and also forms a pathway for spread of infection between the two valves. Pubmed/MEDLINE literature review shows 196 cases of pseudoaneurysms or abscesses of the mitral-aortic intervalvular fibrosa, most of which are complications of IE.

Case Description: We present a 71-year-old male with ESRD on hemodialysis via tunneled internal jugular catheter that came to the hospital with dyspnea and leukocytosis. He was diagnosed with MRSA bacteremia from his infected dialysis catheter. Bacteremia persisted despite antibiotics, so echocardiography was done, showing new mitral and aortic regurgitation. TEE showed mitral and aortic valve endocarditis and intervalvular fibrosa abscess with pseudoaneurysm rupturing into the LVOT. After prolonged antibiotic therapy to clear bacteremia, atrial and mitral valve replacement surgery was performed. The patient developed severe right heart failure and died a few days later.

Discussions and Conclusions: Intervalvular fibrosa abscesses and other subaortic complications were diagnosed by TEE in 45% of infective endocarditis patients in one study, but only 20% were diagnosed by TTE. Periventricular abscess should be suspected in the setting of persistent bacteremia or fever despite antibiotic treatment. Studies show that earlier surgical intervention, which was not possible in our case due to persistent bacteremia, results in better outcomes.

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Category: Clinical Vignette

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

Presenter: Akshay Sharma

Additional Authors: Farah Daneshvar, DO; Camelia Arsene, MD, PhD, MHS; Geetha Krishnamoorthy, MD

Fusobacterium Septicemia with Liver and Lung Abscess Due to Diverticulitis

Introduction: Fusobacterium is an obligate anaerobe residing in the oropharyngeal and gastrointestinal (GI) mucosa. Fusobacterium has recently been found to cause pharyngitis more commonly than Streptococcus in young adults, and can lead to septic thrombophlebitis of the internal jugular vein (Lemierre's syndrome). We present a case of Fusobacterium septicemia with liver and lung abscesses due to diverticulitis.

Case Description: A 52-year-old male presented with productive cough, chills, diarrhea and decreased appetite for 1 week. He was febrile, hypotensive, tachycardic with leukocytosis and had coarse crackles on auscultation over the right lung base. Chest X-ray was negative. Treatment was started for a presumptive diagnosis of Community Acquired Pneumonia. Blood cultures came back positive for Fusobacterium species. CT abdomen demonstrated diverticulitis, liver abscess and lung abscess. He was switched to intravenous Ampicillin and Sulbactam for 6 weeks and showed clinical improvement. CT-guided biopsy of the liver was negative for malignancy. Repeat CT of abdomen in 3 weeks showed near resolution of the abscesses.

Discussion: Fusobacterium is a rare cause of liver abscess, and infection can occur probably by hematogenous seeding from tonsillar abscess or through portal vein from diverticulitis. It is difficult to culture, and should be considered as an etiology in culture negative liver abscess. Physicians should be aware of this rare pathogen and suspect its presence in severe pharyngitis or culture negative liver abscess. Fusobacterium may have resistance to Penicillin and is resistant to Macrolide; it is treated with Ampicillin Sulbactam, Piperacillin Tazobactam, Metronidazole or Clindamycin.

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Category: Clinical Vignette

Institution: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

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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.

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Category: Clinical Vignette

Institution: Sinai Grace Hospital - DMC – Detroit

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Recurrent Hospitalizations in a Rare Case of Hemicorporectomy: A Challenging Case for Medical Management

Introduction: Hemicorporectomy, or translumbar amputation, is a radical surgery involving the dissection of the body at the waist (commonly between L4-L5) and is usually reserved for complex medical conditions including locally invasive malignancy and terminal pelvic osteomyelitis. A total of 66 cases have been reported so far. We present a case involving recurrent hospitalizations secondary to chronic decubitus ulcers, osteomyelitis and urinary tract infections (UTIs) in a rare case of hemicorporectomy.

Case Description: This is a 53 year old male who underwent a hemicorporectomy after a series of surgical procedures for recurrent decubitus ulcers, UTIs and osteomyelitis, which occurred after he suffered a gunshot wound causing paraplegia 22 years ago. Unfortunately, these infections persisted post-hemicorporectomy and the patient continued to develop advanced decubitus ulcers (grades 1-4) on his back and inferior aspect of this body. Despite repeated courses of broad-spectrum intravenous antibiotics and surgical debridements of his advanced decubitus ulcers, this patient suffered recurrent bouts of sepsis. In light of his poor quality of life, the patient subsequently changed his code status to DNR/DNI and chose to manage his condition conservatively with home healthcare services and outpatient wound care.

Discussion: This case illustrates the significant challenges in the medical and surgical management of hemicorporectomy patients, which can lead to recurrent hospitalizations with a diminished quality of life and a poor prognosis for patients. This case also highlights the importance of early patient education and providing them with options for home healthcare services and outpatient wound care.

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Category: CQI/EBM

Institution: Sinai Grace Hospital - DMC – Detroit

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Newer Pharmacological Treatments for Osteoporosis in Postmenopausal Women

Background: The main goal in managing post-menopausal osteoporosis is prevention of future fractures. Treatment is generally recommended in post-menopausal women with a T score of -2.5 or less, history of spine fracture or a fracture risk assessment tool score (FRAX) suggesting high risk of fracture.

Methods: We performed a literature search in Ovid Medline. The keywords used for the search were "postmenopausal osteoporosis", and "osteoporosis treatment modalities". We found several studies discussing newer pharmacological agents used for the treatment of osteoporosis.

Results: In a randomized clinical trial (RCT), 8.0 % of the women in the Alendronate group and 15 % of women in placebo group developed new morphometric vertebral fractures (RR=0.53). For clinical vertebral fractures the numbers were 2.3% and 5.0% respectively (RR=0.45). In another RCT comparing Denosumab with placebo there was a reduced risk of new radiographic vertebral fractures (RR=0.32; 95% CI 0.37-0.97), and a reduced risk of hip (RR=0.60; 95% CI 0.37-0.97) and non vertebral fractures (RR=0.80; 95% CI 0.67-0.95). Another study showed a RR reduction of vertebral fracture by 68% and non vertebral fractures by 35% when Teriparatide daily injections were compared to placebo.

Conclusions: The evidence-based review shows Alendronate in postmenopausal women substantially reduces morphometric and clinical vertebral fractures. Denosumab has also a proven benefit over placebo by reducing the risk of radiological and clinical fractures. Teriparatide once a day injection has shown a reduced risk of vertebral and non vertebral fractures compared to placebo but not for hip fractures which are not well studied.

Poster: 110

Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Zohaib Ahmed

Additional Authors: Zohaib Ahmed, M.D., Hisham Kassem, M.D., Alan Putrus, M.D. St John Hospital and Medical Center, Grosse Pointe Woods, MI

Cryptosporidium Infection in Multiple Sclerosis Patient on Immunomodulatory Medication

Both immunomodulating and immunosuppressive drugs are known to increase the risk of infection. In the rapidly-expanding landscape of drugs for the treatment of multiple sclerosis (MS), the risk of infection with new oral disease-modifying treatments appears particularly high. We report a case of Cryptosporidiosis diarrhea in an MS patient on the oral immunomodulatory drug, dimethyl fumarate.

Case Description: A 56-year-old African-American female with a past medical history of multiple sclerosis currently on dimethyl fumarate presented to the emergency department with complaints of new onset diarrhea. Her symptoms began two days prior, and she had a total of seven non-bloody bowel movements. She had a temperature of 101°F (38.3°C) on admission with an elevated white blood cell count of 21.43 K/mcL. A Cryptosporidium sp. stool antigen test was ordered given her MS treatment regimen, which was positive. The patient was started on oral nitazoxanide 100 mg twice a day for three days. We also recommended that she be tested for HIV. On follow up, the patient's diarrhea resolved and she continues to do well.

Discussion: Cryptosporidiosis is a protozoal infection that leads to a self-limited diarrheal illness in immunocompetent individuals and a more severe, life-threatening illness in immunocompromised patients; the strongest association being with AIDS patients. Intravenous immunomodulating drugs have been associated with Cryptosporidiosis, especially Natalizumab (Tysabri), but this association has not yet been reported with oral immunomodulators.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Farman Ali

Additional Authors: Zohaib Ahmed, MD Zyad Kafri, MD, FACP

Disseminated Cutaneous Herpes Simplex Type 2: An Unusual Association with Idelalisib

Chronic lymphocytic leukemia (CLL) is the most common form of adult leukemia, it is diagnosed by blood counts, blood smears, and immunophenotyping of circulating B-lymphocytes.

Case: A 62-year-old female with a history of CLL presented with painful pruritic rash of two weeks duration with fever for four days. On examination she was febrile (102.5 ° F) with multiple erythematous papular lesions with central necrosis on both upper and lower extremities and lower back. The patient had been started on idelalisib three weeks prior to presentation, as she was refractory to multiple lines of previous treatment for CLL. Initial differential diagnosis included sweet syndrome, viral infection and drug eruptions. Polymerase chain reaction performed on peripheral blood and skin lesions was positive for Herpes simplex virus type 2 (HSV-2). A diagnosis of idelalisib associated disseminated HSV-2 was made and the patient was started on intravenous acyclovir and idelalisib was stopped. On follow up, her skin lesions completely resolved in six weeks.

Discussion: Idelalisib is a selective phosphatidylinositol 3-kinase delta inhibitor. It is approved for the treatment of relapsed CLL, relapsed follicular lymphoma and relapsed small lymphocytic lymphoma. Important adverse effects associated with idelalisib are hepatotoxicity, severe diarrhea, neutropenia and opportunistic infections. Our case is unusual due to an atypical presentation of HSV-2 infection. Opportunistic infections have been reported in patients treated with idelalisib whereas to the best of our knowledge disseminated HSV-2 infection has not been previously reported.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Muhammad Aljuhani

Additional Authors: Zyad Kafr, MD. Fouad Azoury, MD.

Spontaneous Native Aortic Valve Thrombosis in a Patient Without Known Predisposition

Aortic Valve thrombosis is a serious diagnosis with significant major morbidity and mortality if not promptly recognized and treated. It is an uncommon presentation that has been shown to follow local trauma, such as cardiac surgery or left heart catheterization, or occurs as a complication of bacterial endocarditis or hypercoagulable state.

We report the case of 52-year-old male with history of hypertension and coronary artery disease and crack cocaine abuse and no prior history of thrombophilia or antiphospholipid syndrome, who was admitted to the hospital after experiencing slurred speech with blurry vision for 3 weeks, then, he started experiencing right upper extremity weakness for 2 days prior to admission. His brain CT scan came back negative for acute process and given the high suspicion for CVA MRI brain was done and showed acute multiple small embolic lesions, for which he underwent a 2D echocardiography which showed aortic root thrombus measuring 15 mm with other workup failing to show an etiology. Thrombosis was further confirmed by a transesophageal echocardiography which showed showed 18 x 11 mm thrombus attached to one of the aortic valve leaflets. It was decided to proceed with bioprosthetic aortic valve replacement that he tolerated well with no reported complication. Histological finding depicts fibrin thrombus that is partially organized. Hypercoagulable workup was arranged.

Spontaneous native aortic valve thrombosis is infrequent. It should be taken into the consideration in the differential diagnosis of valve-associated masses and causes of systemic embolism.

Transoesophageal echocardiography is of crucial importance in its detection.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Mohammad Altujjar

Additional Authors: Mashkur Husain, M.D. ; David Rodriguez, M.D., FACC; Raymond Hilu, M.D., FACP

Recurrent Intra-Cardiac Mass in a Patient with a History of Intra-Cardiac Lipoma Presenting with AICD Firing

Introduction: The majority of primary cardiac tumors are asymptomatic, benign, and do not raise concern for a malignancy. However, these tumors can carry a risk of life threatening arrhythmias, embolic phenomena, cardiac tamponade, heart failure and valvular dysfunction.

Case Presentation: 55 years old female with PMH of intra-cardiac lipoma with a history of debulking and AICD placement, for secondary prevention of ventricular tachycardia in 2002, presented with a complaint of AICD firing. Upon presentation her vitals were stable and she had an unremarkable initial work up. She was placed in the Clinical Decision Unit for observation. Overnight the patient developed ventricular tachycardia with a rate of 200, and her AICD fired 5 times. She was loaded and continued on Amiodarone drip, as well as IV beta blocker. Transesophageal echocardiogram was performed and revealed a 7cm x 6 cm mass occupying the right ventricular apex. She exhibited no further episodes of ventricular tachycardia, and remained in normal sinus rhythm. She was later switched to oral Amiodarone, and beta blocker and was discharged home with plans to follow-up at the Mayo Clinic for further evaluation of probable recurrence of intra-cardiac lipoma.

Discussion: Intra-cardiac lipomas are usually benign in nature and symptoms are varied depending on the location. Patients should be monitored for recurrence and risk of cardiovascular complications. They also should be educated regarding symptoms that warrant further evaluation.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Joseph Attallah

Additional Authors: Joseph Attallah, MD Aryan Shiari, MD Rajaninder Sharma, MD

It is Not Always CHF Exacerbation. A Case of Acute Mitral Regurgitation Secondary to Ruptured Chordae Tendineae

Introduction:

Etiology of ruptured chordae tendineae include: infective endocarditis, trauma, rheumatic heart disease, or spontaneous rupture. It is a medical and surgical emergency. Survival is dependent on early recognition and prompt intervention.

Case report:

61-year-old male with a history of ischemic cardiomyopathy (EF of 15%) presented to the hospital with rapidly progressive dyspnea. Patient denied fever, chills, cough, chest pain, or palpitations.

He was afebrile with normal blood pressure and heart rate. His respiratory rate was 28 and O₂ saturation was 82%. Physical exam showed moderate respiratory distress, bilateral coarse rhonchi in all lung fields, normal heart sounds with gallop but no murmurs, and +1 pitting edema on the lower extremity bilaterally.

Electrocardiogram showed Sinus tachycardia with occasional premature ventricular complexes. Chest x-ray showed diffuse pulmonary infiltrates, right greater than left. Blood work was unremarkable except for white blood count of 27,000 cells/mcL. Troponin was negative.

Patient was started on bilevel positive airway pressure and was given multiple doses of Intravenous furosemide. He continued to be in respiratory distress and his urine output was minimal. Due to the poor response to treatment, urgent echocardiography was ordered and showed severe mitral regurgitation secondary to ruptured chordae tendineae. Emergent surgical referral was made for mitral valve repair.

Conclusion:

Acute mitral regurgitation has variable presentation, ranging from mild dyspnea to acute pulmonary edema or even cardiopulmonary arrest. It is often misdiagnosed as heart failure exacerbation or a primary pulmonary process. Echocardiography should be ordered immediately when acute mitral regurgitation is suspected clinically.

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Category: Research

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Andrew Boshara

Additional Authors: Andrew Boshara MD1 Sushruth Edla MD2, Howard Rosman MD2, Saroj Neupane MD2, Eduardo Daher MD2, Thomas LaLonde MD2, Susan Szpunar

Efficacy and Safety of Early Administration of Ultrasound-guided Catheter-Assisted Thrombolysis in Patients With Acute Submassive Pulmonary Embolus

Background:

In contrast to massive pulmonary embolism (PE), the optimal treatment for submassive PE is less well delineated. Recently, ultrasound-assisted thrombolysis (USAT) has become a potential therapeutic option. Previous studies have demonstrated improvement in pulmonary pressures and right ventricular dilation with USAT, but its efficacy in a community setting and on more well-established indicators of morbidity and mortality in PE has yet to be investigated. Here we report our preliminary single-arm, single-center experience with USAT in the treatment of submassive PE.

Methods:

Thirty-four patients diagnosed with submassive PE underwent USAT. Invasive hemodynamic and ECHO parameters were obtained pre- and post-USAT. Patients resumed anticoagulation upon removal of catheters. In-hospital procedure-related complications and bleeding were assessed.

Results:

Patients' mean age was 60 ± 12 years and 47% were females. Each of the common risk factors for PE were found in less than 30% of patients. ECHO parameters, including mean RV/LV ratio (1.4 to 1.0), RV FAC (23 to 34%), and LA volume (43 to 57 ml) improved post-USAT. Invasive hemodynamics, including mean PASP (52 to 42 mmHg), PVR (4.9 to 2.4 woods units), CI (2.3 to 3.0 L/min/m²), and RVSWI (1.22 to 1.45 gm.m/beat/m²) also improved post-USAT. Three patients experienced moderate bleeding by GUSTO criteria. No in-hospital mortality or major bleeds occurred.

Conclusion:

In our experience, USAT provides a safe and effective modality for the treatment of submassive PE. The implications of moderate bleeding and insight into the long-term outcomes and cost-effectiveness of USAT vs. anticoagulation are areas for further investigation.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Luay Dawood

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IgA-Dominant Acute Post Staphylococcal Glomerulonephritis: An Uncommon Variant of Postinfectious GN

Introduction: IgA-dominant postinfectious glomerulonephritis (PIGN) is an uncommon cause of acute renal failure, it is most commonly associated with staphylococcal infections in adult diabetic patients. It presents with hematuria, proteinuria and a rising serum creatinine. Here we describe a caucasian female with baseline diabetic nephropathy who was diagnosed with IgA dominant PIGN.

Case: A 54 year-old woman with history of stage IIIb chronic kidney disease due to diabetic nephropathy with baseline creatinine of 1.6 mg/dL. She presented with gangrenous toe and serum creatinine of 3.9 mg/dL. Urinalysis showed WBC casts, RBC casts, proteinuria and eosinophiluria. Ultrasound and serological workup for GN were unremarkable. She underwent toe amputation and Ampicillin/Sulbactam treatment. Creatinine was trending up. Steroid was initiated for presumptive diagnosis of acute interstitial nephritis secondary to antibiotics but showed no improvement. Ultimately she required dialysis. Renal biopsy was performed and a diagnosis to IgA-dominant PIGN on pre-existing diabetic nephropathy was made.

Discussion: IgA-dominant Staphylococcus-associated glomerulonephritis is uncommon and primarily occurs in middle-aged or elderly patients. Risk factors include diabetes, alcoholism, cancer, or intravenous drug use. It is a separate entity from post streptococcal GN which is predominantly IgG deposition. It is distinguished from primary IgA nephropathy by hypocomplementemia and the presence of subepithelial humps on electron microscopy. Its presence should be suspected when patients have manifestations of active glomerulonephritis with a known recent or concurrent staphylococcal infection. Treatment should focus on eradicating the infection and controlling hypertension. Immunosuppressive therapy has no role in such patients.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: William Dillon

Additional Authors: William P. Dillon DO, Leonard B. Johnson, MD FACP. St. John Hospital and Medical Center, Detroit MI

Periorbital Cellulitis and Sinusitis Due to Mycobacterium Fortuitum

Introduction

Mycobacterium fortuitum is a rapidly growing mycobacterium which is found worldwide. While typically associated with skin and soft tissue infections and a rare cause of pneumonia, it has not been described as a cause of orbital infection.

Case

A 69 year old diabetic female presented with a two day history of progressively worsening left eye swelling and pain. A CT of the orbits and facial bones with contrast was obtained which showed periorbital cellulitis. She was treated with intravenous ampicillin/sulbactam and vancomycin with improvement and was discharged on oral clindamycin. Despite compliance, a day following discharge her symptoms returned and became progressively worse prompting her to return to the Emergency department after one week. Repeat CT showed sinusitis and periorbital cellulitis with abscess formation on the left orbit. Physical exam showed left periorbital erythema, swelling, tenderness and decreased visual acuity. In light of the abscess, she underwent an orbital drainage with wound culture. She again improved with vancomycin and ampicillin/sulbactam. She was discharged on IV ceftriaxone and oral metronidazole. One week later her wound culture grew *Mycobacterium fortuitum* and her antibiotics were switched to ciprofloxacin pending susceptibility testing as she had persistent eye swelling and erythema.

Summary

This case is important as it marks the first time *Mycobacterium fortuitum* has been described as the etiologic agent of periorbital cellulitis although there is a single case of sinusitis reported previously. Clinicians should consider atypical mycobacteria as causes of sinusitis and orbital infections that are refractory to standard therapy.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

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Anti Synthetase Syndrome - A Rare Cause of Interstitial Lung Disease

Introduction: Anti synthetase syndrome(AS) is a subset of inflammatory myopathies with features of myositis, polyarthritis, interstitial lung disease (ILD), fever and Raynauds phenomenon. The presence of anti-aminoacyl-tRNA synthetase antibody predicts the development of ILD. AS may occur after environmental exposures in genetically predisposed individuals.

Case: A 37 year old female presents with increasing dyspnea, dry cough, and pleuritic chest pain followed by the appearance of a generalized rash. Review of systems was positive for shoulder and hip pain. Physical exam revealed bibasilar crackles in the lungs with a pleural rub and maculopapular rash covering the face, torso and dorsum of the hands. Hyperpigmentation was noted around the eyes. Positive lab findings included anti-PL 12, SSA antibody and CPK of 185. Negative serologies included anti-CCP ab,SCL-70,anti Jo-1 and ANA. High resolution CT showed ground glass opacities and pleural effusion. Lung biopsy reported non specific interstitial pneumonia. Patient was diagnosed with AS and treated with high dose prednisone and Azathioprine with gradual improvement of symptoms.

Discussion: The prevalence of dermatomyositis/polymyositis is 2-10 per million and presence of AS antibodies is 1-20% in this population, with a 2:1 female to male ratio. AS is diagnosed based on clinical findings and the presence of AS antibodies. Anti PL12 is seen in patients who have ILD without overt myositis. Positive SSA predicts the severity of lung disease. Treatment includes high dose corticosteroids with mycophenolate mofetil or Azathioprine. Rapidly progressive lung disease may require cyclophosphamide or Rituximab. IVIG may be used as bridging therapy.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Deepshikha Garg

Additional Authors: Shyam Sunder Moudgil, MD, St John Hospital and Medical Center

Rare Case of Headache that Blinds Permanently

Introduction: Migraine is commonly associated with transient visual loss. Permanent loss of visual function is rare. We report a patient with history of migraine who developed permanent central scotoma following one of his typical migraines.

Case Presentation: A 51 years old man with long standing history of migraine presented with a five day history of right eye central vision loss. He experienced his typical migraine headache at the same time which was aborted with Sumatriptan. There was no painful eye movements, discharge, or focal neurological deficit. On examination, there was an afferent papillary defect (APD) and central scotoma of the right eye. Fundus examination was unremarkable. He was treated with intravenous methyl-prednisolone for a presumptive diagnosis of demyelinating optic neuritis. Computed tomography and brain magnetic resonance imaging did not reveal any abnormality including optic nerve enhancement. There was no improvement in his visual deficits and he continues to have persistent central scotoma on follow up visits.

Discussion: Permanent blindness following migraine has been associated with ischemic optic neuropathy (ION), involving more commonly the anterior; and rarely, the posterior parts of the optic nerve. Anterior ION is characterized by acute painless loss of vision along with hyperemic and swollen optic disc. Absence of painful eye movements, normal optic disc, lack of significant improvement of vision with steroids and presence of APD in our patient suggests posterior ION rather than anterior ION, or a demyelinating optic neuritis. Review of literature reveals only three cases of migraine related posterior ION.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Rajat Garg

Additional Authors: Rajat Garg, MD, Swetha Edla, MD and Mohammed Barawi, MD St. John Hospital and Medical Center, Detroit, MI

A Rare Case of Bouveret's Syndrome

Introduction:

Cholelithiasis is a common problem worldwide and can occasionally leads to complications. We here present a rare case of Bouveret's syndrome as a complication of gallstones.

Case Report:

A 69-year-old male with past medical history of end stage renal disease on hemodialysis, coronary artery disease, hypertension, diabetes, stroke and dementia presented to the hospital with a complaint of three episodes of non-bilious non bloody vomiting. Abdominal examination was negative. Laboratory findings was significant for leukocytosis of 13.9, mild anemia and metabolic alkalosis. Abdominal x-ray showed obstipation without evidence of constipation. In the hospital patient had one episode of dark brown vomiting and esophagogastroduodenoscopy (EGD) was performed which revealed a large laceration in the duodenal bulb and choledochoduodenostomy. In the distal duodenum, a large impacted black stone was seen consistent with Bouveret's syndrome. Endoscopic attempts to remove the stone failed and the patient was referred to general surgery.

CT scan of abdomen demonstrated pneumobilia and no obstruction.

Discussion:

Bouveret's syndrome is a rare complication of gallstones and is described as gastric outlet obstruction from an impacted gallstone. Erosion of the gallbladder's or common bile duct wall from a large stone leads to formation of fistulous tract, through which the stone passes into the duodenum and causes obstruction. Abdominal ultrasound and computed tomography are the preferred noninvasive diagnostic tests to confirm the endoscopic diagnosis and demonstrate a cholecystoduodenal fistula. Treatment is either with endoscopic lithotripsy or surgical removal if endoscopic treatment fails.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Safa Maki

Additional Authors: Safa Maki, M.D., MPH, Lamia Aljundi, M.D., Leonard B. Johnson, M.D., (FACP)
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Diabetic Muscle Infarction Mimicking Cellulitis

Diabetic muscle infarction (DMI) is an uncommon microvascular complication of diabetes mellitus with significant morbidity and poor overall prognosis. It is characterized by limb pain, swelling and redness.

Case: A 47 year old female with a history of end-stage renal disease, diabetes mellitus (DM) and peripheral arterial disease presented with left thigh pain for four days. Vitals were stable except for a temperature of 100.1° F. There was left thigh swelling, redness, warmth and severe tenderness. Tests revealed a normal WBC count, mildly elevated CPK, hyperglycemia, negative blood culture, normal plain x-ray of the thigh and duplex ultrasound was negative for DVT. Her symptoms did not respond to opioids and empiric vancomycin was started for presumed cellulitis. Contrast CT only showed diffuse tissue swelling. A left lower extremity MRI demonstrated myositis in vastus lateralis muscle. Further testing showed elevated ESR of 120 mm/hour and negative autoimmune work up. Vancomycin was discontinued and she was treated with NSAIDs with symptomatic improvement and she was discharged to inpatient rehabilitation center.

Discussion: DMI is associated with long-standing poorly controlled DM, is more frequently seen in women and the mean age is 42 years. Clinical features include acute painful swelling most commonly involving the thigh or calf, fever is rare. Diagnosis is based on clinical suspicion and MRI imaging. Treatment is symptomatic as it resolves on its own but relapses are common. Clinicians should be aware of this condition as it is often misdiagnosed with cellulitis resulting in inappropriate antibiotic use.

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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, ZOHAIB AHMED, MD, SWETHA EDLA, MD, REBECCA WITHERELL, MD Internal Medicine, St. John Hospital and Medical C

An Unusual Case of Malignant Melanoma Recurrence with Metastasis to the Large Bowel and Wide Spread Micro-metastasis

Introduction: The most dangerous aspect of melanoma is its ability to metastasize. Melanoma can spread to gastrointestinal (GI) tract; however, less than 9% of melanoma patients are diagnosed with gastrointestinal metastases while living. We report an unusual melanoma recurrence with metastasis to the large intestine and wide spread micro-metastasis to the heart, liver, spleen, lungs, gastric mucosa, kidneys, pelvic wall nodules, diaphragmatic nodules, and bone marrow.

Case: A 45-year-old female presented with abdominal pain and vomiting. The patient had a significant past medical history of an excision of a lower extremity malignant melanoma four years earlier. On presentation, the abdominal examination showed moderate diffuse tenderness but no distension or guarding. Labs were noted for hemoglobin 10.0 gram per deciliter (g/dl), platelets 156 thousand per cubic millimeter, INR 2.32, alkaline phosphatase 205 unit per liter (U/L), aspartate aminotransferase 168 U/L, alanine aminotransferase 71 U/L, and lipase 254 U/L. CT of the abdomen was remarkable for fluid in the lower pelvis and enlarged pelvic and retroperitoneal lymph nodes. The patient had a positive fecal occult blood test, and she underwent colonoscopy with excision of two polyps. Pelvic fluid cytology, lymph node biopsy, and polyps' pathology were positive for metastatic melanoma.

Conclusion: Early investigation of gastrointestinal symptoms in a patient with a history of melanoma is crucial and there should be a high index of suspicion for metastases. Endoscopy should be considered in patients with history of malignant melanoma presenting with gastrointestinal symptoms.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Tariq Marroush

Additional Authors: Tariq S. Marroush MD, Zohaib Ahmed MD, Kesav C. Parvataneni MD, Nancy A. Mesiha MD St. John Hospital and Medical Center, Detroit

Acute Myocardial Infarction Following a Tonic-Clonic Seizure

Introduction: The interaction between the heart and brain is a well-known phenomenon which was implicated in multiple pathologies. Seizure represents a stressful event with a potential induction of arrhythmia and deterioration into sudden death. Several sources have reported myocardial infarction in the context of seizure.

Case Report: A 57-year-old woman with a history of seizures and migraines presented with a breakthrough seizure. She was treated with valproic acid and levetiracetam and admitted for further evaluation. Four days after admission, the patient had a tonic-clonic seizure that resolved spontaneously in seconds. This was briefly followed by an episode of emesis and substernal chest pain without radiation. Her vital signs and physical examination were found to be normal and her pain improved significantly after nitroglycerin administration. Electrocardiogram showed a new-onset ST segment depression in leads II, III, aVF and V3, which later extended to involve leads I, V4, V5 in addition to ST- segment elevation in V2 and aVL accompanied by a contemporary elevation in troponin T. A transthoracic echocardiogram showed wall motion abnormalities of new onset and the patient underwent a coronary angiography that showed a generalized spasm in the left anterior descending artery without any significant atherosclerotic lesions. The patient was placed on verapamil and was discharged.

Discussion: Although rare, myocardial ischemia can be triggered by a seizure and should be considered in the post-ictal state. Chest pain should not be considered musculoskeletal in nature unless an appropriate assessment was completed.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Asim Mohamed

Additional Authors: Asim Mohamed, M.D., Michael Kern, M.D., Jamal Haleem, M.D., Heather Henderson, D.O., Shyam Moudgil, M.D., St John Hospital and M

Resistant Orthostatic Hypotension Due to an Uncommon Etiology: Thinking Outside the Box

Orthostatic Hypotension may present a diagnostic challenge with significant morbidity. When a young individual fails to respond to conventional work-up and therapy, less common etiologies need to be investigated.

Case: A 22 year-old female with a past medical history of schizoaffective disorder on duloxetine, complained of syncope, dizziness, constipation and periumbilical abdominal pain. She denied any alcohol or substances use. Vital signs showed tachycardia at rest and orthostatic hypotension with normotensive supine readings. Both tachycardia and orthostasis failed to correct with intravenous fluids. Physical examination showed a cachectic female with painless oral ulcers, dry skin, and raised demarcated rash on her face, chest and back. Abnormal laboratory data included neutropenia, mild microcytic anemia, positive ANA, Anti ds-DNA, and Anti-SSA antibodies. Imaging, including chest CT angiogram, CT abdomen and MRI-brain in addition to EKG, echocardiogram and telemetry failed to identify a cause for the patient's sinus tachycardia and orthostasis. We ruled out Addison's disease, discontinued duloxetine with concerns of causality. We also implemented compression stockings, fludricortisone, midodrine and prednisone all with no response. Moreover, Inpatient observation ruled out any substance use. Lumbar puncture was performed and CSF analysis revealed elevated protein, normal cellularity and glucose. Accordingly, a presumed diagnosis of autoimmune autonomic neuropathy was made and intravenous immune globulin was initiated, which improved the orthostatic hypotension confirming the diagnosis.

Discussion: Autoimmune autonomic neuropathy -specifically gangliopathy- should be considered in similar scenarios. It is a combination of orthostatic hypotension, persistent tachycardia, gastrointestinal dysmotility, dry skin and autoimmune profile.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Duy Nguyen

Additional Authors: Duy Nguyen, M.D., Sima Salahie, M.D., Jason Donaghue, M.D., St. John Hospital and Medical Center, Detroit, Michigan

Fulminant Hepatic Failure Secondary to Acute Hepatitis A in a Patient with Chronic Hepatitis B Infection

Introduction: Acute Hepatitis A Infection is usually self limited with a minority of patients exhibiting a fulminant course. This risk is higher in patients with underlying other causes of hepatic injury.

Case Description: 57 year-old African American male with past medical history of IV drug use presented to the hospital with severe abdominal pain, swelling, and jaundice that started several days prior to admission. Patient decided to seek medication due to worsening diffuse abdominal pain and distention. On admission, he was found to have severe hepatic injury with AST/ALT – 1767/1139 u/L, and total Bilirubin – 23.0 mg/dl. Hepatitis studies showed reactive Hepatitis A IgM, Hepatitis B core antibody, and Hepatitis B surface antigen. Hepatitis C antibody was also reactive, but Hepatitis C RNA was not detected, indicating a prior infection that subsequently cleared. Patient was diagnosed with acute hepatitis A infection with an underlying chronic hepatitis B infection resulting in severe hepatic injury. Patient received supportive care with daily monitoring of LFTs and coagulation panel to monitor for signs of hepatic recovery. While AST and ALT trended down, Bilirubin and INR remained elevated, indicating progression to fulminant hepatic failure. Patient was then transferred to a liver transplant center.

Discussion: Fulminant hepatic failure from Hepatitis A is rare, but carries high morbidity and mortality. The risk is higher in patients with underlying hepatic injury such as our patient. Early detection of a progression towards fulminant hepatic failure and evaluation at a transplant center is essential.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Hiba Obeid

Additional Authors: Hiba Obeid MD, Margaret Fadanelli MD St John Hospital and Medical Center, Grosse Pointe, MI

Kwashiorkor Syndrome following Bariatric Surgery; A Medical Disaster

Introduction: Severe malnutrition is primarily a problem in resource-limited countries. However, there have been case reports describing secondary protein-calorie malnutrition following bariatric surgery and gastro-intestinal surgeries in developed countries.

Case presentation: A 46 years old female with a past medical history of morbid obesity underwent Roux-en-Y bypass surgery 16 years ago, and colorectal cancer status post laparoscopic resection that was complicated by adhesions, and required multiple procedures for lysis and small bowel resection. She had multiple hospitalizations for hypoglycemia and altered mental status. The patient described being weak, with syncopal episodes and falls. She had severe chronic watery diarrhea every 1-2 hours daily. On exam, her BMI was 33.9, she had anasarca, hair loss and hypopigmentation, brittle and ragged nails, dry peeling skin rash and periumbilical dermatitis. Labs were significant for non-insulin dependent hypoglycemia, low albumin and prealbumin levels, microcytic hypochromic anemia, multiple vitamin and minerals deficiencies, especially zinc and copper. She was started on Dextrose infusion. She was given albumin with lasix to improve the anasarca. She failed oral vitamin and minerals supplements. She eventually required total parenteral nutrition. She subsequently had significant improvement in her symptoms and her lab values.

Discussion: We are describing a case of severe protein and micronutrient deficiency without calorie malnutrition in a patient with complicated history of gastrointestinal surgeries. Kwashiorkor is a rare disease in western countries. However, physicians must be aware of it, since its incidence might be increasing secondary to changing dietary habits.

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Category: Clinical Vignette

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

Program Director: Raymond Hilu, MD, FACP

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Can't Get Enough of TTP: Upshaw-Schulman Syndrome, A Rare Hematological Disorder

Introduction: Thrombotic Thrombocytopenia Purpura (TTP) is a hematological disorder that can be described as microangiopathic hemolytic anemia, thrombocytopenia, fever and renal failure with neurological deficits. Etiology is related with the decrease protease levels (ADAMTS-13) that can be due to congenital deficiency or acquired inhibition of a protease (ADAMTS-13) secondary to underlying infections or other physiological stress. We will present a case of congenital absence of ADAMTS-13, which is a rare disorder known as Upshaw-Schulman Syndrome.

Case Description: A 61-year-old African American female was presented in the hospital for an elective left hip arthroplasty. She was recovering well from the surgery. Three days after the procedure, she developed facial drooping with significant drop in hemoglobin and platelets with elevated LDH. Her ADAMTS-13 level was <5. She was treated with plasmapheresis, and recovered well after it. On further questioning, she mentioned that she had her first episode of TTP 30 years before, and since then, she's been having countless TTP relapses.

Discussion: Upshaw-Schulman Syndrome, also known as chronic relapsing thrombotic thrombocytopenic purpura (CR-TPP), is a congenital absence of ADAMTS-13 that cleaves Von Willebrand factor multimers, and is synthesized by endothelial cells. With low levels of ADAMTS-13, platelets become sticky, leading to small blood clots resulting in thrombocytopenia. In acquired forms of ADAMTS-13 deficiency, autoantibodies are present against protease, while in congenital absence, autoantibodies are absent. These patients required long term follow up and plasmapheresis multiple times to treat recurrent attacks.

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Category: Clinical Vignette

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

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Presenter: Raid Saco

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What a HIT: Thrombosis Presenting with Acute Hemorrhage

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 arterial and venous thrombosis with a reported mortality rate as high as 20%. Bleeding is very rare in HIT and its presence argues against the diagnosis. Herein, we report a rare case of bleeding caused by HIT.

A 53-year-old man presented with alcoholic pancreatitis. He was initiated on unfractionated heparin for venous thromboembolism prophylaxis. On the 10th day of hospitalization, he developed thrombocytopenia with a nadir of 99,000/microL. 4Ts HIT probability score was intermediate. Accordingly, heparin was discontinued and anti-heparin-PF4 antibody was strongly positive with titer of 2.23 OD. Due to 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.

Adrenal hemorrhage has rarely been reported in patients with HIT and is presumed to be due to 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 play an integral role in raising the suspicion for HIT with titer below 1.0 OD is false positive in 95% of case and titer above 2.0 OD (as in our patient) is true positive in >90% of cases. Health care professionals should be aware of such presentation in which early initiation of therapy can be life-saving.

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Category: Clinical Vignette

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

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Acute Colonic Pseudo-Obstruction (ACPO) a Rare Complication of Acute Motor Axonal Neuropathy (AMAN)

Acute motor axonal neuropathy (AMAN) is a rare pure motor axonal form of Guillain-Barré syndrome (GBS) accounting for 3-5% GBS cases in Western countries. Autonomic dysfunction is a common complication of GBS and its variants; present in up to two-thirds of those affected. However, acute colonic pseudo-obstruction (ACPO) also known as Ogilvie syndrome, is rarely reported as a presenting symptom of GBS.

50-year-old Caucasian female with a history of diabetes with nephropathy presents from ECF with altered mental status. She was recently hospitalized for worsening paresthesia without bladder or bowel dysfunction. She was evaluated by neurology and underwent a workup including MRI of the cervical spine, which was benign with no indications of progressive neuropathy. In the ER, she was found to have abdominal distention. CT-abdomen, demonstrated ACPO, and gastrografin studies revealed no perforations. Patient required fecal disimpaction. Stool cultures for ova and parasites were negative. After a protracted ICU course, symptoms of ascending neuropathy and weakness became apparent which in part were contributed to by critical care neuromyopathy. Lumbar puncture demonstrated elevated CSF protein without white blood cells, suggestive of GBS with ascending paralysis. EMS studies demonstrated axonal degeneration suggestive of AMAN.

The presences of GBS variants such as AMAN have been well established in the literature. However, the limited presentation of AMAN seen in the western world along with the unusual and rare initial appearance of ACPO as the inciting reason for hospitalization, make this case a rare and interesting case for academic study.

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Category: Clinical Vignette

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

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STEMI Masking a Diagnosis of Cerebellar Stroke

Introduction: Cerebellar infarctions are a surprisingly rare variant of cerebrovascular accidents (CVA). They can be difficult to detect due to vague symptoms and atypical presentations. We present a case of a missed cerebellar infarction with diffuse edema that presented as a STEMI.

Case presentation: A 45-year old male with no medical follow up over 10 years and no known disease. The patient presented for acute onset dizziness, nausea, emesis, shortness of breath and diaphoresis. The physical exam was unremarkable other than profuse diaphoresis. An electrocardiogram revealed ST segment elevation in V1-V2 with negative troponins. A STEMI protocol was activated and catheterization revealed a 99% left anterior descending coronary artery occlusion. A drug eluting stent was placed and antiplatelet therapy was initiated. The repeat electrocardiogram showed resolution of ST changes, however dizziness persisted. The following day the patient developed a severe posterior headache, worsening dizziness and somnolence. A head CT-scan showed sub-acute right cerebellar infarct, diffuse edema, and mass effect in the fourth ventricle. Neurosurgery performed emergent sub-occipital craniotomy and right external ventricular drain placement. Post-surgery, the patient had complete resolution of his symptoms.

Discussion: Cerebellar infarction constitutes approximately 2% of all ischemic strokes and can present with headache, dizziness, nausea, vomiting, and vertigo. Many individuals are misdiagnosed as a myocardial infarction, gastritis, or migraine. The possibility that the CVA worsened from thromboembolism from the cardiac catheterization cannot be excluded. The rates of strokes following cardiac catheterization range from 0.07-2% with up to 60% localizing to the posterior circulation.

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Category: Research

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

Program Director: Raymond Hilu, MD, FACP

Presenter: Rami Zein

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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.

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Category: Clinical Vignette

Institution: St. John Hospital Providence - Southfield

Program Director: Robert Bloom, MD, FACP

Presenter: Bayan Al Share

Additional Authors: Ali Zakaria, MD; Evan Hiner, MD; Ziad Iskendrian, MD; Nadir Warra, MD

Primary Vasculitis of Center Nervous System: A Postmortem Diagnosis

Primary angiitis of central nervous system (PACNS) is a rare vasculitis involving medium and small vessels of brain, spinal cord, and meninges, without systemic involvement. It's a diagnostic challenge due to lack of defined clinical criteria or specific imaging findings.

A 66-year-old female presented to ED with severe right frontal headache of sudden onset. On examination she was confused. Neurological exam revealed intact CN II-XII, power, sensation, and deep tendon reflexes, and no neck rigidity. Head CT revealed no intracranial bleeding or masses. CSF analysis was within normal limits. She developed multiple generalized tonic-clonic seizures with apneic episodes required elective intubation. Brain MRI/MRA revealed sulcus hyperintensity and diffuse leptomeningeal enhancement. Acute phase reactants and serology were negative. Upon weaning her off sedation, she remained unresponsive. Repeated CT revealed acute ischemic infarct of right occipital and temporal lobes. Conventional angiography revealed diffuse beading pattern involving cerebral vasculature of both hemispheres. Brain biopsy was negative. Her medical situation worsened and comfort measures initiated. Postmortem, Autopsy revealed scattered areas of vasculitis.

PACNS is a rare vasculitis. It affects all age groups and peaks around the age of 50. Incidence is 2.4 cases per 1,000,000 person-years with 2:1 male to female ratio. Headache is the most commonly reported symptom by 60% of patients. Marked constitutional symptoms are not typical. Workup includes CSF analysis, serology, neuroimaging, and brain biopsy. Typical Angiography finding is segmental narrowing and beading appearance of vessels. Patients with confirmed diagnosis should be started on immunosuppressive therapy with combination glucocorticoids and cyclophosphamide.

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Category: Clinical Vignette

Institution: St. John Hospital Providence - Southfield

Program Director: Robert Bloom, MD, FACP

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How Did MSSA Get in the Urine? An Unlikely Microbial Journey

Urosepsis is a common condition caused by a urinary tract infection progressing to systemic infections. Methicillin susceptible *Staphylococcus aureus* (MSSA) is an uncommon cause of urinary tract infections often associated with urological procedure. When a patient presents with MSSA urosepsis, further investigation is necessary.

19-year-old AAF with PMH of hidradenitis suppurativa presented to ED with nausea, vomiting, abdominal pain, dysuria and fevers. Vitals temp 39.6o Celsius, HR 163 bpm, BP 87/43. Laboratory studies significant for leukocytosis 13.25 K/mL and CRP 137.7 mg/L. Urinalysis positive for nitrites and leukocyte esterase, bacteria and WBCs. Patient managed successfully in ICU with volume resuscitation and IV antibiotics. Urine and blood cultures grew pansensitive *Staphylococcus aureus*. Interestingly 1 month prior patient had left axillary abscess requiring I&D with cultures positive for MSSA. Patient upon clinical improvement was discharged on IV antibiotics followed by oral antibiotic for a total of 14 days.

Hidradenitis suppurativa is a common disorder with prevalence of 1-4%. 60% of lesions cultured are positive for *Staphylococcus lugdunensis* and 24% polymicrobial anaerobes, streptococci and actinomycetes. Less common are *S. aureus*, coagulase-negative staphylococci, corynebacteria, and some others. 10-15% of staphylococcal bacteriuria is a result of seeding from the blood to urinary tract. The patient above had no history of IV drug abuse, urological procedures or other risk factors that potentiate risk for MSSA bacteremia. The likely course of this infection was bacteremia caused by MSSA hidradenitis seeding to the urinary tract. It is important to remember that common presentations can have uncommon sources.

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Category: Clinical Vignette

Institution: St. John Hospital Providence - Southfield

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Cholangiocarcinoma with Humoral Hypercalcemia of Malignancy and Paradoxical Calcitriol Excess

Humoral hypercalcemia of malignancy (HHM) is characterized by the excess production of parathyroid hormone related-peptide (PTHrP) and is the cause of hypercalcemia in 80% of malignancy-associated hypercalcemia cases. It typically occurs in cancers of squamous cell origin, though can be found in virtually any cancer. Very rare case reports have been documented in cholangiocarcinoma, with only 12 cases to date. We present a case of a 46-year-old man who was discovered to have metastatic cholangiocarcinoma and resultant hypercalcemia from both excess PTHrP production and paradoxical excess 1,25-dihydroxyvitamin D (calcitriol). Despite aggressive resuscitative measures, multiple lines of anti-hypercalcemic therapy and chemotherapy, he responded poorly and succumbed to his illness. Prior to his death, his hypercalcemia was able to be corrected with the administration of cinacalcet, making this the second case report in the literature with successful treatment of HHM with cinacalcet. Here we review the previously documented cases of HHM associated with cholangiocarcinoma, the mechanisms underlying malignancy-associated hypercalcemia, and the general approach in the treatment of these patients.

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Category: Clinical Vignette

Institution: St. John Hospital Providence - Southfield

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Sarcoidosis: Is it a Possible Trigger of Inclusion Body Myositis

Sarcoidosis(SC) is a multisystem disorder of unknown etiology, characterized by the presence of non-necrotizing granulomatous inflammation in affected organs. Although skeletal muscle is involved in 50-80 % of individuals, symptomatic myopathy has been shown to be a rare manifestation of the disease. Inclusion body myositis(IBM) is a rare acquired idiopathic inflammatory myopathy with the insidious onset of asymmetric and distal muscle weakness.

A 62 year-old African-American female who came to our hospital complaining of new onset dyspnea that had been worsening for the last month. she was then diagnosed with stage IV SC based on chest CT findings, which was confirmed by a lung biopsy revealing non-necrotizing granulomatous inflammation. The patient refused treatment. Over the next 3 months, her condition deteriorated with dysphagia associated with muscle weakness. The patient was re-admitted and a muscle biopsy showed IBM. Patient was started on steroid therapy and was discharged.

The least common type of sarcoid myopathy is acute myositis. It tends to occur early in the course of SC and in patients younger than 40 years old. Patients with acute myositis have muscle swelling and diffuse pain. symptoms include fatigue and fever. Generalized muscle weakness occurs infrequently. Although there is no apparent link, an association between sarcoid and inclusion body myositis was reported in 1986. However, very few cases—eight as of 2015—have been reported. The immunopathology of both diseases involves Th1-mediated immunity, and some evidence suggests that muscle involvement may lead to the development of inclusion body myositis.

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Category: Clinical Vignette

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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.

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Category: Clinical Vignette

Institution: St. John Macomb Hospital

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Oh rats!! An Unusual Case of Jaundice Due to Leptospirosis

Conjugated hyperbilirubinemia in the absence of hepatocellular injury requires investigation of unique pathologic entities. Leptospirosis is a rare zoonotic infection which can result in conjugated hyperbilirubinemia and AKI. Humans are infected via rodent-urine contaminated water or soil. Complications include thrombocytopenia, ARDS, pulmonary hemorrhage and myocarditis.

A 43yo Caucasian man presented with abdominal pain for five days. Associated symptoms included subjective fevers, generalized weakness and jaundice. He reported living with five dogs in a rat-infested home. He denied any recent travel or sick contacts. Exam revealed a jaundiced, dishevelled man with scleral icterus and marked conjunctival erythema. Lab work revealed leukocytosis, pyuria and conjugated hyperbilirubinemia but normal transaminases. The patient deteriorated within the next 12 hours, requiring intubation and vasopressor therapy. CXR revealed bilateral patchy infiltrates suggestive of ARDS. Ultrasound and CT scan of the abdomen were unremarkable. Leptospirosis antibody(IgM) was negative. The conjugated bilirubin continued to rise to a plateau of 22.8mg/dL. Molecular testing with RT-PCR revealed Leptospirosis DNA. The patient was treated with ceftriaxone leading to resolution of AKI and hyperbilirubinemia.

Incidence of leptospirosis is extremely rare in the United States but must be considered in cases of conjugated hyperbilirubinemia and renal dysfunction. Hyperbilirubinemia is postulated to result from endothelial damage to hepatic capillaries and hyperplasia of Kupffer cells causing intrahepatic cholestasis. Important clues may include conjunctival suffusion or rodent-infested living conditions. Molecular testing (RT-PCR) is the test of choice. Early recognition and initiation of antimicrobial therapy are essential in avoiding the devastating septic complications of this disease.

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Category: CQI/EBM

Institution: St. Joseph Mercy - Ann Arbor

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Utilization of PTT Versus Antifactor Xa in Patients Receiving Unfractionated Heparin

Introduction

Historically, Partial Thromboplastin Time (PTT) has been used to titrate rates of intravenous unfractionated heparin, based mainly on decades old data from pig studies. Newer studies suggest that anti-Xa levels are superior to PTT, requiring less heparin titration, lower doses, and cause less bleeding. In considering switching from PTT to anti-Xa, our institution undertook a quality initiative to determine how well the two tests correlate in the same patient.

Methods

During a selected seven-day period, both Xa and PTT levels were collected from 63 heparinized patients. PTT levels were correlated with Xa levels to determine the percent of time both were therapeutic and the percent of time one was therapeutic and the other was supra or sub-therapeutic. Patients with poorly correlating Xa and PTT were evaluated for bleeding or clotting events.

Results

Sixty-three patients were included in the study, providing for 212 data sets. Discrepant results occurred in 82 (38.6%). Therapeutic anti-Xa but non-therapeutic PTT occurred in 44 (20.8%) and therapeutic PTT but non-therapeutic anti-Xa in 36 (17%). Four patients with discordant results had suspected bleeding or clotting events.

Conclusions

Based on these results, there would be 3.8% fewer rate titrations if Xa were used rather than PTT; however, all heparin doses would have increased, contrary to recent literature. This raises the concern for increased bleeding events. Too few clotting or bleeding events occurred to comment on efficacy. However, the poor correlation between Xa and PTT levels is concerning, since it is unclear which is more accurate.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Ann Arbor

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Biologic Therapy Increases the Risk of Disseminated Histoplasmosis: A Case Report

Introduction: Disseminated histoplasmosis is a potentially fatal disease and has a multitude of presentations, making it a diagnostic challenge.

Case: A 21-year old woman with Crohn's disease on adalimumab for 9 months was admitted with 5-weeks of intermittent diffuse abdominal pain associated with fever and vomiting. She also had a 3 week history of dry cough and exertional dyspnea, along with generalized weakness and decreased appetite. She resides in Michigan and had no recent travel. Physical examination revealed clear lungs and diffuse abdominal tenderness without rebound. Laboratory findings included elevated liver enzymes, sedimentation rate, microcytic anemia and normal white blood count. Chest CT showed a miliary pattern of nodules throughout all lung fields. Abdominal CT was consistent with Crohn's and revealed new onset splenomegaly. Additional tests showed an elevated Beta-D glucan and positive urine Histoplasma antigen. A bronchoscopy with lung biopsy confirmed the diagnosis of histoplasmosis. Treatment with intravenous liposomal amphotericin B resulted in resolution of fever. On Amphotericin B, she developed acute kidney injury, pseudo hyperphosphatemia and bilateral hand numbness, which resolved with hydration. She was transitioned to oral itraconazole.

Discussion/Significance: Prompt diagnosis of disseminated histoplasmosis is a cornerstone for favorable outcomes. Biologic therapy for autoimmune diseases increases risk of histoplasmosis even in non-endemic areas. The significance of this case is the presence of symptoms for 5 weeks prior to diagnosis. This underscores the need for better physician education for recognition of symptoms. No clear guidelines for pharmacologic prophylaxis of histoplasmosis exist in patients on immunosuppressive therapy.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Ann Arbor

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Additional Authors: Bathmapriya Balakrishnan, MD, Aparna Bhat, MD and Richard Shellenberger, DO

"I Cannot Hear." A Case Report of Sudden Hearing Loss Following Large Volume Daily Dialysis

INTRODUCTION

Although sensorineural hearing loss (SHL) is commonly observed in patients with chronic renal failure, the role of hemodialysis (HD) in the causation of SHL is not fully understood. We report a case of sudden and profound SHL following large volume daily HD.

CASE DESCRIPTION

A 54-year-old male with end-stage renal disease (ESRD) presented to the hospital with anasarca. After several missed dialysis sessions, urgent HD was required to manage volume overload and hyperkalemia. Daily dialysis with aggressive fluid removal continued until severe hearing loss was observed on day six of treatment. Physical examination ruled out auditory canal, tympanic membrane, and vestibular disorders. No ototoxic medications were prescribed. Notably, the patient had lost 25 pounds of fluid volume since admission. HD was discontinued and prednisone was initiated for possible labyrinthitis, following otolaryngology consultation. Consequently, the patient's hearing improved significantly the following day. Audiometry testing was scheduled as an outpatient.

DISCUSSION

It is hypothesized that fluctuation of fluid and electrolytes within the endolymph of the inner ear following HD can cause acute SHL, which is distinct from the well-known association of chronic renal disease leading to hearing loss. The degree of hearing loss is independent of weight changes following dialysis, as previous studies have shown that single session of HD does not cause a decrease in hearing threshold. Due to the increasing prevalence of ESRD, it is prudent to be aware of lesser known but potentially avoidable complication of SHL. Judicious and gradual volume reduction through HD can prevent this complication.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

Presenter: Bathmapriya Balakrishnan

Additional Authors: Rajeev Swarup, MD, Richard Shellenberger, DO, FACP

A Very Rare Case of Multifocal Endobronchial Diffuse B-cell Lymphoma

Introduction

Diffuse large B-cell lymphoma of the lung is a very rare primary pulmonary lymphoma. We present an extremely unusual case of diffuse large B cell lymphoma manifesting as multiple endobronchial lesion of the tracheobronchial tree.

Case Presentation

A 59-year-old Caucasian woman presented to her primary physician with persistent cough and sputum production. Chest-X-ray showed a 6x6 cm right lower lobe opacity. CT of the chest and PET scan confirmed a PET avid (SUV 29) mass with endobronchial occlusion of the right main stem bronchus. The patient underwent bronchoscopy and several tracheobronchial endobronchial lesions were seen throughout the airway. Biopsy of the airway lesions and the primary mass, revealed diffuse large B-Cell lymphoma of the lung. Bone marrow biopsy showed normocellular marrow without evidence of lymphoma. The patient was enrolled in a clinical trial and treated with R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone) and Revlimid® (lenalidomide) with a moderate treatment response.

Conclusion

The case illustrates an extremely rare presentation of the primary pulmonary lymphoma. Diffuse large B-cell lymphoma with multiple endobronchial tumors in addition to the primary mass is extremely unusual. Consideration of diffuse B cell lymphoma is warranted when evaluating endobronchial lesions.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

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Idiosyncratic Drug-Induced Liver Injury: Cholestatic Jaundice after Amoxicillin-Clavulanate Therapy

Introduction: Drug-induced liver injury (DILI) is an uncommon drug reaction with transaminitis, bilirubinemia, jaundice, liver failure, transplantation, and death as possible clinical sequelae.

Case presentation: A 59-year old woman is admitted for work up of fatigue, nausea, dark urine and jaundice of about 9-day duration . Outpatient workup was significant for cholestatic pattern of liver enzymes and significant indirect and direct bilirubinemia. Her viral hepatitis workup was negative. Her outpatient liver ultrasound and CT abdomen did not provide any explanation for her symptoms and laboratory findings. During admission evaluation, it was noted that patient completed a 15-day course of amoxicillin-clavulanate for a sinus infection 2 days prior to the admission. On further questioning, patient reported that her symptoms began about 7 days into amoxillin-clavulanate treatment whereas spontaneous improvement in her symptoms and liver biochemistries coincided with completion of the antibiotic therapy making Idiosyncratic Drug-Induced Liver Injury the most likely diagnosis. Patient was discharged home next day. Labs returned to normal within 3 weeks.

Discussion: Amoxicillin-clavulanate is the most frequent agent causing idiosyncratic DILI. About 11% of reported cases on the United States DILI Network registry are attributed to amoxicillin-clavulanate. Idiosyncratic reactions may be more prevalent among women, smokers, diabetics, and certain genetic predispositions.

Significance: This case underlines that accurate history and physician awareness are essential in the diagnosis of idiosyncratic DILI. Patient education regarding side effects and clinician responsiveness to symptoms are essential to stop the offending agent and prevent rare instances for irreversible liver failure and death.

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Category: CQI/EBM

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

Presenter: Shraddha Desai

Additional Authors:

Effect of Audit and Feedback on Residents' Performance in Outpatient Setting

Introduction:

Delay in responding to test results falls in the post-analytic phase of the Hickner's model. A study by Singh et al shows lack of timely follow-up of outpatient lab results at 6.8%. Cochrane review suggests that effect of audit and feedback (A&F) on physician behavior and patient outcomes ranges from negligible to substantial. The objective of this study was to evaluate impact of A&F on residents' performance in the outpatient clinic, with the goal of decreasing time lag between reporting of abnormal results and follow up.

Methods:

A&F was done by chief medical resident from 10/2016 to present. Baseline data was obtained in October through the EMR (NextGen) review. Feedback was carried out by paging residents with ≥ 5 PAQ (Provider Approval Queue) items. Post-intervention data was created October onwards. On 01/17/2017, intervention was stopped to see if the results persisted.

Results:

1st week baseline showed 230 pending PAQs for all residents. During intervention, PAQs dropped to 116 (50.4% of baseline). Post withdrawal of intervention, PAQs increased by 21.7 % to 166 ($p < 0.001$; Fischer's exact test). On average, 5-9 residents were paged weekly during the intervention phase, requiring less than 0.5 hour per week.

Discussion:

Intervention of A&F by the chief medical resident decreased the number of pending PAQs; however, it increased after the intervention was stopped. This intervention was effective in our pilot but may not be sustainable in all health systems. Thus, more system-based approaches may be needed.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

Presenter: Rajiv Doddamani

Additional Authors: Sirisha Gokaraju, Niklas Mackler

Spontaneous Tumor Lysis Syndrome in Breast Cancer: A Rare Case Presentation

Introduction: Tumor lysis syndrome (TLS) results from rapid destruction of tumor cells and is characterized by several metabolic derangements which include: hyperphosphatemia, hyperuricemia, hyperkalemia and hypocalcemia. TLS occurring as a result of chemotherapy is more common than spontaneous TLS (STLS) and is mostly seen in malignancies with high cellular turnover such as lymphomas and leukemias. STLS is defined as TLS occurring prior to initiation of any therapy and is known to occur in malignancies with high tumor burden such as Burkitt's lymphoma and is extremely rare in solid tumors. We present to you a rare case of spontaneous TLS in a patient with inflammatory breast cancer.

Case: 71-year-old female presented with a new, untreated invasive ductal carcinoma of left breast, ER and HER-2-neu positive and PR negative with extensive liver metastasis almost replacing liver tissue and retroperitoneal lymphadenopathy. She presented with RUQ pain, acute renal failure (eGFR 20ml/min), hyperkalemia (6.8 mEq/l), hyperuricemia (14.1 mg/dl), hyperphosphatemia (6.6 mEq/l) and hypocalcemia (7.3 mg/dl) that was concerning for STLS. She was treated with rasburicase with an improvement of her labs. Treatment with trastuzumab and paclitaxel was offered but patient opted for supportive measures due to worsening renal function and expired few days later.

Discussion: STLS is an oncologic emergency rarely seen with solid tumors such as breast cancers. Prompt diagnosis is essential as it is uniformly fatal. It is thus important to be aware of its occurrence so that it can be managed early in the course thereby preventing adverse metabolic effects.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

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Non-Uremic Calciphylaxis in Sjogren' Syndrome: A Rare Cause of Leg Ulcers

Introduction

Calciphylaxis is a rare cause of cutaneous ischemia and necrosis due to calcification of dermal arterioles. Seen predominantly in end-stage renal disease and hyperparathyroidism, a systematic review in 2008 showed there were only 4 published cases of non-uremic calciphylaxis in patients with autoimmune diseases. Reports of calciphylaxis in Sjogren's are extremely rare with only 1 case reported in 2006.

Case Description

This case describes a patient with Sjogren's syndrome and CKD-3 who developed painful tense blisters 3 days following TAVR and initiation of post-TAVR warfarin. Skin biopsy was deferred at that time due to leg edema. After discharge, the blisters ruptured and evolved, and one month later she returned with multiple necrotic ulcerations on her lower extremities. Labs revealed elevated ESR and CRP, decreased C3 and C4, and elevated anti-Ro and anti-La antibodies. Calcium, phosphorus, PTH, and vitamin D levels were normal. Skin biopsy confirmed calciphylaxis. Warfarin was discontinued and patient was treated with antibiotics. She was discharged with topical sodium thiosulfate, however, she was readmitted 8 days later in multi-organ failure from septic shock and died shortly after re-admission.

Clinical significance and Discussion

This case illustrates the importance of considering calciphylaxis in the differential diagnosis of skin ulcers in patients with underlying autoimmune disease like Sjogren's syndrome, especially if other risk factors are present. Calciphylaxis is associated with mortality rates as high as 50-80%, primarily from sepsis. Early diagnosis and treatment is important due to risk of super-infection and death.

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Category: CQI/EBM

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

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Additional Authors: Tanya Boldenow

Decreasing the Overuse of Cardiac Telemetry: Utilizing a Nursing Driven Protocol During Interdisciplinary Rounds

Introduction

The overuse of cardiac telemetry monitoring is well described. The Choosing Wisely campaign advocates for a protocol driven approach for telemetry use based on American Heart Association (AHA) recommendations. The study objective is to develop a sustained decrease in the overuse of telemetry utilizing a nursing driven checklist for discontinuation during interdisciplinary rounds (IDR). This study presents a proof of concept that implementing AHA recommendations can safely decrease the inappropriate use of telemetry.

Methods

A multidisciplinary team developed the protocol. A randomized sample of 100 adults pre and post intervention in the non-ICU settings were included. Excess hours of telemetry were calculated. Code blue and census corrected number of patients on telemetry were tracked for one year.

Results

Of the 100 patients, 17 (17%) in the pre and 23 (23%) in the post cohort were on telemetry for continuous pulse oximetry and were excluded. 31 (37%) patients did not meet AHA guidelines which decreased to 18 (23%) in the post intervention cohort, a 38% decrease ($p= 0.02743$). There was no decrease in the amount of excess hours per patient. There was sustained decrease in total patients on telemetry, although the best fit line was a positive parabolic curve. Code blue rates were similar.

Discussion

This study showed that significant reduction in patients who do not meet AHA criteria for telemetry can be achieved safely with a nursing driven IDR process. Positive parabolic curve suggests that a more automated system for discontinuation is needed to maintain sustainable reduction.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

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Additional Authors: Rajiv Doddamani, Arwa Mohamed Hosni

FDG-Avid Pulmonary Rheumatoid Nodules in a Patient with No Active Articular Disease

Introduction: The incidence of rheumatoid lung nodules in rheumatoid arthritis (RA) is unclear. They are known to occur in patients with longer disease duration and subcutaneous nodules. Though uncommon, they can also manifest in patients with no active articular disease. The differential for cavitary lung nodules is broad. Even though Fluorine-18 fluoro-2-deoxy-glucose (18F-FDG) positron emission tomography (PET) can somewhat narrow the differential diagnosis to malignancies, infections or inflammation, it is still inferior to histopathological diagnosis.

Case: 36-year-old female with history latent tuberculosis (TB) treated with isoniazid 10 years ago, seropositive rheumatoid arthritis/ palindromic rheumatism on hydroxychloroquine and colchicine without active synovitis/arthritis or subcutaneous nodules, was evaluated for persistent cough and exertional dyspnea. She was noted to have multiple cavitary lung nodules along with precarinal and subcarinal lymphadenopathy on imaging. Bronchoscopic and CT guided biopsies were non-diagnostic. PET scan demonstrated hypermetabolic nodules growing in size. Thoracoscopy guided wedge biopsy revealed evidence of rheumatoid nodules, negative for TB, fungal infections or vasculitis on multiple occasions; she was eventually started on etanercept.

Discussion: Pulmonary nodules, especially cavitary ones have wide differential diagnoses. Our case presents a diagnostic dilemma given competing factors such as latent TB, ongoing immunosuppressive treatment that increase the risk of malignancy and other opportunistic infections. Since extra-articular RA necessitates aggressive treatment, it is absolutely necessary for all infections to be ruled out and this can be achieved only by accurate histo-pathologic and immuno-histochemical diagnosis.

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Category: CQI/EBM

Institution: St. Joseph Mercy - Ann Arbor

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Improving Colorectal Cancer Screening with In-Office Informational Video Intervention

Introduction:

Residency clinics frequently struggle with implementing colorectal (CRC) screening guidelines. Internal audit of our clinic revealed CRC screening at 55.2%. Our objective was to determine the impact of an informational video on CRC screening in our clinic.

Methods:

Over a 1-month period, patients between the ages 50-75 were asked about their CRC screening status during their clinic visits. If not previously screened, a video about both colonoscopy and FIT testing was made available on a portable DVD player while waiting for the resident physician or while the resident was staffing. A questionnaire regarding barriers and attitudes was filled out by those who watched the video. After completion of the questionnaire, patients discussed CRC screening with the resident physician, who ordered the appropriate test.

Results:

Of the 73 patients who were queried about their CRC screening status, 52(71.2%) patients had been screened. The remaining 21 patients subsequently watched the informational video, of which 11(52.3%) patients requested CRC screening, 3 patients remained unsure, 5(23.8%) patients declined, and 2 patients did not complete the survey. If the 11 patients complete their screening, our CRC screening rate of 86.3% would be higher than the national rate of 50%.

Discussion:

Implementation of CRC video intervention protocol revealed that likely a majority of our population has already undergone CRC screening but this was not documented. The CRC screening video intervention had a positive effect on ordering more screening colonoscopies, and should be considered an adjunct in an Internal Medicine residency clinic.

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Category: CQI/EBM

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

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Additional Authors: Noah Jentzen, MD, Anupam Suneja, MD, Patricia McNally, MD

Improving Hyperglycemia in Noncritically Ill Patients: Looking for a Solution

Introduction and Significance: Poorly controlled hyperglycemic patients encounter more complications, longer hospital stays, and increased morbidity and mortality than their normoglycemic counterparts. Glycemic Control Quality Improvement Project evaluated the impact of an educational intervention on inpatient glycemic control for patients on teaching and non-teaching non-ICU internal medicine services at a community hospital.

Methods. Between February and August 2013, all internal medicine residents and hospitalists underwent training sessions on inpatient glycemic management, including basal-bolus insulin regimens. Educational sessions also encouraged use of an electronic order set specifically designed to facilitate use of the basal-bolus insulin regimen. EMR data from 2012-2015 were abstracted for patient days with optimal glucose range (71-180), patient days with hypoglycemia (<71) and percent of patients who had insulin orders placed through insulin order sets. Run charts were utilized for analysis of the PDSA cycles.

Results. Despite increase in use of insulin order set from 15% to 30%, the percent of patients in optimal glucose range did not change from the pre-intervention rate of 30%. However, the percent of patient days with hypoglycemia and severe hypoglycemia showed an improvement.

Conclusions. Educational intervention increased utilization of the insulin order set and resulted in reduction in inpatient hypoglycemia. However, more robust strategies need to be employed to decrease inpatient hyperglycemia in our institution.

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Category: CQI/EBM

Institution: St. Joseph Mercy - Ann Arbor

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"July Effect" on Utilization of Teach-Back and Washing Hands: A Secret Shopper Project

Introduction:

Transitioning to the new academic medical year is associated with an increase in mortality and reduction in efficiency. The presence of this phenomenon, the "July Effect", is limited by the heterogeneity of individual studies in systematic reviews. Our objectives were to assess: (1) the impact of the "July Effect", and (2) the intervention of independent brief feedback, on the utilization of teach-back communication and the measuring of handwashing by resident teams.

Methods:

Prospective QI project with 'secret shopper' medical students on inpatient rounding teams from June–July, 2016. Teach-back utilization was divided into three groups of 'assessment of understanding' as defined by Farrell. Data pre-intervention in June and July was analyzed post-hoc as "July Effect", while a priori hypothesis compared pre-intervention data to post-intervention data using test for two proportions in Minitab.

Results:

Of 401 observations by medical students, 337 were pre-intervention and 64 were post-intervention. From June to July, there was an increase in teach-back (17%, $p < 0.001$), open-ended (42%, $p < 0.001$) and close-ended (28%, $p < 0.001$) responses, and handwashing (25%, $p < 0.001$). Feedback decreased close-ended (-40%, $p < 0.001$) and ambiguous (-31%, $p < 0.001$) teach-back, and caused a borderline increase in handwashing (14%, $p = .057$).

Discussion:

Process measures of hand washing and teach-back are higher in July than in June, which was surprising given prior data on outcomes. Intervention decreased teach-back and increased handwashing. Sustaining these positive processes through the years of residency is worth pursuing further.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Ann Arbor

Program Director: Patricia McNally, MD, FACP

Presenter: Rachana Ramesh Amberker

Additional Authors: Priyanka Bikkina

Rare Adult Presentation of a Common Childhood Disease - HSP

Introduction

Henoch-Schonlein Purpura (HSP) classically presents following respiratory infections with a triad of palpable purpura, abdominal pain and arthralgias. It is more common in young children. Though the incidence is low in adults, it should be considered as a differential because prompt management is critical in preventing severe long term renal complications.

Case description

A 68-year-old female presented with 1 day history of abdominal pain, nausea, vomiting, polyarthralgia and diffuse rash. Examination revealed mild periumbilical tenderness, diffuse palpable, non-tender purpuric rash on trunk, buttocks and extremities. Also noted were swelling and tenderness in bilateral MCP joints and left knee joint. Blood work revealed elevated ESR and CRP but normal CBC, LFT, complement levels, ANA and RF titers. Abdominal CT-angiogram was unremarkable. Skin biopsy showed leukocytoclastic vasculitis and immunofluorescence showed immunoglobulin A staining confirming diagnosis of HSP. She was treated with high doses IV steroids with symptomatic improvement and was later continued on prolonged steroids.

Discussion

HSP is an autoimmune small vessel vasculitis. The incidence of HSP in adults is unknown, although Slovenia has an estimated annual incidence of 5 per 100,000 adults. Presenting symptoms in adults include palpable purpura (96%), arthritis (61%), GI symptoms (48%) and renal insufficiency (32%). Diagnosis is confirmed by skin biopsy.

Clinical Significance

It is important for physicians to consider HSP as the differential among adults in an appropriate clinical setting. Treatment includes steroids and symptomatic therapies. Renal complications from HSP can be severe with poor prognosis and therefore early diagnosis can be lifesaving.

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Category: CQI/EBM

Institution: St. Joseph Mercy - Ann Arbor

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The Use of Prothrombin Complex Concentrate (Kcentra) in a Community Hospital

Introduction: Kcentra, a four-factor prothrombin concentrate, was FDA approved and included in a rapid anticoagulant reversal protocol at this institution in 2013. Use was restricted to specific indications and required a phone call to pharmacy. This study evaluates adherence to the hospital protocol for Kcentra, combined with plasma, vitamin K, and platelets.

Methods: Retrospective cohort study using chart review was performed on 96 Kcentra patients between 01/01/14-12/31/16. Indications for Kcentra, FFP, Vitamin K and platelets were collected. Statistical measures included median, CI and logistic regression for appropriateness of Kcentra use.

Results: Of patients given Kcentra, 50.0% of patients were taking Warfarin, 30.2% were taking direct oral anti-coagulants (DOACs), and 19.8% were on no anti-coagulant. Kcentra was given inappropriately in 21.9% of patients. Plasma was given in addition to Kcentra in 42.7% and intravenous vitamin K in 57.2% (7.3% were on DOACs). Anti-platelet agents were reversed with platelet transfusions in 57.3%.

Discussion: Despite protocols, Kcentra is inappropriately used in 1/5 of patients at our institution. Implications include cost and potential thromboembolic events. Although Kcentra replaces the need for plasma, many Kcentra patients were unnecessarily exposed to the risks of plasma. In patients taking warfarin, vitamin K was appropriately given to maintain Kcentra reversal in the majority of patients, but was also inappropriately ordered for patients on DOACS. Lastly, despite anti-platelet agent exposure in 34.4% of bleeding patients, platelets were not always transfused per protocol. This study highlights the need for additional system-based interventions to ensure appropriate use of anticoagulant reversal agents.

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Category: CQI/EBM

Institution: St. Joseph Mercy - Ann Arbor

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Additional Authors: Ann Wilkie, MD , Anupam Suneja, MD

Perceptions of Barriers for Compliance with Hand Hygiene and Personal Protective Equipment

Background: Hand hygiene (HH) and personal protective equipment (PPE) represent foundational practices and behaviors for infection prevention. However, compliance with both HH and PPE is suboptimal at most institutions. We sought to better understand the most common barriers for successful HH and PPE adherence.

Methods: An electronic survey was sent to all staff in May, 2016, at our Hospital. Respondents were asked about behaviors, perceptions, and barriers surrounding HH and PPE.

Results: 569 providers responded including 254 (12.9 %) nurses, 146 (26.2%) physicians, 72 (12.9%) patient care technicians, and 12 (2.2%) advanced practice professionals. The most common reasons that 527 respondents cited for non-compliance with PPE were no anticipated patient contact (52.7%), takes too much time (21%), and perception that isolation precautions not needed (13%). Of 483 respondents for non-compliance with hand hygiene, the most common reasons were lack of access to hand gel (30.4%), no anticipated patient contact (30.2%), and forgetting (25.5%). Lastly, 168 (30%) providers commented in an open-ended free-text question. The responses were organized into 4 general categories: organizational (e.g. lack of accountability), equipment/human factors (e.g. confusing isolation signs), professional (e.g. HH perceived as not necessary with glove use) and patient-related (e.g. frustration with visitors not using HH or PPE).

Conclusions: Compliance with HH and appropriate PPE remains difficult for providers. Data from this survey has directed educational efforts and materials for all providers including an emphasis on when and why HH and PPE are required, appropriateness of isolation, and availability of hand gel.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Oakland - Pontiac

Program Director: Benjamin Diaczok, MD, FACP

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Steroids to Treat Stroke?- That's Not Crazy, Just HE

INTRODUCTION:

Hashimoto's Encephalopathy (HE) typically presents as cognitive impairment and seizures. It is characterized by presence of anti-thyroid antibodies and responsiveness to immunosuppressive therapy. Rarely HE may present with focal neurological deficits.

CASE:

A 70-year-old gentleman presented with left arm paresthesia with subsequent slurring of speech, left hemiparesis and gait disturbance. CT Scan, MRI and MRA of the brain were negative for ischemia or demyelination. EEG showed diffuse slowing of background activity. CSF analysis was negative. Syphilis antibodies, Anti-Smith, ANA, ENA RNP antibodies; Para-neoplastic antibodies, hepatitis panel, HIV, ammonia level, urea, creatinine and Vitamin B12 level were all within normal. Antithyroglobulin and Thyroid Peroxidase antibodies were positive. He was started on steroids with rapid improvement of his symptoms.

DISCUSSION:

HE was first described in 1966 and mostly presents with neurocognitive symptoms but may present as focal neurological deficits. HE is mainly a diagnosis of exclusion and responds well to steroid therapy with good prognosis. Delay in treatment is associated with incomplete recovery highlighting the importance of rapid diagnosis.

CONCLUSION:

Thyroid antibodies should be checked in patients with neurocognitive impairment with or without focal neurological deficit and negative initial imaging.

Steroid therapy should be initiated promptly if the presumed diagnosis is HE.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Oakland - Pontiac

Program Director: Benjamin Diaczok, MD, FACP

Presenter: Mohanad Saleh

Additional Authors: Murad Abdelsalam, MD, Richard Hanley, Benjamin Diaczok, MD, FACP, Kirit Patel, MD, FACC

2 Cases of Acute Limb Ischemia Due to Impella

INTRODUCTION:

Impella, an FDA approved, percutaneous catheter placed heart pump, provides temporary hemodynamic support for patients with depressed heart function or cardiogenic shock. Impella is inserted directly into the left ventricle and pumps blood across the aortic valve into the ascending aorta. These benefits do not come without the potential for complications.

Case 1: A 72-year-old gentleman presented to our ED and taken immediately to the cath lab with an anterior wall STEMI. His aortic pressure was 73/47mm/Hg. An Impella device was inserted via the left femoral artery. He underwent thrombectomy of the proximal LAD with placement of a drug-eluting stent. Three hours later he was found to have decreased left lower extremity pulses. Left lower extremity angiogram was performed, demonstrating occlusive flow of left common femoral artery.

Case 2: A 70-year-old lady presented to our ED and taken immediately to the cath lab with an inferior wall STEMI. Her aortic pressure was 69/34mm/Hg. An Impella device was inserted via the left common femoral artery. She underwent thrombectomy of the RCA with placement of a drug-eluting stent. Routine Doppler of her legs demonstrated decreased flow. Abdominal aortogram demonstrated occlusion of the left common femoral artery.

DISCUSSION:

Acute Limb ischemia is one of dreadful complications of Impella use. The risk-benefit of placement needs to be considered prior to placement especially when using bigger sheaths.

CONCLUSION:

Physicians should be aware of Impella benefits and complications such as acute limb ischemia and novel techniques that can be used in these cases.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Oakland - Pontiac

Program Director: Benjamin Diaczok, MD, FACP

Presenter: Anup Kumar Trikannad Ashiwini Kumar

Additional Authors: Dr.Sruthi Vellanki MD, Dr. Pratik Bhattacharya MD, MS

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.

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Category: Clinical Vignette

Institution: St. Joseph Mercy - Oakland - Pontiac

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A Young Guy's Heart Break is Thicker Than Blood!!

Introduction

Myocardial infarctions (MI) in young patients have been increasingly prevalent due to numerous factors including atherosclerotic causes such as metabolic syndrome. Patients with hyper coagulable risk factors, such as Antiphospholipid Syndrome (APS) and Homocysteinemia (HC) are at risk for developing premature MI. We present a patient with premature MI with APS and HC due to vitamin B12 and folate deficiency.

Case Presentation

A 34 year old gentleman presented with a sudden onset of chest pain. EKG revealed anterior STEMI with positive Troponins. He underwent catheterization and two drug-eluting stents were placed in the LAD and diagonal branch. Post procedure EKG showed ST elevation in the anterior leads. Repeat catheterization showed a bridging phenomenon in the mid-LAD and early stent-thrombosis in the diagonal branch. Further diagnostic studies revealed macrocytic anemia with vitamin B12 and folate deficiency. Due to the patient's premature coronary artery disease (CAD), we performed a hyper coagulable workup which showed elevated homocysteine levels. In addition, Russell viper venom and aPTT mixing studies were positive. Patient was diagnosed with APS and discharged on aspirin, Clopidogrel, Atorvastatin, Folate and Vitamin B12 .

Discussion

Prior studies, as well as our case, show that there is an association between APS and HC. Patients with anti-phospholipid syndrome had increased homocysteine levels which lead to premature MI.

Conclusion

When evaluating young patients with no significant risk factors for CAD clinicians are recommended to perform a complete hyper coagulable workup including homocysteine, folate and vitamin B12 levels and initiate the appropriate therapy.

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Category: CQI/EBM

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Ariful Alam

Additional Authors: Nanthabalan, S; Naik, H.

Point of Care Testing with Serum Biological Markers to Monitor Chemotherapy Induced Cardiotoxicity - An Evidence Based Review

Chemotherapy induced cardiotoxicity is defined as asymptomatic reduction in left ventricular ejection fraction (LVEF) of $\geq 10\%$ to $< 55\%$ or as reduction of LVEF of $\geq 5\%$ to $< 55\%$ with symptoms of heart failure. 2D-echocardiography or MUGA scan is current standard set by CREC for assessment, but unable to assess subclinical cardiac damage to predict cardiotoxicity.

Biomarkers maybe viable alternative because of high sensitivity and low cost. Studies with post-treatment cTnl is predictive of development of cardiotoxicity ($p=0.020$; HR of 1.38). cTnl >0.05 ng/ml shows significant reduction in LVEF persisting for 3-7 months, and cTnl > 0.08 ng/mL persisting 1 month after therapy is associated with 84% risk. cTnl elevation early and 3 months post-treatment is an independent predictor of cardiotoxicity with 17.6 times increased risk. Persistently elevated NT-proBNP level at 72 hours is associated with LV dysfunction at 12 months of follow-up. Post-treatment NT-proBNP is associated with high risk of later manifestation of cardiotoxicity; however, a cutoff value is not established. hs-CRP concentration ≥ 3 mg/L predicted impaired LVEF with 92.9% sensitivity and 45% specificity. Maximum hs-CRP elevations were seen on average 78 days before echocardiographic detection and maybe effective in identifying patients less likely to benefit from more stringent follow-up.

In conclusion, biological markers maybe used alongside current standard at baseline and during chemotherapy to risk stratify patients, who may benefit from more stringent follow-up and prevent cardiotoxicity.

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Category: Clinical Vignette

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Souad Al-Bacha

Additional Authors:

Does Levalbuterol Reduce the Risk of Tachycardia when Compared to Albuterol in Patients with Obstructive Airways Disease?

Introduction: Activation of B2 receptors located in the bronchial smooth muscle results in bronchodilation, activation of cardiac B2 receptors results in positive chronotropic effects, questioning the safety of beta agonist use in patients with tachyarrhythmias. [1] Albuterol is a 50:50 racemic mixture of the R-isomer and S-isomer of albuterol while levalbuterol is the R-isomer, which has been reported to have a better side effect profile. This poses the question, is levalbuterol safer than albuterol in regards to its effect on heart rate and arrhythmias? [1]

Methods and Results: PubMed search yielded 9 clinical studies; 2 were critically appraised. (1) Khorfan et al. designed a randomized, prospective, crossover, single-blind study in 70 critically ill patients. No clinically significant difference was found in heart rate after administration of albuterol vs levalbuterol. (2) Saltpeter et al. performed a meta-analysis of randomized placebo-controlled trials to which included thirteen single-dose trials and 20 longer duration trials. Data showed an increase in heart rate of 9.12 beats/min with 95% CI, 0.18 to 0.54 compared to placebo and an increased risk for adverse cardiovascular events in the longer duration trials, RR 2.54; 95% CI, 1.59 to 4.05 compared to placebo; both results statistically significant with $p = 0.00001$.

Conclusion: The difference in heart rate may not be considered clinically significant enough to warrant the use of levalbuterol over albuterol in patients with tachyarrhythmia, considering the high cost of levalbuterol.

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Category: Clinical Vignette

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Muhammad Saad Bin Amjad

Additional Authors: QURATULANE LODHI

Splenic Laceration Post Colonoscopy with Underlying Follicular Lymphoma

Introduction: Colonoscopy is increasingly being used as a diagnostic and treatment modality for colorectal disease worldwide. The most common complications implicated with colonoscopy are perforation and bleeding. Splenic injury is a rare but potential complication, with reported incidence of 1-21 cases per 100,000 colonoscopies. There are only 103 cases being reported in the current literature as per a systematic review done in 2014. No case has yet been reported with an underlying follicular lymphoma being a possible cause of splenic laceration post colonoscopy.

Case Report: A 65 year old female status post a normal screening colonoscopy presented with acute onset of abdominal pain within few hours after being discharged. Computerized tomography of the abdomen confirmed high density fluid around the spleen extending to the paracolic gutter and pelvis. Additionally, multiple mesenteric masses were seen as an incidental finding. She underwent conservative management with fluid resuscitation and had an excellent clinical recovery. Later, an open laparotomy with biopsy revealed grade 2 follicular lymphoma. Chemotherapy was initiated after she underwent PET scan and bone marrow aspiration with biopsy for staging.

Conclusion: There are different established management options for splenic injury, which include splenic embolization and splenectomy. In theory, various hematological and non-hematological malignancies cause splenic infiltration with or without splenomegaly. The exact mechanism of an underlying malignancy increasing the chance of splenic rupture has yet to be identified. It is proposed however that splenic infiltration with malignant cells and capsular invasion with micro perforations may increase the risk of splenic injury.

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Category: Clinical Vignette

Institution: St. Mary Mercy Hospital - Livonia

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Extramedullary Pulmonary Hematopoiesis Presenting As Spontaneous Hemothorax in a Patient with Myelodysplastic Syndrome

Extramedullary hematopoiesis (EMH) is rare entity, associated with myeloproliferative disorders, myelodysplastic syndromes, hemolytic anemias, and storage disorders like Gauchers disease; though cases of EMH have been reported in absence of these conditions . Most common site of EMH are the liver, spleen and reticuloendothelial system. Pleuro- pulmonary involvement may lead to pleural effusion , pleural thickening, pulmonary nodules or masses. We report a case of EMH presenting as spontaneous hemothorax in a patient myelodysplastic syndrome(MDS).

A 66 years old gentleman with MDS presented with shortness of breath and bilateral lower extremity swelling. He had left side pleural effusion that was poorly controlled despite optimal medical therapy. Two liters of pleural effusion was drained by thoracentesis. The patient developed acute respiratory failure a few hours post thoracentesis and required intubation and mechanical ventilation. CT chest revealed bilateral lung opacities suggestive of acute lung injury or bronchopneumonia. The pleural fluid analysis revealed erythroblasts and megakaryocytes suggestive of extramedullary hematopoiesis. Patient chose against a pleural biopsy be performed to confirm the diagnosis of EMH. The patient and family decided to pursue hospice care and he passed away.

Pulmonary extramedullary hematopoiesis is rare but should be suspected with pleural effusion, interstitial lung opacities or pulmonary nodules in the setting of myeloproliferative disorders, even when the patient presents with hemothorax. Diagnosis can be made by pleural cytology. Pleural biopsy remains the gold standard. Chemotherapy and surgery have limited use. Radiation therapy has been reported to be useful, only in a few case reports.

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Category: Clinical Vignette

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Zaima Choudhry

Additional Authors: Naik,H; Homer,N

Unsuspected Malignancy Presenting As Febrile Lactic Acidosis

Unsuspected malignancy presenting as febrile Lactic acidosis

Introduction:

Diffuse large B-cell lymphoma usually presents with rapidly enlarging mass or nodal enlargement or B-Symptoms. Here we discuss an unusual presentation of DLBCL with febrile lactic acidosis.

Case:

82-year-old female, independent and functional on baseline, presented with acute onset of nausea, poor oral intake, generalized weakness, weight loss. Physical examination was unremarkable. SIRS 3/4, Initial labs were only significant for leukocytosis, normocytic anemia and lactic acidosis. Empiric antibiotics were started. Pan Cultures, Initial CT- ANGIO, endoscopy, colonoscopy were negative for any acute process. Lactic acidosis persisted despite all management. Later she started spiking intermittent fevers with persistent lactic acidosis and an acute drop in hemoglobin with no visible blood loss. ID, Hem-Onc, GI, Rheumatology, Critical-Care were on board. Physical examination, Blood cultures, Protein electrophoresis, hematological studies, rheumatological studies, CT chest abdomen pelvis, mammogram were normal. Lactic acidosis, anemia and fevers remained unexplained. There was a mutual consensus to go for Bone marrow biopsy, Bone marrow biopsy revealed an unexpected diffuse large B-cell lymphoma.

Discussion:

Diffuse large B-cell lymphoma usually presents with mass typically anywhere in the body, this case illustrates it can also present with Febrile lactic acidosis. In my literature search, only three cases were reported where B-cell lymphoma presented with lactic acidosis along with other symptoms, but none of those presented as isolated lactic acidosis. It is important for physicians to be aware of this condition so a rapid diagnosis can be made and therapy can be started immediately.

Poster: 163

Category: Clinical Vignette

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Hilda Crispin

Additional Authors: Preeti Misra, MD

An Unusual Case of Prostate Cancer Metastasis to the Liver that Mimicked Ileus

Prostate cancer is the most common cancer in men. While metastasis to bone and lung are common (90% and 46%, respectively), liver metastasis is rare.

We present a 78-year-old male with diarrhea of one day and generalized weakness. Past medical history included stage 4 prostate cancer diagnosed 10 years prior, treated with radical prostatectomy and radiation. Since diagnosis he had been on antiandrogen blockade with Lupron and Casodex. PSA level 3 months prior to presentation was 24, WBC count on admission was 10.5 k/uL, lactic acid of 2.4, and blood cultures and c.diff were negative. Initial symptoms resolved with supportive care but he then developed severe constipation with associated generalized abdominal tenderness and distention without guarding or rebound. Abdominal x-ray revealed non-obstructive bowel gas with mild stool in the colon. After an extensive bowel regimen, he began having small loose bowel movements, resulting in a minor improvement of his symptoms. CTA/P showed multiple masses in the liver, pericardial and abdominal lymphadenopathy, and a moderate right pleural effusion. PSA level was 210 at this time. IR-guided thoracentesis removed 2L of hemorrhagic fluid. Cytology was negative for malignancy. An IR-guided liver biopsy showed metastatic adenocarcinoma consistent with a prostatic primary.

This case highlights the need for vigilance of unusual metastatic sites in patients with primary prostate cancer. Clinical diagnosis can be difficult due to nonspecific gastrointestinal symptoms that could also be attributed to ileus as in our patient's case. Recognition of this unusual behavior is critical to prevent a delayed diagnosis.

Poster: 164

Category: CQI/EBM

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Soumaya Ezwawi

Additional Authors: Radhika Chaudhary, MD. Raveen Rai, MD. Preeti Misra, MD. James Kruer, MD.

Does Tenofovir Disoproxil Fumarate Reverse Liver Cirrhosis Caused by Chronic Hepatitis B Infection?

Introduction:

Chronic hepatitis B (CHB) infection is associated with great deal of morbidity and mortality. Despite availability of antiviral medications, it remains unclear whether treatment can reverse cirrhosis. In this review, we evaluated the impact of long-term treatment with Tenofovir (TDF) on regression of liver cirrhosis caused by CHB.

Methods:

We reviewed literature cited in Medline, PubMed, Google Scholar, and Cochrane Library on "CHB", "Tenofovir", "liver cirrhosis", "fibrosis", and "regression". Studies were included if (1) published in English; (2) focused on adult CHB patients treated with TDF; (3) published between 2011 through 2016. We identified 31 studies for potential inclusion in this study. After careful review, only one phase III clinical trial was deemed relevant and selected.

Results:

In their clinical trial, Marcellin et al. evaluated efficacy of 5-year use of TDF on liver cirrhosis and fibrosis in 348 patients with CHB infection utilizing liver biopsies at baseline and week 240. Out of 96 patients with cirrhosis at baseline; 71 had no cirrhosis at year 5 whereas 3 out of 252 patient without cirrhosis at baseline progressed to cirrhosis at year 5 ($p < 0.0001$). Overall, 304 (87%) of study population had histological improvement and 176 (51%) had regression of fibrosis at week 240 ($p < 0.0001$).

Conclusion:

Liver Cirrhosis is defined as irreversible process but there is now growing evidence of reversibility if cause of liver injury is eliminated. Although this clinical trial showed promising results, further research is required to provide more solid evidence of TDF effectiveness in reversing liver cirrhosis.

Poster: 165

Category: CQI/EBM

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Harris Imam

Additional Authors: Ariful Alam, MD, Soumaya Ezwawi, MD, Jovil Kannampuzha, MD, Julie Zoroya, PhD, ANP-BC, CAPA, Misra Preeti, MD, Kimberly Lilley,

Transforming the Structure and Process of Peripherally Inserted Central Catheter (PICC) Line Utilization and Ordering Practices

Introduction:

Variability in peripherally-inserted central catheter(PICC) line appropriateness can decrease quality and safety. Our aim in this project was to assess PICC line utilization and ordering practices at St. Mary Mercy to meet the appropriate utilization goal per HMS guidelines.

Methods:

A total of 228 patients were studied in this initiative. Inclusion criteria consists of patients at St. Mary Mercy aged 18 years who were hospitalized between 8/1/16-12/31/16 with an active order for PICC line placement. Of the 228 patients, 126 underwent proactive chart review where ordering physicians were contacted for PICC line insertion orders that were for inappropriate reasons per HMS guidelines.

Results:

There was a decrease in inappropriate PICC EMR orders from 61% to 38%($p<0.0007$). Proactive chart review follow-up with ordering practitioner occurred in 41% of cases. Of orders requiring practitioner follow-up, there was 21% order modification. We observed a decrease in patients with a PICC line indwelling duration of 5 days or less from 19% to 17%($p<0.0370$). Furthermore, there was a decrease in patients with PICC lines with GFRs<45 from 27% to 24%($p<0.53$).

Conclusions:

Proactive chart review with follow-up with ordering practitioner significantly improved PICC line ordering practices. Specifically, there was a significant decrease in unacceptable ordering reasons for PICC line as well as in number of patients who had a PICC line indwelling duration of 5 days or less. It is therefore important to educate ordering practitioners about appropriate HMS guidelines for PICC line use and to seek alternative options for patients with poor venous access.

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Category: CQI/EBM

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Milan Patel

Additional Authors: P Misra MD; J Krueer MD

Critically Appraised Topic: Carotid Artery Endarterectomy vs. Carotid Artery Stenting

Introduction: Approximately 700,000 strokes occur in the USA each year, about 80 percent of them are caused by carotid artery stenosis. When dealing with carotid stenosis, which treatment is superior: carotid artery stenting (CAS) or carotid endarterectomy (CEA)?

Methods: In this largest and most comprehensive meta-analysis to date, there were 263 RCTs through electronic and hand searches, of which a total of 13 were chosen for this analysis, which enrolled 7477 participants. The meta-analysis evaluated periprocedural (within 30 days), intermediate to long term benefits and harms for both procedures. [1]

Results: CAS was associated with increased risk of periprocedural outcomes of death, MI, or stroke (OR = 1.31; 95% CI 1.08-1.59), 65% and 67% increases in death or stroke and any stroke, respectively, but with 55% and 85% reduction in risk of MI and cranial nerve injury, respectively, when compared with CEA.

Conclusion: Guidelines followed by most neurologists and interventional cardiologists in terms of most recent AHA guidelines, CEA is the first and best option considering perioperative window findings and intermediate to long-term findings. However CEA is not the first choice of option in patients with perioperative myocardial infarction risk, which can be determined by using cardiac risk stratification for noncardiac surgery. In that case, CAS is the superior treatment.

Poster: 167

Category: CQI/EBM

Institution: St. Mary Mercy Hospital - Livonia

Program Director: David Steinberger, MD, FACP

Presenter: Pratyusha Yadavalli

Additional Authors: Sangeetha Nanthabalan M.D.

In Patients with Atrial Fibrillation, is ABC Risk Score a Superior Tool Compared to CHA₂DS₂-VASc Score for Predicting Stroke?

Background: In patients with atrial fibrillation, the decision to start anticoagulation is primarily based on stroke risk at one and three years. American College of Cardiology recommends CHA₂DS₂-VASc score for risk assessment of thrombotic events in this cohort. Recent evidence demonstrates adding cardiac biomarkers substantially improves risk stratification. This review looks at a newly developed risk score that only uses age, biomarkers (NT-proBNP and cardiac troponin high-sensitivity) and clinical history (ABC) for predicting stroke in Atrial Fibrillation.

Methods and Results: A PubMed search was performed for meta-analysis, review articles and clinical trials with criteria of "atrial fibrillation," "ABC," and "stroke" over the last 5 years. This yielded one clinical trial which correctly answered the PICO question. A retrospective cohort of two large double blinded randomized clinical trials to create a novel risk score and compare it to CHA₂DS₂-VASc score. In 14,701 patients with a median follow up for 1.9 years the c-indices were higher in ABC Score as compared to CHA₂DS₂-VASc Score 0.68 vs 0.62 (p<0.001). In 1,400 patients with a median follow up of 3.4 years the c-indices were found to be 0.66 vs 0.58 (p<0.001).

Conclusion: By taking NT-proBNP and troponin I into account during risk stratification, the ABC risk score better reflects the patient's current clinical status. This allows clinicians to make stronger clinical decision when starting anticoagulation.

Poster: 168

Category: Clinical Vignette

Institution: University of Michigan - Ann Arbor

Program Director: John DeValle, MD, FACP

Presenter: Max Wayne

Additional Authors: Garth Strohbehn, M.D., M.Phil.

Lung Adenocarcinoma Presenting As Pulmonary Tumor Emboli Syndrome

Introduction: Pulmonary tumor emboli syndrome is a rare cause of progressive dyspnea that results from occlusion of small vessels in the pulmonary vasculature by tumor cells.

Case Description: A 57-year-old man presents to his primary care physician with several weeks of progressive dyspnea. Extensive work-up, including pulmonary function tests, echocardiogram, and rheumatologic lab testing, does not reveal a cause. A CT chest with angiography (CTA) shows bilateral hilar adenopathy and ground glass opacities. He is started on supplemental oxygen. Following lymph node biopsy and PET-CT, he is diagnosed with clinical stage IIIB lung adenocarcinoma. He has mild improvement with the addition of an oral corticosteroid. Chemotherapy with carboplatin and pemetrexed is started.

Three days later, he presents to the emergency department with worsening symptoms. CTA chest shows no evidence of pulmonary embolism and EKG reveals right ventricular hypertrophy. Bedside echocardiography shows new right ventricular dysfunction with severe pulmonary hypertension and no shunt on bubble study. Labs reveal worsening thrombocytopenia and schistocytes are seen on a peripheral blood smear consistent with micro-angiopathic hemolytic anemia. He is clinically diagnosed with pulmonary tumor emboli syndrome. He subsequently has PEA arrest with unsuccessful resuscitation.

Discussion: Pulmonary tumor emboli syndrome is a rare cause of pulmonary hypertension resulting in progressive dyspnea. Because it involves small vessels, it cannot be diagnosed by imaging. It is important to consider in the differential diagnosis for subacute dyspnea in patients with malignancy and the only treatment is treating the underlying malignancy. It portends a nearly universally lethal prognosis.

Poster: 169

Category: Clinical Vignette

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: Muhammad Ali

Additional Authors: Erika Olson, D.O, Stephen A. Lerner, M.D., Omar Al Hourani, M.D., Kushal Shah, M.D.

Diabetic Foot Ulcer: An Unlikely Source of Spinal Epidural Abscess

Introduction: Spinal Epidural abscess (SEA) can result from hematogenous dissemination of bacteria from distant skin and soft tissue infections. Herein, a case of SEA with Cauda Equina Syndrome (CES) originating from a very rarely reported source of infection i.e. Diabetic foot.

Case: A 33 year old non-compliant diabetic female presented with fever, urinary incontinence, paresthesia in the saddle region and increasing back pain for one week. The pain was sharp, radiated down her right posterior thigh and improved on leaning forward. PMH was significant for presence of diabetic foot ulcer, bone biopsy positive for MSSA, for the past 9 months. On examination, foot ulcer expressed purulent discharge on compression. On admission, patient was vitally stable. Blood work showed Leukocytosis of 18,000 and CRP of 355. MRI of spine was significant for right sided septic arthritis at L3-4, with epidural extension and abscess from T12 to S1. Broad spectrum antibiotics were started and epidural evacuation was performed. Blood, wound, and epidural abscess cultures isolated MSSA. Antibiotics were de-escalated to Nafcillin and patient showed resolution of CES and clinical improvement.

Discussion: Diabetes Mellitus is considered a risk factor for SEA, however there is very little data considering diabetic foot as a distant hematogenous source. As the diagnosis of SEA is infrequently made, most patients present to healthcare providers multiple times before being diagnosed. Our abstract highlights a case of interest to primary care providers, where the source of SEA was the result of a poorly treated diabetic foot ulcer.

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Category: Clinical Vignette

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: Hashim Alwash

Additional Authors: Israa Ali, MD, Mhd hussam al jandali, MD, Marwah Hussein, MD, Zain Kulairi, MD

A Rare Case of Cardiac Tamponade As a First Presentation of Metastatic Adenocarcinoma

Introduction: Pericardial effusions associated with metastases to the heart or pericardium are frequent in malignancy but cardiac tamponade as first presentation appears uncommon.

We are presenting a case of tamponade as initial presentation of adenocarcinoma.

Case: 52 years old presented with 4 months SOB, fatigue and painless lymphadenopathy. Chest Xray and CT showed large pericardial effusion. ECHO revealed tamponade with RV collapse so pericardial window was done. Cytology and culture revealed neoplastic cell. Tissue pathology revealed adenocarcinoma. Work up revealed metastatic adenocarcinoma of GI vs pancreatobiliary source. Patient was supposed to start her radiation and chemotherapy but unfortunately she started to have complications and decided to go with hospice care.

Discussion: Malignant pericardial effusion is a common complication of malignancy, it is rarely the initial manifestation and it is often large and rapidly accumulating thus carries a significant risk of tamponade.

There is 26 reported cases of malignancy presenting as cardiac tamponade. Presentation included dyspnea, retrosternal pain or cough with signs of right and left-sided heart failure on chest x-ray and the primary usually from the lung, less likely pancreas, stomach, ovary, and kidney.

Possible pathogenesis are pericardial seeding by malignant cells into lymphatic circulation of the heart and pericardium as pericardial fluid drains primarily by way of the subepicardial plexus.

Conclusion: Cardiac tamponade may develop rapidly with potentially lethal consequences unless diagnosis and proper therapy are instituted immediately so early echocardiography should be obtained in all patients presenting with apparent cardiac failure, since early treatment provides symptomatic relief.

Poster: 171

Category: CQI/EBM

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: Arham Barakzai

Additional Authors: Lucinda Wenzlick MD, Nisha Deol MD, Quratulanne Jan MD, Syem Barakzai BS, Sarwan Kumar MD

Reducing Unnecessary Testing: Ultrasound in Acute Kidney Injury

Introduction: Acute Kidney Injury (AKI) is one of the most common diagnoses resulting in admission to the hospital. Ultrasound (US) abdomen is a commonly used tool to exclude obstructive uropathy in patients with AKI. An ultrasound abdomen can cost \$200 to \$1000. Studies have shown obstructive uropathy is only found in 2.3% of patients with AKI. Therefore US should not be done routinely in all patients with AKI, unless there is evidence on history/physical of renal tract obstruction.

Methods: We examined medical records from patients admitted to Crittenton Hospital with AKI between September 2014 and August 2015. We only included patients who were admitted with diagnosis of AKI (ICD-9 code 584.9). We reviewed the percentage of patients who had US. We then implemented resident physician education in order to attempt to decrease this percentage. We repeated analysis following physician education.

Results: Our initial analysis of 100 patients admitted to ER with AKI, showed 22% had an US. Following resident physician education repeat analysis showed 18% of patients admitted via the ER had US for AKI. Resident physician ordering of unnecessary tests decreased to zero following intervention.

Discussion: This decrease in resident physician ordering will lead to annual savings of \$26,000 if this behavior is maintained (based on 1300 yearly admissions with AKI). We are currently in the process of implementing an EMR prompt for US which will act as an intervention that will affect both resident physicians and non-resident physicians. Successful implementation could increase annual savings to \$52, 000.

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Category: Clinical Vignette

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: Sana Chams

Additional Authors: Usha Abbineni, M.D., Shahiwaz Labana, M.D., Jordan Stav, Justine Nasr, M.D.

A Rare Presentation of Angioimmunoblastic T Cell Lymphoma

Angioimmunoblastic T cell lymphoma (AITL) is a rare malignancy first described in the 1970s and subsequently accepted as a distinct entity in the current World Health Organization classification. AITL accounts for 2% of all non-Hodgkin lymphoma. There is still no identified etiology with unclear pathogenesis and risk factors. An 83-year-old man presented with palpitations and found to have atrial fibrillation. During hospitalization, he was found to have asymptomatic hypercalcemia of 11.7. Blood samples were sent for evaluation and patient was sent to inpatient rehab. Ten days later, the patient started complaining of progressive fatigue with noted altered mental status. The patient was found to have calcium level of 15.5 and was admitted to the intensive care unit. He was found at that time to have PTH <1, 25 Vit.D: 74, 1,25 OH Vit D: 85.4, ACE 7, and negative multiple myeloma workup. Computer tomography chest and abdomen with contrast showed extensive retroperitoneal, pelvic and mesenteric lymphadenopathy and findings suggestive of peritoneal carcinomatosis. The patient underwent axillary lymph node biopsy revealing diagnosis of angioimmunoblastic T-cell lymphoma, CD 10+, no abnormal B- cells. PCR showed TCR- beta and TCR- gamma clonal rearrangements. This case illustrates a rare presentation of a rare disease: hypercalcemia, in a patient found to have AITL. Diagnosing AITL might be the most challenging due to the wide array of clinical presentations with hypercalcemia accounting for only 1%. Most cases at presentation are advanced with poor prognosis. AITL often runs an aggressive course; 5 year survival rate of 30-35%.

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Category: CQI/EBM

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: Fabry Danielle

Additional Authors: Vesna Tegeltija, Amanda Chivu, Adam Hull, Kumar Sarwan, Khalid Zakaria

Improving Resident Error Reporting

This project's aim is to improve number of hospital error reports generated by resident. Errors represent opportunities to recognize weaknesses and design improvements before serious harm occurs. Lack of error reporting by residents at CHMC was recognized by ACGME during a visit by the CLER committee. The Plan Do Study Act (PDSA) cycle was used to guide and format this project. As part of brainstorming and root cause analysis, a Google survey was conducted to investigate the reasons that prohibit residents from reporting errors. Over 30 percent of residents replied that they are not sure what constitutes a medical error as the reason limiting their reporting. Another 21 percent of the residents reported that they are unaware of the process that occurs after errors are reported as a reason limiting their reporting. A Pareto chart was used to analyze the results of the survey. Based on the survey results, a decision was made to provide education to IM residents, by the QI department, which addressed the main insecurities and misconceptions regarding error reporting. Furthermore, a mock session was also provided to familiarize and guide residents through the process of reporting errors in the computer system. Following education, a Run chart was used to analyze the data collected. Three months following the education intervention, resident error reporting improved five fold, from 1 report per year to five reports in three months. By encouraging medical error reporting, we hope to change the culture and improve quality and safety of the patients.

Poster: 174

Category: Research

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: Faris Hannoodi

Additional Authors:

Adverse Effects of Steroid Therapy on Cardiac Events

Background

Corticosteroids have a profound effect on cardiovascular disease through several mechanisms, including hypertension, coronary artery disease, hypercoagulopathy and heart failure.

Purpose

This study examines whether or not patients receiving steroid therapy for the treatment of other diseases have an increased number of cardiac events. The adverse effects are defined as acute coronary syndrome, arrhythmia and congestive heart failure.

Methods

A retrospective medical chart review of 119 patients was performed of patients with coronary artery disease. Inclusion criteria were patients between the ages of 20 and 90, patients taking steroid therapy with a duration ranging from one week and six months.

Results

For the steroid group, 37% of patients had cardiac events compared to 21% in the control group, making a difference of 16%. The calculated odds ratio is 2.19. The number needed to harm was calculated to be 6.28, the p-value is 0.15.

Discussion

Several points are noted from the study. Firstly, the majority of the patients were male, therefore this is mostly applied to this gender group. Secondly, the mean, median and mode of the patient ages in the data collected ranged between 75 and 79 years old. The effect maybe different on younger patient groups. Thirdly, the majority of patients in both the control and steroid group did not have any hepatic disease. Steroids are largely metabolized by the liver and as a result those with liver disease may exhibit a higher number of adverse effects.

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Category: Clinical Vignette

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: Hibah Ismail

Additional Authors: Amjad Kanj, Nadine Abdallah, Mohamad El Zein

Diagnosing Celiac Disease from Asteatotic Eczema

Introduction:

Celiac disease is well known for its intestinal and extra-intestinal manifestations including diarrhea, neuropathies, and osteopenia. We present a case of undiagnosed celiac disease presenting with bilateral lower extremity eczematous rash.

Case presentation:

69 year-old-male, with past medical history of chronic demyelinating polyneuropathy, presented with bilateral lower extremity rash. Further review of systems revealed chronic diarrhea and bilateral upper and lower extremity polyneuropathy. Vital signs were significant for tachycardia. Physical exam showed cachectic appearing male with hyperactive bowel sounds and eczematous scaly rash with dry riverbed appearance on legs and dorsal feet. Rash was diagnosed as asteatotic eczema. Further workup was significant for hypoalbuminemia, elevated INR, as well as copper, vitamin D, and zinc deficiencies. Serology was positive for anti-transglutaminase antibody and esophagogastroduodenoscopy with pathology was diagnostic for celiac disease. The patient was treated with gluten free diet and zinc sulfate 220 mg twice daily.

Discussion:

In review of the literature, atypical presentations of celiac disease are not uncommon. Our patient presented with cutaneous manifestations secondary to zinc deficiency and was treated with zinc replacement. In a randomized control trial, improvement in plasma zinc level was noted after patients with celiac disease adopted celiac free diet, irrespective of zinc replacement¹. Further data is needed to indicate whether zinc replacement would be beneficial in patients with enteropathies.

References:

1. Rawal P., Thapa B.R., Prasad R., Prasad K.K., Nain C.K., Singh K. Zinc supplementation to patients with celiac disease – is it required? J Trop Pediatr. 2010;56(6):391–397.

Poster: 176

Category: Clinical Vignette

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: Tapasya Mandalapu

Additional Authors: Rajesh Ramineni MD, Sarwan Kumar MD

A Rare Case of Hyperosmolar Hyperglycemic State Presenting As Focal Seizure: Clinical Vignette

Introduction: Hyperosmolar hyperglycemic state is a life threatening presentation in a patient with new onset Diabetes Mellitus 2. Prompt identification is of great importance to initiate appropriate treatment.

Case Description: A 64 y/o morbidly obese Caucasian male presented with a chief complaint of intermittent jerky movements in the right arm for a day. He has also been experiencing polydipsia and polyuria for past 3 days

Physical examination showing intermittent uncontrolled jerky movement in the right arm lasting for 2-3 minutes. During the event, patient was awake and alert with no loss of consciousness and able to have a conversation. Initial laboratory workup revealed blood glucose of 889. Serum osmolality 302 with no ketones and anion gap of 18.6. Serum lactate was 4.1 and HbA1C was 14.8. Serum sodium level low at 121 with corrected sodium of 134. Chest x-ray, urine and blood cultures were unremarkable for any signs of infection. EKG and cardiac enzymes remained normal. Patient's symptoms resolved within few hours upon correction of the serum glucose level with normal saline boluses.

Discussion:

This is a unique presentation where a patient experienced focal seizure as his initial symptom of HHS with newly diagnosed Type 2 Diabetes mellitus. It resolved with including adequate fluid resuscitation and insulin drip. Delayed treatment could have resulted in mental obtundation progressing to coma noticed in a small portion of patients. Early recognition will also avoid unnecessary work up, since this is a provoked seizure with underlying hyperglycemia secondary to HHS being the culprit.

Poster: 177

Category: Clinical Vignette

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: Kushal Shah

Additional Authors: Muhammad Ali, MD, Sarwan Kumar, MD, Omar Al-Hourani, MD.

Multi-Drug Resistant Acinetobacter Baumannii and Multiple Sclerosis: When Conventional Treatment Fails

Introduction: Intravenous colistin has been used for treatment of MDR Acinetobacter baumannii, however the combined use of IV and Aerosolized Colistin has yet to be approved. Herein, a case of A. baumannii pneumonia treated with the above mentioned combined therapy.

Case: A 63-year-old quadriplegic female with advance multiple sclerosis (MS) presented with severe sepsis secondary to HCAP. On presentation, she was unresponsive, with oxygen saturation of 83% and decreased bilateral breath sounds. Blood work showed leukocytosis 38,100. Radiology studies revealed right lower lobe infiltrates and bronchial mucus plugs. The patient was intubated, started on broad spectrum antibiotics and a bronchoscopy was done. A. baumannii, sensitive to cefepime (MIC 8), was identified in the endotracheal aspirate. Antibiotics were de-escalated to cefepime. With subsequent clinical improvement, the patient was extubated. Two days later the patient developed fever 103F, leukocytosis 29,000, worsening right lower lobe infiltrates and required reintubation secondary to respiratory failure. Sputum culture showed MDR A. baumannii with MIC >16 for cefepime hence intravenous colistin was initiated. Subsequently, patient developed new left lower lobe infiltrates, with clinical worsening hence aerosolized colistimethate was added. Patient subsequently improved, was extubated and discharged on IV colistin.

Discussion: Anti-acinetobacter antibodies have been found in high quantities in patients with MS. Acinetobacter's role in MS has been hypothesized by using nine popper sequences theory.

Taking advantage of IV colistin and aerosolized colistimethate's synergism seems to an effective approach in the treatment of MDR A. baumannii especially in MS but studies still need to confirm it.

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Category: Clinical Vignette

Institution: Wayne State University - Crittenton Hospital - Rochester

Program Director: Khalid Zakaria, MD, FACP

Presenter: JJ Villaflor

Additional Authors: Dr. Zain Kulairi, MD, Faris Hannoodi, MD

Tumor Lysis Syndrome in Chronic Myelogenous Leukemia

Introduction:

Tumor lysis syndrome (TLS) is the clinical sequelae of hyperuricemia, hyperkalemia, hyperphosphatemia, and hypocalcemia from the massive and abrupt release of cellular contents into the bloodstream. Cairo & Bishop have defined the diagnostic criteria for laboratory TLS. Clinical TLS is laboratory TLS with clinical manifestations such as acute kidney injury, cardiac arrhythmia, or seizure. It is most commonly associated with Non-Hodgkin lymphoma and acute leukemia either shortly before diagnosis or shortly after initiation of chemotherapy.

Case:

A 74-yo male was diagnosed with chronic myelogenous leukemia (CML) in July 2010 and maintained on a tyrosine-kinase inhibitor (TKI), most recently nilotinib since 2014. He had a history of gout on allopurinol. He presented with acute renal failure in the setting of hyperuricemia, hyperkalemia, hyperphosphatemia, and hypocalcemia shortly after receiving the nilotinib therapy thereby fulfilling the diagnosis of laboratory TLS. After failing to respond to intravenous fluids, he was given one dose of rasburicase which led to immediate improvement of his symptoms. Further workup failed to reveal any transformation to acute leukemia.

Discussion:

Many reports studied the association between TLS and hematologic malignancies that was treated with different agents. It was found that the incidence of TLS in patients who are receiving TKI for CML is less than 5%. With the emergence of new effective and targeted anticancer drugs or new combinations of drugs, TLS has also been observed in patients with cancers that were previously rarely associated with this complication likely due to much rapid lysis of tumor cells.

Poster: 179

Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Nadine Abdallah

Additional Authors: Amjad Kanj, Hibah Ismail

Safe-Triaxone, Not So Safe After All!

Acute interstitial nephritis (AIN) is an immune-mediated renal tubulointerstitial injury. Most cases are drug induced. In 30 to 70% of patients, baseline renal function is not fully recovered. There are few reports of Ceftriaxone induced AIN. Ceftriaxone is also rarely associated with encephalopathy, myoclonus, and even seizures. Patients with renal insufficiency are particularly vulnerable.

A 77 year old woman was brought to the hospital with 3 days of confusion. Two weeks earlier, she was hospitalized for Hemophilus influenzae vertebral osteomyelitis and discharged on IV Ceftriaxone. On presentation, vitals were stable. She was not oriented to place, person or time. She had upper extremity myoclonus. Her labs showed an increase in Creatinine from 1.1 (10 days earlier) to 4.2. FeNa was 2%. She had WBC casts and eosinophils in the urine, and a urinary protein excretion of 1.7g/24 hours. Biopsy was not performed given the patient's age and recent infection. There was however high suspicion for Ceftriaxone induced AIN. Ceftriaxone was switched to Moxifloxacin on day 4, and the patient received 20 mg of IV dexamethasone for 2 days. Creatinine reached a peak of 6.77 on day 5, then decreased. Myoclonus resolved, and her mental status went back to baseline. She was discharged home on day 10 with creatinine of 3, that reached baseline (Cr:1.1) after 2 weeks.

This case demonstrates the importance of high clinical suspicion, when definitive pathologic diagnosis is not feasible or contraindicated. Use of steroids, along with drug discontinuation can hasten recovery of drug-induced interstitial nephritis.

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Abdelrahman Ahmed

Additional Authors: Mohamed Shokr MD., Randy Lieberman MD.

Subacute Right Ventricular Perforation by Pacemaker Lead Causing Left Sided Hemothorax and Epicardial Hematoma; A Rare Occurrence

Perforation of the heart muscle is a rare complication after device implantation yet with life-threatening consequences.

A 78-year-old woman with history of dementia, presented with subacute substernal chest pain. Eighteen days earlier, she had a pacemaker implanted for symptomatic bradycardia. She was afebrile with a blood pressure of 135/107 mmHg, heart rate of 76 bpm, respiratory rate of 20 breaths/minute and oxygen saturation of 95%. She had no murmurs, gallops, jugular venous distention nor lower limb edema. Chest X-ray showed mild left pleural effusion and a right ventricular lead overlying the left heart margin raising the possibility of perforation. EKG was normal. Device interrogation revealed no change in capture or sensing thresholds or impedance. Transthoracic echocardiogram showed the lead inside the right ventricle however, CT scan showed the tip of the lead penetrating the anterior wall of the right ventricle and terminating in the anterior chest wall with a hematoma surrounding the tip of the lead without pericardial effusion. The displaced lead was extracted and a new right ventricular lead was implanted. A chest tube drained 300 ml of bloody fluid. She was discharged home and was doing well on follow-up.

The incidence of asymptomatic right ventricular perforation in such cases is around 3%. CT chest is the gold-standard for diagnosis. Explantation of the lead with re-implantation under echo monitoring is the ideal treatment as opposed to surgery for unstable cases.

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Anandita Arora

Additional Authors: Mohamed Mohamed, Andrew D Thompson

Addressing the DRESS Syndrome from Hydroxychloroquine

Drug reaction with eosinophilia and systemic symptoms (DRESS) syndrome is a potentially life threatening drug reaction. Sulfa drugs, anticonvulsants, allopurinol and antibiotics are common causes. We present a case report of DRESS due to hydroxychloroquine, suggesting cautious use and timely treatment of critical implications.

59 year old woman with Sjogren's syndrome was admitted to the Burns ward for a rapidly progressing skin rash. She was recently started on Hydroxychloroquine and despite its discontinuation, the rash developed into tender pustules and vesicles. Her clinical course evolved into a severe systemic inflammatory response with neutrophilic leukemoid reaction and eosinophilia. Viral etiologies were ruled out and Skin biopsy confirmed spongiotic dermatitis with eosinophils consistent with DRESS syndrome. Hydroxychloroquine was discontinued and the patient responded well to prednisone with gradual desquamation of the rash.

DRESS syndrome is a severe adverse reaction to drugs. Exposure to culprit drug for weeks to months, skin rash, fever and multi system involvement is the hallmark. The rash usually progresses from maculopapular to painful pustules and vesicles and may be associated with atypical lymphocytosis and eosinophilia. Several viruses like HHV-6 and EBV implicated in mechanism of DRESS syndrome, act via viral reactivation or the resultant strong immune response. Therapy depends on severity and usually includes long-term glucocorticoids. Hydroxychloroquine is commonly used and such a skin reaction to it may be misdiagnosed as a lupus flare or other cutaneous hydroxychloroquine induced reactions. It is therefore imperative to be aware of this potentially severe condition associated with Hydroxychloroquine.

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Lubna Fatiwala

Additional Authors: Shruti Agrawal, BA; Dania Abushanab, MD; Diane Levine, MD, FACP

Paraneoplastic Hyperammonemia in Newly-Diagnosed Hemangiopericytoma

CASE DESCRIPTION: A 55 year old man presented with acute onset of altered mental status. He complained of a 1 month history of constipation associated with a 50 pound weight loss. Past history was significant for GERD on PPI with no family history of malignancy. He denied alcohol or drug use. He was emaciated, had non-tender superficial cervical lymphadenopathy, and had a distended abdomen with large palpable masses. He was anicteric with no spider veins. Ammonia level was elevated to 151 micromole/L on admission. He was hypoalbuminemic without evidence of hepatic dysfunction. CT demonstrated many large necrotic masses scattered throughout the lower thorax, abdomen, and pelvis with significant retroperitoneal lymphadenopathy. Biopsy of an intraabdominal mass demonstrated hemangiopericytoma. He was started on lactulose with improvement in his mental status back to baseline.

DISCUSSION:

Hemangiopericytoma is a form of sarcoma and has been associated with hypoglycemia and osteomalacia. To our knowledge, there are no reports of hemangiopericytoma causing hyperammonemia.

This patient experienced delirium secondary to elevated ammonia levels, which is generally associated with hepatic encephalopathy. However, this patient did not have liver cirrhosis. Other causes of elevated ammonia including medications, such as valproic acid, and infections, including UTI, were not applicable in this case. Imaging did not show metastasis to the brain.

Paraneoplastic hyperammonemia has been described with other malignancies like multiple myeloma and fibrolamellar hepatocellular carcinoma, but not with hemangiopericytoma. It should be a consideration in patients with newly-diagnosed hemangiopericytoma presenting with delirium.

Poster: 183

Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Gita Gupta

Additional Authors: Jacqueline Leja MD, Jarrett Weinberger MD, Renato Roxas MD

Altered Mental Status After a Trip to New York City

Legionnaire's Disease is commonly associated with pneumonia and gastrointestinal manifestations, but is less commonly associated with extra-pulmonary symptoms, especially in immunocompetent individuals. While headache and stupor are known symptoms, focal neurologic findings are rare.

Our patient is a 45 year old previously healthy male who presented to the hospital after returning from a two week trip to New York City, with dysarthria, confusion, and unsteady gait. Later, his mother provided a history of subjective fever. He was initially diagnosed with a subacute stroke. His CT head was negative, and while he was en route to the MRI machine, he developed hypoxia. He began to have chills, fever and dyspnea, but did not have any gastrointestinal symptoms. A chest radiograph was suggestive of pneumonia, and he was treated empirically for Community Acquired Pneumonia. He began to have labored breathing, and was transferred to the ICU for treatment of severe sepsis in the setting of altered mental status. In the meantime, his urine Legionella antibody returned a positive result, Moxifloxacin was added to his antibiotic regimen. After treatment of Legionella, he was slowly weaned off supplementary oxygen, and exhibited a return to his baseline mental status, speech, and gait.

Legionella pneumophila can cause focal neurologic findings, easily mistaken for cerebrovascular accident or other neurologic conditions. Respiratory symptoms can manifest later in the course of Legionnaire's Disease. Given recent outbreaks, especially in New York (2015) and Flint (2016), awareness of the uncommon symptoms of Legionnaire's Disease can be critical.

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Sahrish Ilyas

Additional Authors: Said Ashraf M.D, Ijeoma Nnodim M.D

Acute Upper Extremity Deep Vein Thrombosis: A Rare Late Complication of an AICD Device

51 year old African American male with past medical history of non ischemic cardiomyopathy with a single chamber AICD placed three years ago, presented to the primary care clinic with two day history of left upper extremity (LUE) swelling and pain. He works at a grocery store where he frequently lifts heavy boxes. On exam, LUE was swollen (image), with area of demarcation from below the deltoid muscle to the fingertips, with taut skin. He had discomfort with tingling in fingers on arm elevation. ICD implantation site did not show signs of inflammation. He was sent to ER with concern for deep venous thrombosis (DVT) and Thoracic Outlet Syndrome (TOS). He underwent duplex ultrasound of LUE which showed acute DVT in left axillary vein. He was treated with heparin drip with improvement in swelling on day two. He was switched to enoxaparin as bridge to warfarin.

Proximal UEDVT are rare and most commonly affect axillary and subclavian veins. The most common primary form of UEDVT is effort related, called Paget-Scroetter syndrome (PSS) [1]. This commonly occurs in the RUE [2]. Secondary forms can include venous lesions after pacemaker lead insertion, but 5.5-64% occur by 6 months of device placement [3]. These lesions are mostly subclinical and rarely symptomatic [4]. The occurrence of acute DVT in the LUE as seen in our patient is likely secondary to AICD device, however, possibility of PSS from occupational factor may also be present. To our knowledge, one similar case has been reported previously [5].

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Wadhah Ismael

Additional Authors: Ziad Sayedahmad, MD, Jambunathan Ramanathan, MD.

Pasteurella Multocida Pleural Effusion

Our case is a 78 year old patient with medical history significant for CAD s/p CABG five years ago with related chronic left pleural effusion, HTN, CKDIII who presented with worsening dyspnea for the past two to three weeks. Dyspnea is present at rest and worsens with exertion. Associated symptoms include: worsening dry cough and left sided pleural chest pain. Pt admits subjective fevers and generalized fatigue but denies any sick contacts or recent travel. On physical exam Pt. had decreased breath sounds, dullness to percussion at left base. Lab investigations showed mild leukocytosis with WBC of 11.0 with neutrophilic predominance of 85%. CXR showed stable size left pleural effusion with surrounding infiltrates that were unchanged from prior imaging. CT chest confirmed the presence of pleural effusion with suspicion of empyema. Thoracentesis was done given worsening symptoms and pleuritic chest pain, fluid analysis was consistent with exudative effusion, PH 7.5, Glucose of <2 with a gram stain showing gram negative rods. Final pleural fluid culture grew *Pasteurella Multocida* Going back in patient history; he has two cats with frequent exposure, so patient had possible transient bacteremia with *Pasteurella M.* that seeded the underlying chronic pleural effusion. Patient was started initially in IV piperacillin/tazobactam. This then was switched to PO Augmentin once cultures results confirmed *Pasteurella M.* Patient endorsed marked improvement on follow up visit.

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

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Additional Authors: Ijeoma Nnodim, MD

Ambulatory Care: Diagnosis of Gastrointestinal Tumor in an African American Woman

A 71-year-old African American woman presented to the clinic with a 3-week history of nausea, intermittent vomiting, epigastric abdominal pain, and fatigue. Her medical history included coronary artery disease status post PTCA (most recently with bare-metal stent placement 2 months prior to presentation in clinic), hypertension, previous CVA, GERD, COPD, and OSA. She was evaluated in the hospital one week prior for the same symptoms. Labs including CBC, LFTs, amylase, lipase, basic metabolic panel had been unremarkable. An EGD revealed a 1.5cm nodule in the gastric fundus. Due to the patient being on dual antiplatelet therapy (DAPT), a biopsy was deferred. Patient was discharged on a proton-pump-inhibitor with the diagnosis of exacerbation of GERD. Upon outpatient follow-up one week after discharge, patient's vomiting had resolved, but she had continued fatigue and intermittent nausea. She also reported an episode of melena. There was also a documented weight loss of 4.5kg. Due to increased concern for malignancy, her Cardiologist was contacted to discuss the risk versus benefits for the biopsy. An agreement was made to hold DAPT and schedule EUS with biopsy. Biopsy revealed gastrointestinal stromal tumor (GIST). Patient was seen by Oncology with treatment plan for partial gastrectomy.

Malignant GIST are rare, but more common in African Americans, men, and the older population. It is also the most common mesenchymal tumor in the gastrointestinal tract. Hence, there should be a high degree of suspicion for GIST in high-risk, symptomatic patients presenting in the ambulatory setting.

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

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Additional Authors: Arjun Gowda, Sammar Alsunaid, Nader Tashtoush, Shyam Ganti, Kartik Kumar, Jayadev Mettu, Willane Krell

Mesenteric Thrombosis & the Dead Bowels

Introduction: Superior mesenteric vein thrombosis (SMVT) is uncommon, difficult to diagnose and often life threatening. Mortality rates up to 44% have been reported from complications of mesenteric ischemia and bowel perforation.

Case: 24-year-old female with past history of deep vein thrombosis and antithrombin III (ATIII) deficiency presented to the emergency department (ED) with complaints of abdominal pain, hematemesis and hematochezia. ED course was complicated by profuse upper and lower GI bleeding with acute drop in hemoglobin progressing to hemorrhagic shock and subsequent multiorgan failure. Emergent endoscopy only showed erosive gastritis and nonspecific mucosal changes in the distal duodenum with no site of active bleeding. Duodenal biopsy reported mucosal edema and hemorrhage with small thrombi in the vessels consistent with early ischemic changes. Computerized tomography scan with contrast confirmed SMVT with involvement of the portal and splenic veins. Anticoagulation with argatroban, chosen because of her ATIII deficiency, was initiated promptly. Despite appropriate anticoagulation, the patient developed bowel perforation warranting emergent surgery and resection of all but 40 cm of necrotic small bowel. Patient remains under ICU care dependent on mechanical ventilation and parenteral nutrition, and her prognosis remains guarded.

Discussion: Early recognition of superior mesenteric vein thrombosis is imperative given the high morbidity and mortality. Nonspecific symptoms often delay diagnosis leading to life threatening complications. High index of suspicion should remain in young patients with known hypercoagulable state. Although few cases in literature reported treatment with direct thrombolysis, systemic anticoagulation with heparin remains standard of care.

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Amina Pervaiz

Additional Authors: Jasleen Kaur, Ravinder Bhanot, Diane L. Levine

Diabetic Ketoacidosis: A Complication of Acute Pancreatitis Without Hypertriglyceridemia in a Previously Undiagnosed Diabetic Patient

Acute pancreatitis leading to the development of diabetic ketoacidosis (DKA) is unusual in clinical practice while the converse is not as rare. The association between DKA and acute pancreatitis is often mediated through hypertriglyceridemia and this “enigmatic triangle” has been well reported. However, herein we present a case of a 25-year-old male without hypertriglyceridemia, who was diagnosed with acute pancreatitis complicated with diabetic ketoacidosis. He had a known history of alcoholism and presented with complaints of acute epigastric pain radiating to the back associated with nausea and vomiting. Lab work revealed elevated serum lipase (5210 U/L) highly suggestive of acute pancreatitis and the appropriate treatment was started. Of note, his serum glucose and triglyceride levels were normal. After the initial improvement, his hospital course got complicated on day 3, when he developed severe hyperglycemia (453 mg/dL) along with metabolic acidosis (pH 7.30), ketonemia (BHG-51.2 mg/dL) and ketonuria supporting diagnosis of diabetic ketoacidosis with normal HbA1c of 5.6. The acidosis improved after institution of intravenous insulin and his fluid/electrolyte abnormalities and carbohydrate metabolism were restored. Patient is being followed in the outpatient clinic and is now insulin dependent for Diabetes Mellitus management. The aim of this case report is to alert the physician about the possibility of development of DKA associated with acute pancreatitis, regardless of triglyceride levels with no previous history of Diabetes Mellitus. We also intend to highlight the complex pathophysiology of severe alcohol related pancreatic injury leading to DKA.

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Brian Rutledge

Additional Authors: Jarrett Weinberger, MD

A Case of Hepatocellular Carcinoma After Cure of Hepatitis C: A Surveillance Review for the Internal Medicine Physician

Case Presentation - A 63 year old man with history of Cirrhosis, Hepatitis C, and alcoholism presented with complaint of RUQ abdominal pain. Patient was treated in 2012 for Hepatitis C and achieved SVR and cure. Patient had a CT-abdomen in 2012 which was negative for malignancy. Patient had cirrhosis evident prior to cure of his Hepatitis C, so the decision was made to continue screening for HCC every 6 months.

Patient underwent U/S and AFP evaluation every 6 months, including 5 months prior to presentation, which were unremarkable. On admission, patient was found to have a 12 cm mass in the right lobe of the liver. Patient was not a surgical candidate but is s/p 2 ablations with ongoing treatment with sorafenib.

Discussion - Early diagnosis of HCC through surveillance of at-risk populations remains the best opportunity for early diagnosis and cure. Abdominal U/S is the most commonly utilized test for surveillance owing likely to its non-invasive nature, absence of risks, and reasonable cost. The combination of AFP testing and U/S screening at 6-month intervals more than triples the number of people with operable HCC at diagnosis. Patients with cirrhosis from HCV who cleared the virus spontaneously or responded to treatment appear likely to have a reduced risk of developing HCC, but is still reported to occur at a rate of up to 2.5% per year. In two retrospective cohort analyses, patient age and severity pre-treatment were indicators for HCC development in SVR patients with chronic hepatitis C.

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Category: Clinical Vignette

Institution: Wayne State University - DMC - Detroit

Program Director: Jarret Weinberger, MD, Member

Presenter: Pranav Shah

Additional Authors: Maria Diab

Rare Coombs-Negative Warm Autoimmune Hemolytic Anemia

A 69-year-old female with a known diagnosis of Waldenstrom macroglobulinemia presented with dizziness for the past two weeks. Physical examination revealed scleral icterus. Laboratory results revealed indirect hyperbilirubinemia (4 mg/dL, total bilirubin 5.3 mg/dL) and macrocytic anemia (hemoglobin of 6.3g, MCV of 104.8 fL), as well as an elevated reticulocyte count and lactate dehydrogenase level and an undetectable haptoglobin level. Peripheral blood smear showed spherocytes and polychromatophilia, but no schistocytes. Workup for autoimmune hemolytic anemia showed a negative direct anti-globulin test (Coombs) test. IgM levels were elevated at 489 mg/dL, (IgG: 94 mg/dL, IgA: <8 mg/dL). Over the course of the patient's hospital stay her hemoglobin steadily dropped from 6.3 to 3.8. Due to the persistent hemolysis, patient did not receive blood transfusions. She was started on steroid therapy at 1mg/kg. Rituximab was added on treatment Day 3. Hemoglobin level improved and the patient was discharged with a hemoglobin of 7.1g. A diagnosis of coombs-negative warm autoimmune hemolytic anemia (AIHA) was made based on severity of the anemia, spherocytes on peripheral smear and response to steroid therapy. Although a dual direct antiglobulin test (DDAT) is required to confirm the diagnosis, the test is not performed in our institution, and its results would not have been available during the patient's hospital stay. Coombs-negative warm AIHA is a rare entity. Those that are associated with Waldenstrom macroglobulinemia represent an even smaller population.

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Category: Clinical Vignette

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Mark Loehrke, MD, FACP

Presenter: Aness Al-Khateeb

Additional Authors: Chris Jacob, MD; Lokesh Yadav, MD, Dominika M. Zoltowska, MD

Life Threatening Acute Infectious Purpura Fulminans After an Uncomplicated Vaginal Delivery

Purpura fulminans (PF) is a rare life threatening syndrome characterized by DIC and intravascular thrombosis and infarction of the skin. PF can be caused by an inherited protein C and/or S deficiency, AT III deficiency or acute infectious process. Most common cause is *Neisseria meningitidis*, and other notable infectious etiologies include: *H. Influenzae*, *S. aureus* and *Rickettsiae*.

26 year old previously healthy female presented with 2 days of generalized pain and a skin rash. Patient reports that she had an uncomplicated vaginal delivery 7 days prior to the onset of her symptoms. In the ED patient had oxygen saturation at 67% on room air, febrile at 103.2 F, HR of 130 and hypotensive with BP of 84/48. She was promptly intubated and started on broad spectrum antibiotic. Labs displayed WBC at 25.3, Hgb: 7, platelets: 9, fibrinogen: 100 and schistocytes were present. Ultrasound of the uterus displayed intrauterine fluid without any retained products of conception. Bacterial cultures were positive for Group A streptococcus. Patient continued to be hemodynamically unstable and source control was obtained after a total abdominal hysterectomy was performed

PF is a known complication of *N. meningitidis* or from other serious bacterial infections such as *S. aureus* and *H. influenzae*; however is a rare complication of group A streptococcus. The patient in this case had an uncomplicated vaginal delivery which led to *S. pyogenes* postpartum endometritis, septic shock with DIC and purpura fulminans. Physicians should be made aware of the possible complications of a seemingly uncomplicated vaginal delivery.

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Category: Clinical Vignette

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Mark Loehrke, MD, FACP

Presenter: Karun Badwal

Additional Authors: Tooba Tariq

Euglycemic Diabetic Ketoacidosis in a 25 year old Male on SGLT-2 Inhibitor Presenting with Acute Pancreatitis Secondary to Hypertriglyceridemia

Sodium-glucose cotransporter 2 (SGLT-2) inhibitors are a novel class of medications used for glycemic control in type 1 and type 2 diabetes mellitus. Unfortunately, there have been reported incidences of euglycemic diabetic ketoacidosis in individuals taking these medications.

This report describes a 25 year old male with a history of type 2 diabetes on dapagliflozin who initially presented with his third episode of pancreatitis secondary to elevated triglycerides. The patient's clinical course was complicated by the development of diabetic ketoacidosis five days into admission despite being relatively euglycemic throughout his hospitalization. The patient ultimately required an insulin drip and one treatment of plasma exchange therapy for hypertriglyceridemia. The patient's diabetic ketoacidosis resolved and he was transitioned to basal insulin successfully. The patient's oral agents were discontinued completely and he was discharged on an insulin regimen.

SGLT-2 inhibitors have been found to be associated with euglycemic diabetic ketoacidosis, most likely as a result of their non-insulin-dependent glucose clearance, hyperglucagonemia, and volume depletion. The aim of this case report is to alert the physician about the possibility of euglycemic DKA in a patient on an SGLT-2 inhibitor presenting with an acute illness, such as hypertriglyceridemia-induced acute pancreatitis as seen in our patient. When identified, the physician should immediately discontinue the medication while remaining vigilant about the possibility of diabetic ketoacidosis even in the euglycemic state. Furthermore, the provider should take great caution, provide extensive counseling, and closely monitor patients when prescribing these medications.

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Category: Clinical Vignette

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Mark Loehrke, MD, FACP

Presenter: Chris Jacob

Additional Authors: Aness Al-Khateeb

Lemon Drops - More Dangerous Than Candy

Introduction

Illicit drug users and sellers are always looking for new or better highs. Physicians must be aware of new and emerging drugs. We present a case of acute intoxication from a relatively new street drug called Lemon Drop.

Case Description

A 21 year old male presented to an outlying hospital's emergency department with acute altered mental status. He was very aggressive and required leather restraints and received 4mg of lorazepam, 5mg of haloperidol, and then ketamine before becoming adequately sedated. Serum ethanol level was 70 mg/dL (0.07%). Lactate was 13mmol/L, creatine kinase was 501U/L and peaked at 856U/L, anion gap was 30. Urine drug screen was positive for cannabinoids. The patient admitted to drinking alcohol but would not admit to other substances. His sister who was present confirmed that he consumed Lemon Drop, but was not sure of the exact composition. Other than somnolence, the patient displayed no other neurologic or physical exam findings. He received supportive care with intravenous hydration overnight, and all laboratory values and physical examination returned to normal by the next morning.

Discussion

Lemon Drop refers to a homemade drug preparation made by mixing paint thinner, naphtha, or lighter fluid with dextromethorphan-containing cough syrups. The precipitated dextromethorphan is mixed with lemon juice or powdered lemonade mix to conceal the flavor during consumption. The desired effect is hallucinogenic, and it can cause extreme dissociation. However, nausea, sedation, bradycardia, bradypnea and death are possible. Physicians should be aware of this new form of illicit substance.

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Category: Research

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Mark Loehrke, MD, FACP

Presenter: Karthik Kailasam

Additional Authors: Prashant Patel, Suceil Sivsammie, Lokesh Yadav

Outcomes of Out-of-Hospital Cardiac Arrest in Elderly Patients: A Retrospective Analysis

Background

Out-of-hospital cardiac arrest have been shown to have high mortality. Prognosis is even worse for the elderly population.

Methods

The New York State Department of Health's Statewide Planning and Research Cooperative System (SPARCS) inpatient data from the years 2009-2013 was utilized to perform the analysis. Using clinical classification software (CCS) code 107, patients with cardiac arrest were identified. Patients less than 70 years of age and patients who had inpatient cardiac arrest were excluded.

Results

A total of 1784 patients with cardiac arrest were identified. 840 patients were above the age of 70 years. Out of these, 159 were in-hospital cardiac arrests and were excluded from analysis. Furthermore, 11 patients who were discharge to hospice care were excluded. The final analysis was performed on 670 patients. Of these 670 patients, 293 (43.7%) were females and 377 (56.3%) were males. A total of 453 (67.6%) patients expired and 217 (32.4%) survived and were discharged to home, skilled nursing facility, home health or long term acute care facility. Statistical analysis revealed, elderly women were more likely to die compared to elderly men (odds ratio 2.04; 95% confidence interval = 1.45 – 2.86; with $p < 0.0001$).

Conclusion

Post-menopausal women have high prevalence and high mortality from cardiac disease. There are conflicting results from studies which assessed female gender and prognosis after cardiac arrest. This study shows that elderly women have a higher odds of dying compared to elderly men from an out of hospital cardiac arrest.

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Category: Clinical Vignette

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Mark Loehrke, MD, FACP

Presenter: Sandra Koehn

Additional Authors: Sara Lang, OMS4

A Rare Cause of Transverse Myelitis

A 44 year-old African American male presents with subacute bilateral leg weakness progressing to complete paraplegia with incontinence. On physical exam, legs displayed 0/5 strength, hyperreflexia, sustained myoclonus and impaired sensation bilaterally. MRI showed extensive transverse myelitis from C3-T8. CSF findings were consistent with inflammatory disease. All other labs were unremarkable. Neuromyelitis optica was suspected, but visual evoked potentials were normal. An incidental right hilar mass was discovered on CT. Mediastinoscopy with excisional biopsy of the hilar lymph node revealed non-caseating granulomas consistent with sarcoidosis. The patient was treated with a 5-day course of high-dose methylprednisolone and plasmapheresis with minimal improvement.

The incidence of CNS sarcoidosis is between 5-15%, however only 1% involve the spinal cord. Even more rare is isolated, extensive myelopathy without other symptoms of disease. Untreated, 70% of patients with any degree of myelopathy progress to paraplegia within 18 months. It is difficult to make a definitive diagnosis when there is isolated CNS disease without invasive testing such as cord biopsy. MRI and CSF studies detect CNS inflammation with high sensitivity, but lack specificity. However, 80% of cases of isolated neurosarcoidosis demonstrate hilar and/or mediastinal lymphadenopathy, with biopsies consistent with sarcoidosis. Therefore, chest CT should be obtained in patients with isolated myelopathy of unknown origin to assess for lymphadenopathy, which is more accessible for biopsy than spinal cord lesions. Generally, prognosis is poor, in part due to delayed diagnosis, therefore, the earlier the condition is diagnosed and treated, the better the long-term outcome for the patient.

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Category: Clinical Vignette

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Mark Loehrke, MD, FACP

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Additional Authors: Guramrinder Thind, MD, Chris Jacob, DO, Michael Reaume, MD

A Rare Case of *Raoultella Ornithinolytica* Pelvic Abscesses in the Setting of Ongoing Chemotherapy

Introduction:

Raoultella ornithinolytica (*R. ornithinolytica*) is an emerging community-acquired and nosocomial gram-negative pathogen with high virulence and resistance to antibiotics. We present a case of multiple *R. ornithinolytica* pelvic abscesses in the setting of ongoing anti-neoplastic chemotherapy.

Case:

A 52 year old female with a past history of malignant inflammatory breast cancer status post mastectomy and radiation, now on capecitabine chemotherapy presented with nausea and abdominal pain for 5 days. Her initial examination revealed stable vital signs, with notable findings on abdominal exam including tenderness to palpation in all quadrants. Initial labwork revealed a white blood cell count of 11.0, but was otherwise unremarkable. Computed tomography (CT) of the abdomen and pelvis revealed multiple pelvic fluid collections with the largest being 8.2 x 6.2 x 7.3 cm.

The patient was started empirically on piperacillin-tazobactam. She subsequently underwent percutaneous drain placement, with aspirate cultures revealing a polymicrobial infection with *R. ornithinolytica*, *Enterococcus faecalis*, and *Klebsiella pneumoniae*. Seven days later, the patient had two more percutaneous aspirations new fluid collections found on a repeat CT, with cultures revealing monomicrobial *R. ornithinolytica* abscesses. The patient's capecitabine was discontinued; additionally she was continued on piperacillin-tazobactam, in addition to metronidazole for 4 weeks to prevent inducible resistance.

Discussion:

Our patient had several risk factors for *R. ornithinolytica* infection, as noted by Seng et al., including her previous solid tumor, chronic port catheter, and ongoing chemotherapy. Thus, when identified, *R. ornithinolytica* should never be viewed as a contaminant in immunocompromised patients.

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Category: Clinical Vignette

Institution: Western Michigan University School of Medicine - Kalamazoo

Program Director: Mark Loehrke, MD, FACP

Presenter: Suceil Sivsammeye

Additional Authors: Lokesh Yadav

A Protuberant Mass of the Scalp

Dermatofibrosarcoma protuberans (DFSP) is a rare and locally aggressive nodular cutaneous tumor with an estimated incidence of 4.5 cases per million persons per year in the United States. They are however the most frequent skin sarcoma making it an important clinical entity.

A 56-year-old man presented with a 6-year history of an enlarging mass protruding from his occiput. The patient believed it to be a cyst however one year prior to presentation the mass began to drastically increase in size. Physical exam revealed a polypoid subcutaneous tumor measuring 14.0 x 11.5 x 10.5 cm. Pathology revealed high grade fibrosarcoma arising in pre-existing dermatofibrosarcoma protuberans. Margins were disease free and staging computed tomography was negative. Negative pressure wound therapy was applied however within two months he had local recurrence with new cervical lymph node involvement. This necessitated radiotherapy prior to graft placement to which he had moderate response. He underwent palliative resection and declined adjuvant chemotherapy. At 3 months follow up he did not have any new lesions.

Approximately 85-90% of all DFSPs are low grade. When sarcomatous foci constitute 5% of the tumor it is classified as a high grade fibrosarcoma which have an increased risk for distant metastasis. Excision should be followed by radiotherapy when margins are close and repeat wide resection is not feasible due to anatomic limitations, which most commonly occurs in the head and neck. Additional reports show clinical response to Imatinib even in tumors negative for t(17;22) translocation however this is not standard practice.

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Category: Clinical Vignette

Institution: Western Michigan University School of Medicine - Kalamazoo

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Bilateral Testicular Involvement in Eosinophilic Granulomatosis with Polyangitis

Eosinophilic Granulomatosis with Polyangitis (EGPA) is a rare systemic disease characterized by vasculitis and peripheral eosinophilia in patients with an atopic constitution. There is scarce documentation of testicular involvement in patients with this disease. We report a case of a 31-year-old man who presented with fever, myalgias, persistent diarrhea, upper extremity rash, and bilateral lower extremity paresthesias who later developed acute left-sided testicular pain. Ultrasound of the scrotum demonstrated reduced blood flow to the testicles bilaterally. The patient also reported intermittent chest pain and cardiac MRI revealed three areas of abnormally delayed myocardial enhancement consistent with the diagnosis of myocarditis. Computed tomography angiography (CTA) of the abdomen and pelvis showed abnormal beading of the hepatic arteries. Aside from childhood allergies and asthma diagnosed one year prior, the patient's past medical history was unremarkable. On admission, blood tests showed elevated eosinophils (32%), erythrocyte sedimentation rate (ESR) of 93, and C-reactive protein (CRP) of 85.8. Perinuclear anti-neutrophil cytoplasmic antibodies (pANCA) and myeloperoxidase (MPO) antibodies were positive. Biopsy of the skin rash revealed superficial and deep perivascular inflammation with numerous eosinophils. Based on the criteria set out by the American College of Rheumatology (ACR), we established the diagnosis of CSS and treatment with high dose corticosteroid and cyclophosphamide resulted in a gradual remission of disease activity.

Hence, testicular involvement should be suspected and if found treated promptly in patients with Eosinophilic Granulomatosis with Polyangitis. In addition, EGPA testicular involvement, although rare, should be included in the differential diagnosis of testicular ischemia.

Poster: 199

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Methotrexate-Induced Leukoencephalopathy Mimicking an Acute Stroke

Introduction

Methotrexate (MTX) inhibits dihydrofolic acid reductase and interferes with DNA synthesis, repair and replication. Patterns of CNS toxicity with MTX include arachnoiditis, paralysis of extremities, cranial nerve palsy and demyelinating encephalopathy. We present a case of leukoencephalopathy with intrathecal MTX that mimicked acute stroke.

Case

A 26 year old Caucasian woman presented with slurred speech of one hour, having received 10th cycle of intrathecal MTX for CNS prophylaxis earlier in the day. She was diagnosed with Philadelphia chromosome negative Acute Lymphoblastic Leukemia five months ago and subsequently treated with Vincristine, Daunorubicin, pegasparginase, prednisolone, 6-mercaptopurine, cytarabine and rituximab. She did not report fever, headache, confusion, trauma or loss of consciousness. She had worsening right-sided facial droop, severe dysarthria and weakness on right side too. CT brain with angiogram were unremarkable. MRI showed 3 cm region of restricted diffusion with the left centrum semiovale white matter. Folinic acid and Dextromethorphan were started. Slight slurred speech remained after 10 days with resolution of other deficits.

Discussion

Comprehensive history and knowledge of adverse effects of chemotherapy is essential in caring for cancer patients. A misdiagnosis of acute stroke could have prompted unnecessary administration of thrombolytics or antiplatelets. Restricted diffusion in the centrum semiovale is a common finding in MTX leukoencephalopathy and is often reversible. Pathogenesis of MTX CNS toxicity is thought to be related to altered folate homeostasis and high homocysteine, a NMDA receptor agonist. Folinic acid has been used to reverse toxicity. Dextromethorphan, a NMDA receptor antagonist has shown faster improvement.