

i Salud!

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107	CR	Shabnam	Yekta	UACOM at South Campus	MD	PGY-2	From Cruise to Confusion
161	RES	Rasiq	Zackria	ATSU-SOMA		MS-III	A Quality and Process Evaluation of El Rio Community Health Center's Diabetes Exercise and Education Program (DEEP)
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153	PS&QI	Semah	Zavareh	Banner UMC Phx	DO	PGY-3	THE APPLICATION OF CLINICAL INFORMATICS IN THE ANALYSIS OF IDENTIFYING CONTRIBUTERS TO PROLONGED LENGTH OF STAY AT THE PHOENIX VA HEALTH CARE SYSTEM EMERGENCY DEPARTMENT IN PATIENTS WITH ATYPICAL CHES

Infective endocarditis following urinary tract infection with *Aerococcus urinae*: A case report and discussion of antibiotic regimens

Heba Albasha BSE, UofA College of Medicine - Tucson, MS-II

Waseem Albasha B.S., Bashar Markabawi M.D., Henry Luedy M.D., Mohamad Hosam Horani M.D.

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Infective endocarditis following urinary tract infection with *Aerococcus urinae*: A case report and discussion of antibiotic regimens. Heba Albasha B.S.E., The University of AZ College of Medicine-Tucson, Waseem Albasha B.S., Bashar Markabawi M.D., Henry Luedy M.D., Mohamad Hosam Horani M.D. *Aerococcus urinae* is a gram-positive organism that commonly manifests as a urinary tract infection (UTI) and can progress to various complications including infective endocarditis. A 58 year-old male with a history of urethral stricture, hypertension, and diabetes presented to a local hospital for worsening chronic pain and dysuria. Two weeks prior, the patient was diagnosed with a UTI in clinic and placed on ciprofloxacin. He reported no relief after completing a full course of ciprofloxacin and was admitted with sepsis and unresolved UTI. He was treated with intravenous (IV) ceftriaxone. A transthoracic echocardiogram was performed showing no vegetations. He was discharged after 5 days of admission with a 10-day course of cefuroxime. Four weeks after admission he was readmitted with 10 days of progressive weakness. He was again found to have sepsis and a UTI. Troponins were mildly elevated and electrocardiogram showed moderate ST depression. He was intubated and admitted to the intensive care unit for pressors and IV piperacillin-tazobactam. Preliminary blood cultures grew gram positive cocci. After two doses of piperacillin-tazobactam he was switched to IV vancomycin, meropenem, and azithromycin. The final blood cultures grew *Aerococcus urinae*. A transthoracic echocardiogram this time showed aortic valve prolapse and a vegetation on the aortic valve measuring one centimeter in diameter. After 10 days of vancomycin, meropenem, and azithromycin the patient did not improve clinically - his clinical picture was consistent with infective endocarditis refractory to treatment with antibiotics. After discussing the risks and benefits of aortic valve replacement with the patient, he elected to pursue surgery. In summary, this patient was treated with multiple antibiotic regimens: ciprofloxacin, ceftriaxone, cefuroxime, piperacillin-tazobactam, vancomycin, meropenem, and azithromycin. Blood culture susceptibilities showed that the patient's *A. urinae* strain was sensitive to vancomycin, meropenem, penicillin, and ceftriaxone indicating that he received appropriate antibiotics; however, the patient failed to improve clinically. He ultimately required valve replacement. No standard treatment has been determined in the literature for *A. urinae* infections. The most commonly used treatment is a combination of a beta-lactam and aminoglycoside. This case illustrates the difficulty in treating *A. urinae* endocarditis. Continued reporting of cases of *A. urinae* endocarditis is necessary given the variable presentations and responses to treatment, and will help providers faced with similar cases make informed decisions based on patient presentations and the knowledge of which treatments have worked in reported cases.

Adult-Onset Non-Ischemic Dilated Cardiomyopathy: A Novel Titin Mutation and a Case of Complex Inheritance

Morgan Whitaker , UofA College of Medicine - Tucson, MS-II

Nair V, Gupta A, Sweitzer NK, Khalpey ZI, Tardiff JC, Granzier HL, Sotak S, Sprissler R, Desai AA

CR, Poster Display No. 2

Introduction: Titin (TTN) is a large sarcomeric protein filament which provides stability and passive stiffness to cardiac myocytes. Dilated cardiomyopathy (DCM) due to TTN mutation accounts for 30% of all idiopathic DCM. Causation between truncation mutations in TTN and the development of cardiomyopathy is controversial. Here, we describe a pedigree with history of DCM suspected to be a result of a novel truncation TTN mutation. **Case Description:** The proband is a 22 year-old man with no prior medical history, who was diagnosed with systolic DCM after a hospital admission for worsening dyspnea on exertion. The proband's father was diagnosed with non-ischemic DCM at 33 years of age and hospitalized with a total artificial heart implant during this time. Given the familial association, genetic testing (76 gene panel, GeneDx) was performed and revealed 3 variants including a potentially causal TTN (L21445FfsX33) truncation mutation, as well as two additional variants of unknown significance in mitogen-activated protein kinase kinase 1 (MAP2K1, R291G) and desmoplakin (DSP, N4K) in both the father and the son. All first-degree relatives were tested for these three variants; in addition, they all underwent an echocardiogram (echo) study. Imaging evidence did not demonstrate any evidence of DCM for all family members except for a seven year-old female sibling (TTN positive, DSP positive, MAP2K1 negative), who exhibited the presence of early left ventricle non-compaction. Both the TTN mutation and the MAP2K1 variant were present in 3 out of 4 siblings and 2 out of 4 siblings respectively. The proband's son, who is two years old, was positive for both MAP2K1 and DSP variants. The proband's paternal aunt (sister of father) is 45 years old and possessed the TTN mutation only while her 3 offspring did not exhibit any variants. Finally, evidence of left ventricular diastolic dysfunction was present in one of the proband's female siblings, aged 18, who was triple positive. The DSP variant was not present in other family members. **Discussion:** We report a novel TTN mutation, which is expected to result in dilated cardiomyopathy via either an abnormal, truncated protein or loss of the protein through nonsense-mediated mRNA decay. In this pedigree, MAP2K1 and DSP were reported as normal variants of unknown significance. Results of the genetic testing and echocardiograms revealed a far more complex inheritance pattern within the family demonstrating the lack of association of this TTN mutation alone to the presence of cardiomyopathy. However, the possibility of MAP2K1 and DSP as single or dual modifiers to the DCM phenotype has not been excluded and the potential for evolution of cardiomyopathy overtime is possible.

Plasmapheresis Treatment for Thyroid Storm with Concurrent Transaminitis

Allison Bigeh , ATSU-KCOM, MS-III

Mohsen Alhakeem and Mohamad H Horani

CR, Poster Display No. 3

A 59 year-old female with a history of asthma and pneumonia presented to the ER with difficulty breathing. She reported worsening tachypnea, tachycardia, and productive cough of one-week duration. Chest x-ray and CT showed hyperinflated lungs with pulmonary congestion. Echo was performed showing EF 10% with dilated left and right ventricles suspicious for thyroid storm. Patient was admitted to the ICU and subsequently intubated due to worsening lactic acidosis and respiratory compromise. Thyroid function tests revealed thyroid storm with TSH <0.01, free T4 level 4.48 (normal 0.9-1.7pg/mL), free T3 level >28.38 (normal 2.0-4.8 pg/mL). She was started on PTU, pressor agents, as well as propranolol to control her tachycardia. Transaminitis continued to develop with AST=293 and ALT=235. Methimazole 20mg q8h was then added to replace PTU due increasing liver enzymes. Thyroid function was continuously monitored; however, free T3 and T4 levels persisted despite optimization of medical management including the addition of hydrocortisone. Treatment was achieved utilizing plasmapheresis initiated on the second day of admission with diagnosis of Grave's disease (TSI=374). At the end of the three-day treatment we observed over a 50% drop in free T4 (from 4.48 to 1.87 pg/mL) and free T3 (from >28.38 to 4.12 pg/mL). Her transaminitis and lactic acidosis also resolved after plasmapheresis treatment. It is not known whether the transaminitis developed secondary to shocked liver or PTU administration, however, treatment with plasmapheresis showed drastic resolution of liver enzymes within one week. This case demonstrates the importance of early recognition and treatment of thyroid storm utilizing plasmapheresis. Prompt initiation of plasmapheresis shows definite promise in decreasing hospital stay, especially in patients resistant to standard treatment of thyrotoxicosis. The importance of using this method as a primary treatment in patients with compromised liver function deserves further research.

Gram Positive Pustular Folliculitis: a Rare Dermatological Side Effect of High Dose Interleukin-2 Immunotherapy in the Treatment of Advanced Metastatic Renal Cell Carcinoma

Catherine R. F. Coverley MEd, UofA College of Medicine - Tucson, MS-III

Keri Maher, MD

CR, Poster Display No. 4

Introduction: The startling efficacy of immuno-oncology agents has revolutionized the treatment of previously incurable cancers. By harnessing the power of the patient's immune system immuno-oncology represents an innovative approach to cancer treatment. Since FDA approval of Rituximab in the 1990s immuno-oncology has rapidly advanced and new agents are continuously developed. Interleukin-2 therapy for the treatment of metastatic melanoma and metastatic renal cell carcinoma has been in use for several years, and yet there is much to learn. In our use of IL-2 our patient gradually developed a severe folliculitis – a side effect not previously associated with IL-2 or other immunotherapies to date. **Case Presentation:** Our patient is a 44-year-old male with no significant medical co-morbidities suffering from Stage IV Renal Cell Carcinoma (Clear Cell Variant) with pulmonary metastases, status post radical left nephrectomy (June 2015). He presented for Cycle 1A of IL-2 therapy as first-line systemic treatment on July 22, 2015. After 3 doses (of a planned 14) our patient began to develop a mild pustular rash. Initial treatment was conservative - warm compresses and Cetaphil cream. The rash, which began on his face and rapidly spread to his arms, back, and chest, was pustular with scattered coalescences and vesicles. Of note, use of prophylactic Keflex is standard with IL-2 treatment and administration began on admission. Ultimately, he was given 5/14 IL-2 doses before discontinuation given rash severity. Dermatology was consulted for assistance, and biopsy demonstrated a gram-positive folliculitis. Mupirocin ointment treatment was initiated with pathology pending. He later began a course of doxycycline, and symptoms completely resolved over subsequent days. Interestingly, our patient subsequently presented for Cycle 1B of IL-2 as planned, and had recurrent symptoms. **Discussion:** The availability of oncologic agents apart from traditional chemotherapies is rapidly expanding, and no area of pharmaceutical development is more rapid than immuno-oncology. However, these agents can have severe and even life-threatening side effects. Capillary leak syndrome, for example, is the hallmark adverse effect of IL-2, and is characterized by hypotension, tachycardia, and severe fluid retention. Dermatologic conditions are also well described including diffuse erythroderma and bullous desquamation. However, to the best of our knowledge, an IL-2-induced folliculitis has never been previously described. **Conclusion:** Immuno-oncology offers the promise of treatment, and in rare cases, cure for previously devastating forms of disseminated malignancies with poor prognoses. IL-2 specifically has shown remarkable success in the treatment of metastatic melanoma and metastatic renal cell carcinoma. Our knowledge of the precise mechanisms of these agents, as well as their adverse effects, is continually growing. Cases such as this vastly broaden our understanding and promise to aid physicians in rapid identification and management of adverse effects, minimizing treatment delays and cessations, and improving overall patient prognosis.

ARDS and Severe Symptomatic Hyponatremia Associated with MDMA Use - A case report

Heinrich Fan , UofA College of Medicine - Tucson, MS-III

Roberto Bernardo, MD, Laura Meinke, MD

CR, Poster Display No. 5

MDMA (3,4-methylenedioxy-methamphetamine) is an amphetamine derivative that has gained significant popularity in recent years, becoming the drug of choice for many young adults. MDMA has psychoactive properties and unpredictable toxicity, leading to an increase in emergency department (ED) visits worldwide. MDMA toxicity can manifest as hyperthermia, severe hyponatremia, rhabdomyolysis and potentially major end-organ damage and multi-organ failure. We present a case of severe hyponatremia with cerebral edema, hypoxemic respiratory failure with ARDS and left ventricular failure associated with MDMA use.

A 19-year old female chemistry student with no significant PMH was brought to the ED by her roommate due to altered mental status (AMS), nausea, vomiting and respiratory distress. Her roommate reported that one day before admission she had ingested MDMA, experiencing severe nausea and vomiting after intake and tried to rehydrate with oral intake of fluids. She was left unattended for around eight hours and then found confused, diaphoretic and complaining of shortness of breath. Vitals on admission included an oxygen saturation of 75% on room air, BP 153/122, HR 149, RR 31, afebrile. She was in acute distress, using accessory muscles, somnolent but arousable, pupils PERRLA. Auscultation revealed diffuse crackles, no wheezes, no nuchal rigidity. The rest of her exam was unremarkable. She was intubated for impending respiratory failure and airway protection. Labs revealed VBG 7.19/41/19/15, lactate 7.7. After intubation the PaO₂/FiO₂ ratio was 100. WBC 16.9 with left deviation, Hb 17.2, platelets 160, Na 118, K 3.7, Cr 1.0, CK 1962, serum osmolality 259, urine osmolality 570, urinary Na 21, troponin 2.65, BNP 3317. UTox was positive for amphetamines. CXR showed diffuse bilateral air-space opacities. Head CT revealed severe diffuse cerebral edema with effacement of the convexity sulci and partial effacement of the lateral ventricles. Bedside echocardiogram revealed a severely decreased LV systolic function, EF < 20 % with diffuse wall motion abnormalities. NS was given as boluses with rapid improvement in serum Na. No hypertonic saline was used. Lung protective ventilation was used for treatment of suspected ARDS. Repeated Echo 24 hours after supportive treatment showed significant improvement (EF estimated at 35%). No diuretics were needed. The patient improved rapidly, was extubated at 48 hours and eventually discharged home with instructions for outpatient follow-up.

MDMA is an amphetamine derivative with a range of psychotropic actions commonly abused by young people in recreation. MDMA can be associated with severe symptomatic hyponatremia and cerebral edema secondary to thirst stimulation. ARDS and multi-organ failure is unusual, related to the oxidative stress triggered by MDMA metabolites. In summary, MDMA use can be associated with significant metabolic disturbances and multi-organ failure with ARDS. Treatment is mainly supportive.

Multiple System Atrophy Mimicking Symptoms of Transient Ischemic Attack

Joanna Israel , Midwestern AZCOM, MS-III

William B Reichert, MD. Michael S Chesser, MD.

CR, Poster Display No. 6

Introduction: Multiple system atrophy (MSA) also known as Shy-Drager syndrome is a subset condition of Parkinson's disease. A rare disease of unknown cause, MSA occurs in people in their 50s and 60s and more frequently affects males. The progressive advancement of this Parkinsonian syndrome is characterized by akinesia, bradykinesia, bradyphrenia, tremors, and extrapyramidal rigidity. These neurological deficits can present with symptoms similar to a transient ischemic attack (TIA). We present a case of a gentleman with a history of MSA who has had repeated hospitalizations with suspected TIAs. Case Description: A 61-year-old Caucasian male presented with atypical chest pain, right sided facial drooping, difficulty speaking, left sided numbness/weakness, and uncontrolled hypertension. He has a past medical history most significant for multiple system atrophy, hypertension, gastroesophageal reflux disease, brain stem cancer, and diabetes mellitus. He has had multiple episodes in the past of right sided facial drooping and difficulty with speech accompanied by left sided numbness and weakness, which would resolve over a matter of hours. The EKG was within normal limits and troponins were not detected in 3 sequential draws. Neurological exam showed right sided facial drooping with the remainder of CN 2-12 within normal limits. There was mild left sided weakness that improved during his hospital stay. The CT scan of the head came back negative for any acute neurological processes. His blood pressure was managed and the patient was discharged on hospital day 3 with improvement of his symptoms. Discussion: The patient's history was pertinent for neurological symptoms commonly associated with MSA including symptomatic orthostatic blood pressure, tremors, muscle rigidity, gait changes, changes of facial expression, difficulty swallowing and chewing, and confusion. The patient has had a comprehensive workup for stroke/TIA including left heart catheterization, CTA of the carotids, carotid ultrasound, and a MRA which showed no flow limiting stenosis. With no lesions found, these tests all point to a low likelihood of thromboembolic disease. While it would be unwise to disregard stroke as a diagnosis, the history of repeat admissions with the same stroke-like symptoms could be attributed to MSA. Physicians encountering MSA or other Parkinsonian syndromes with comorbidities relating to stroke should consider this possibility when diagnosing and treating these patients.

Synchronous Hodgkin Lymphoma and Diffuse Large B cell Lymphoma: A rare coexistence

Kayla Kendric , Creighton COM, MS-III

Gaurav Goyal MBBS, Gabriel C Caponetti, MD

CR, Poster Display No. 7

Background Hodgkin lymphoma (HL) is a lymphoid tumor that arises from germinal center or post-germinal center B cells in 95% of cases and T cells in 5%. HL has a unique cellular composition, and is diagnosed based on the identification of Reed-Sternberg neoplastic cells and their variants in an inflammatory background. Non-Hodgkin lymphoma (NHL) consists of a wide-range of malignant neoplasms diversely derived from B cell progenitors, T cell progenitors, mature B cells, mature T cells, or natural killer cells. HL and NHL are often considered to be distinct disease processes. The synchronous occurrence of Hodgkin lymphoma and non-Hodgkin lymphoma in the same patient is rare. In this report, we present a patient with synchronous classic HL and diffuse large B cell lymphoma (DLBCL). Case Presentation A 79-year-old Caucasian female presented with recurrent abdominal pain. Her past medical history was significant for low-grade adenocarcinoma of the rectum and sigmoid colon that was resected one year ago. Four months prior to presentation, she was found to have an abscess in the mesentery of terminal ileum and appendicitis for which she underwent abscess drainage and appendectomy respectively. The patient continued to have recurrent right lower quadrant pain since that hospitalization. A computed tomography (CT) scan of the abdomen was done that showed a small bowel obstruction secondary to abnormal tissue extending from the terminal ileum. She underwent laparoscopic ileocecal resection with primary anastomosis, and a mesenteric lymph node was simultaneously removed. On histopathological analysis, the terminal ileum mass showed diffuse large B cell lymphoma, while the mesenteric lymph node revealed classic HL with mixed cellularity. Currently, discussions are under way to establish further plan of care for the patient. Discussion The simultaneous occurrence of classical HL and non-Hodgkin lymphoma is uncommon. A small number of reported cases suggest a potential association between these two lymphomas. The most frequently observed co-occurrence among lymphomas is that of HL followed by the development of DLBCL. Classical HL has also been reported to occur simultaneously with follicular lymphoma, mucosa-associated lymphoid tissue (MALT) lymphoma, and mantle cell lymphomas. These associations may be due to a coincidental occurrence derived from two unrelated lymphoid elements, the progression of HL from a previous lymphoma or vice versa, or a common precursor cell. Many of the reported cases aim to discuss the clonal relationship of the neoplastic cells. Some studies demonstrated a lack of clonal relationship between lymphomas, while others suggested that the lymphomas may stem from a precursor cell. In our case, the DLBCL could potentially be a transformation of classical HL itself versus two different lymphomas arising de novo. More studies are needed to understand the relationship between the two malignancies to formulate effective treatment plans.

Late presentation of Refractory Blue Rubber Bleb Nevus Syndrome: A Clinical Dilemma

Jeff Kim , UofA College of Medicine - Phoenix, MS-III

Lisa Wadowski, Dr. Michael Chesser, Dr. Mark Zubriski, Dr. Hamed Abbaszadegan, Dr. Avtar Singh

CR, Poster Display No. 8

INTRODUCTION Blue Rubber Bleb Nevus Syndrome (BRBNS) is a rare condition characterized by diffuse cutaneous and gastrointestinal venous malformations that typically present early in life as hematemesis, melena, or hematochezia. Presentation in adults is exceedingly rare. Due to the sparse literature available, treatment is not standardized and questions remain about the efficacy of therapies in reducing bleeding and the need for blood transfusions. **CASE REPORT** A 50-year-old Caucasian male with BRBNS presented with a one-week history of fatigue and dark stools. He was pale but remained hemodynamically stable with Hemoglobin 6.7, MCV 79.1, RDW 19.3. He had multiple blue papules on his lips, shoulders, and hips. His physical exam was otherwise unremarkable. His medical history was significant for post-irradiation hypothyroidism and chronic iron-deficiency anemia, requiring multiple hospitalizations for recurrent blood transfusions. He first noticed rectal bleeding at age 28. An exhaustive work-up for his symptoms included genetic testing and multiple endoscopies for evaluation and therapeutic management of his recurrent bleeding, ultimately lead to the diagnosis of BRBNS at age 34. Surgical interventions included balloon enteroscopy and cauterization, coupled with trials of pharmacologic therapy including Octreotide and Propranolol, none of which provided symptomatic relief. **DISCUSSION** BRBNS, known for its early clinical penetrance, requires high clinical suspicion for diagnosis of non-pediatric patients presenting with chronic iron-deficiency anemia from gastrointestinal bleeding. We introduce an atypical presentation of BRBNS in adulthood that has been refractory to supportive care and explore the importance of evolving treatments in such patients, including but not limited to Octreotide and novel agents like Sirolimus along with various surgical interventions. Determination of disease severity must be made prior to treatment: minor bleeding is treated with blood transfusion, iron supplementation, and Octreotide; with complications like rupture or intussusception or severe bleeds, endoscopic sclerotherapy and laparotomy with surgical resection are emerging as the new standard of care, provided the gastrointestinal lesions are localized. Sirolimus has been studied as an antiangiogenic agent that reduced vascular lesions and bleeding in an 8-year old patient with BRBNS, and offers our patient another potential avenue for therapy. Our patient received 4 units packed RBCs with a trial of Octreotide (5.7 µg/kg subcutaneously BID) to minimize blood loss by reducing splanchnic blood flow. With an H/H of 11.7/35.0 at discharge, he was sent home on lifelong iron supplementation (325 mg PO TID) and followed up in 2 weeks with an H/H of 13.8/42.0. In light of transfusion-related hemochromatosis and endoscopy-related perforations, we employed a multi-pronged approach to treat symptomatically, minimize the patient's frustration, and provide exposure to new treatment modalities such as Octreotide and possibly Sirolimus in the future.

The Use of Palbociclib in the Treatment of Growing Teratoma Syndrome: A Case Report

Hilary McCrary MPH, UofA College of Medicine - Tucson, MS-III

Dr. Parminder Singh, MD

CR, Poster Display No. 9

Importance: Growing Teratoma Syndrome (GTS) is a rare entity observed in young men with a non-seminomatous germ cell tumor undergoing chemotherapy, typically presenting as metastatic masses. The condition is exceedingly difficult to treat due to chemotherapy and radiation resistance, and little information exists regarding the etiology of this disease. The current mainstay of treatment typically involves surgical resection, with medical therapies offering little benefit. **Observation:** The patient is a 23-year-old male, who presented in 2010 with a large mediastinal mass found on a CTA of the chest. A subsequent CT revealed a pulmonary nodule in the right lung base, hepatic lesions, lytic lesions in the pelvis, sclerotic lesions on the femurs, and a soft tissue mass near the L5 vertebrae. A lung biopsy was preformed and pathology demonstrated mature teratoma with small foci consistent with yolk sac tumor. Liver biopsy showed further metastatic disease consistent with a yolk sac tumor variant. The patient underwent several rounds of chemotherapy, including one round of BEP, two rounds of VIP, and two rounds TIP. The mediastinal mass was then resected as the standard of care for germ cell tumors. Surgery was performed in September 2011 and pathology demonstrated mature teratoma. His normalized tumor markers further confirmed the diagnosis of growing teratoma syndrome. Following this procedure, the patient had progression of disease in his hip, leading to a right hip replacement in July of 2012; pathology revealed mature teratoma. He was then referred to our service in August of 2012 for evaluation. We evaluated his tumor for RB1 expression in view of an ongoing clinical trial; testing revealed 100% RB1 expression. The patient was screened for the clinical trial, but failed to meet eligibility criteria. In July 2013, the patient presented to the ER with worsening headaches and a brain MRI demonstrated a large intracranial mass. The patient underwent craniotomy and partial tumor resection, which again demonstrated mature teratoma with no germ cell component. A request to the FDA and Pfizer was then made for compassionate use of palbociclib, which was being investigated in clinical trials for patients with expression of RB1. The drug was approved and he responded clinically; at his visit in August 2015, he was found to have no disease progression. **Conclusion and Relevance:** GTS is a rare phenomenon characterized as the transformation of a germ cell tumor into mature tissue mass under the stress of chemotherapy. This case highlights a patient presenting with widespread disease who was found to have expression of the RB1 gene. This patient responded to treatment and achieved stabilization of disease with the use of a therapeutic agent now employed for breast cancer. The role of palbociclib in this subgroup of patients is currently being investigated.

Unusual presentation in a patient with ICH

Chiamaka Ofoh , American University of Antigua College of Medicine, MS-III
Adewale Olajubelo, MD, Sucharita Mehta, MD

CR, Poster Display No. 10

Intraparenchymal hemorrhage (IPH); a subtype of intracerebral hemorrhage (ICH), can be simply defined as bleeding in the brain. IPH can be caused by different factors which are not limited to uncontrolled hypertension, ruptured aneurysm and coagulopathy. Fifteen percent of strokes result in ICH. However, compared to other types of strokes, it has the highest mortality. Vomiting is an important sign observed with ICH. A 55 year old black male was brought into the ED with complaints of lethargy. He was unable to provide history. According to his uncle who accompanied him, he has a documented history of diabetes mellitus, hypertension and hyperlipidemia. Prior to presentation, he was having a meal with his Uncle at Burger King when he suddenly vomited large quantities of partially digested food. The vomitus was non-bloody. He subsequently lost consciousness, and was brought to the hospital. He regained consciousness upon arriving at the emergency room but continued to vomit. Patient had no diarrhea, chest pain, or a prior incidence similar to this. Patient has no documented surgical history. He denies alcohol abuse or use of cigarettes. On physical exam, patient was lying in bed and lethargic. Vitals were BP 176/91; Pulse 92; Temp 98.4; RR 20. Head was normocephalic and atraumatic. Pupils equally round, reactive to light and accommodation. Oral mucosa was dry, neck was supple with no JVD. Lung were clear to auscultation bilaterally. Positive S1 and S2 present, no vascular bruits and 2/4 carotid pulse. Abdomen was obese, positive bowel sounds in all 4 quadrants, soft and non-tender. Overall neurological exam assessment was indicative of a GCS of 7 (eye response 1; verbal response 1; motor response 5). Neurologic exam was limited by the patient's inability to follow commands but responded to pain stimuli on extremities. Meningeal signs were negative. Labs were significant for: PT 10.9; Glucose 282; K 3.3; CL 102; BUN 23; Cr 1.5. Head CT scan without contrast showed multiple intraparenchymal hemorrhages in both frontal lobes as well as the right temporal lobe. According to the Harvard Stroke registry, only 49% of persons with a supratentorial ICH vomited. In comparison, 90% of patients with ICH had very significant elevation in blood pressure. Thus, vomiting as a manifestation of ICH is relatively uncommon and can be confused with other etiologies such as Gastroenteritis or Gastritis. In addition, it is essential for clinician to ensure a thorough work up is conducted in order not to overlook subtle signs. This patient only presented with vomiting and syncope with no headache.

Pontine stroke disguised as unilateral Bell's Palsy

Jessica Pringle , Midwestern AZCOM, MS-III

Dr. Mohamad Hosam Horani MD, Dr. David Salvatore DO, Rohini Nott

CR, Poster Display No. 11

A 72 year old patient with a history of HTN and DM, type 2 was admitted to the hospital with complaint of left facial weakness upon waking up sometime between 4-5am. Pt presented to the ED 12 hours later. Pt also complained of dizziness that was made worse with positional changes. Additionally, patient has some postauricular pain and left eye tearing. Pt denies any vision changes, tinnitus, hearing loss, or new weakness, numbness, or paresthesia in his arms or legs. CT of the head without contrast showed mild atrophy and no acute stroke or hemorrhage. Pt's speech was slightly slurred but the content was appropriate. The patient was evaluated by a neurologist who confirmed isolated involvement of the left seventh cranial nerve (House-Brackmann grade V deficit) and began empirical treatment for Bell's Palsy; a course of 20 mg prednisone TID for ten days and 1g acyclovir TID for seven days. Further labs were ordered including ACE, ESR, ANA, and lyme disease titers to rule out other common causes of peripheral nerve lesions. Endocrinology was consulted for pt's 5 year history of diabetes mellitus. Pt was additionally diagnosed with steroid-induced hyperglycemia, dyslipidemia, and acute kidney injury (improved with IV hydration). The following day, MRI of the brain with and without contrast demonstrated a 9 mm acute infarct in the posterior left medulla. The proximal seventh and eighth cranial nerve complex appeared normal bilaterally. Follow-up MRI of the brain without contrast the next day demonstrated a 1.1 cm subacute stroke involving the posterior inferior pontine-medullary junction. Paralysis of forehead on the affected side of the face usually indicates a peripheral nerve lesion over a central lesion because CN VII has bilateral innervation. A central lesion warrants further workup including MRI, cerebrospinal fluid analysis, and labs to rule out HIV and vasculitis. Bell's Palsy accounts for 72% of facial palsies. Other causes of peripheral lesions include Ramsay Hunt Syndrome, sarcoidosis, Sjogren's syndrome, diabetes mellitus, hypertension, lyme disease, HIV infection, and amyloidosis. Rarely, a UMN lesion to the ipsilateral facial nerve nucleus or facial nerve tract in the pons can also present with forehead paralysis. This raises the question of whether an MRI should be routinely performed in a suspected case of Bell's Palsy, especially in patients with a high risk of CVA. In these cases, dysarthria may have some additional clinical importance in distinguishing a lacunar infarct from the speaking difficulties in patients with severe Bell's Palsy.

Good history could have saved thousands of dollars and years of suffering.

Puneet Raman , UofA College of Medicine - Phoenix, MS-III

Priya Raman; Reem Haddad, MD; Shakaib U. Rehman, MD

CR, Poster Display No. 12

INTRODUCTION: Cannabinoid hyperemesis syndrome should be considered in patients with chronic marijuana use experiencing chronic nausea, vomiting and relief of symptoms with hot showers. Many of these patients remain diagnostic mysteries despite extensive work up. **CASE REPORT:** A 34 year old Caucasian male with a past medical history significant for nephrolithiasis was evaluated by numerous physicians including gastroenterologist since 2006 for persistent left upper quadrant abdominal pain associated with nausea, vomiting, and occasional diarrhea. Patient has denied history of colon cancer, alcohol, or NSAID abuse. He was evaluated at various clinics/ED/hospitals. He has extensive laboratory workup including repeated complete blood count (CBC), complete metabolic panel, liver function tests, amylase, lipase levels, ESR, Endomysial Antibodies, HIV, Hepatitis A, B, and C panels, Vitamin B12, Vitamin D 25 OH, D3, and D2, TSH/T3/T4, Cortisol, UA, UDS, and Urine metanephrines. Stool samples were checked for microbiology, cultures, WBC, ova/parasites, C Diff, Giardia, and Cryptococcus antigen. All were normal. EGD was performed on multiple occasions and reported normal. Multiple CTs Abdomen/Pelvis with contrast were significant for bilateral non-obstructing renal calculi. A gastric emptying study and colonoscopy were unremarkable. The patient was hospitalized twice at two outside hospitalizations with dehydration secondary to intractable vomiting. All of the diagnostic testing was unrevealing. He also evaluated by a general surgeon at an outside hospital who concluded he had chronic abdominal pain of uncertain etiology. Based on this extensive negative workup, it was concluded that the patient's issues were functional in nature. He was prescribed Lomotil for symptomatic relief of his diarrhea and advised to improve his fiber intake and hydration. The patient was also taking lansoprazole, oxycodone, and topical lidocaine for the left upper quadrant pain without symptom relief. The patient came to Phoenix VAMC. Upon reviewing his records it was noticed that urine drug screens has been positive for cannabinoids on multiple occasions. The patient admitted that he was a chronic marijuana user and reported that he noticed an improvement in his symptoms when he quit using marijuana for a short period in 2011. We considered the possibility of cannabinoid hyperemesis syndrome, one of the hallmarks of which is relief of symptoms after taking hot showers. The patient did admit that hot showers helped relieved his symptoms, and his wife, who was present during the visit, noted that the home water bill tripled during the months where his marijuana use was the heaviest. Based on this information and his extensive work up, the diagnosis of cannabinoid hyperemesis syndrome was made and he was advised to quit marijuana. **CONCLUSION:** This case underscores the importance of taking a good history as the substance use history would have pointed to the diagnosis before the extensive and repeated work-up.

Reactive hemophagocytic syndrome in an adult patient with Still's disease

Waseem Albasha BS, UofA College of Medicine - Tucson, MS-IV

Heba Albasha B.S.E., Waseem Allabban M.D., Anita Koszyk-Szewczyk M.D., Mohamad Hosam Horani M.D.

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Reactive hemophagocytic syndrome is a rare but life-threatening complication of adult Still's disease. It is characterized by hemophagocytosis, a phenomenon wherein nonmalignant histiocytes in the bone marrow phagocytize erythrocytes, leukocytes, platelets, and their precursors. In this report we describe the case of a 40 year old man with a history of Still's disease who presented with syncope and was admitted with sepsis, pneumonia, and acute kidney injury. On day four of admission his hemoglobin had mildly decreased but his platelets were found to have rapidly decreased to 28,000 per microliter from 117,000 per microliter on admission; his previous baseline was in the 200,000s per microliter. A ferritin level was measured and found to be extremely elevated at over 140,000 nanograms per milliliter. At this point reactive hemophagocytic syndrome was suspected and a bone marrow biopsy confirmed hemophagocytosis. The patient presented in a fairly typical manner for reactive hemophagocytic syndrome; however, this case provides three valuable learning points and confirms recent studies examining the predictive factors of reactive hemophagocytic syndrome. The first point is that in critically ill patients with rheumatic disease, hemophagocytosis must be kept in mind, and seriously considered if the patient's blood counts begin to unexpectedly downtrend. The second point is that reactive hemophagocytic syndrome should be strongly considered in adult patients with Still's disease who specifically have low or rapidly decreasing platelet counts, whether or not this is in the setting of critical illness. Recent studies have found that a platelet level less than 121,000 per microliter is an independent predictor of the development of reactive hemophagocytosis in patients with Still's disease. The final point is that patients need not fully meet criteria for reactive hemophagocytic syndrome in order to receive life-saving treatment, as long as there remains a strong clinical suspicion based on clinical, laboratory, and pathological evidence, as well as on specific trends in laboratory markers for the disease, such as low platelets or high ferritin. A ferritin higher than 10,000 nanograms per milliliter, as seen in this patient, is also an independent predictor of the development of reactive hemophagocytosis in patients with Still's disease. This case illustrates that two of the factors recently understood to be independent predictors of reactive hemophagocytosis, platelets and ferritin, can indeed inform the diagnostic decision making of physicians managing adult patients with Still's disease, as well as inform the decision to treat based on sometimes limited data that does not allow a patient to meet full criteria for a diagnosis of reactive hemophagocytic syndrome.

Case report of a patient with de novo Li–Fraumeni syndrome presenting with recurrent papillary thyroid carcinoma associated with previously undescribed variant of TP53 mutation

Ruth Benzar BS, BA, Creighton COM, MS-IV

Libu Varughese, MD; Michael Roberts, MD; Anna Boron, MD

CR, Poster Display No. 14

Objective: To underscore the unusual features in a patient diagnosed with Li-Fraumeni syndrome (LFS) and to highlight the association of p.A287G variant mutation with de novo LFS. **Case Report:** Reported herein is the case of a 28-year-old female with a history of phyllodes tumor, status post lumpectomy, who presented to the endocrinology clinic for evaluation of a thyroid nodule. Thyroid and lymph node pathology revealed papillary thyroid cancer, for which she underwent total thyroidectomy and radioablation therapy. A follow-up CT scan for the phyllodes tumor revealed an incidental 6 cm adrenal tumor consistent with a cortisol-secreting adenoma. Following adrenalectomy, histopathological results of the left adrenal surgical specimen revealed adrenocortical carcinoma (ACC). Subsequently she developed recurrence of her thyroid and adrenal malignancies; PET scans indicated increased metabolic activity within the bed of the adrenal tumor, right neck lymph nodes, right thyroid bed, and colon, consistent with metastasis. Genetic testing for TP53 showed heterogenous mutations of previously undetermined significance, p.A287G variant; with no known first- or second-degree relatives with cancer, this supported a diagnosis of de novo LFS. **Discussion:** Three major unusual features were noted in the case of this LFS patient. These consisted of a thyroid malignancy recurrence pattern atypical for LFS, a breast cancer subtype uncommonly associated with LFS, and a previously undescribed association of TP53 mutation, p.A287G, in an LFS patient. Typically, TP53 mutations in the setting of thyroid malignancy predispose a patient to poorly-differentiated, aggressive phenotypes, whereas the recurrence pattern of thyroid malignancy in this proband was well-differentiated papillary thyroid carcinoma. With respect to breast malignancy, breast carcinoma is much more frequently associated with LFS than phyllodes tumor, thus contributing to the noteworthy features of her presentation. Lastly, genetic testing for TP53 in this patient demonstrated heterogenous mutations with genetic variant p.A287G, a mutation of previously uncharacterized association with LFS. **Conclusion:** Given the increasing incidence of de novo TP53 mutations, we accentuate the importance of clinical recognition of this syndrome in conjunction with adoption of liberal screening strategies.

Hereditary Angioedema Type II: An Underconsidered Diagnosis

Jessie Coleman , Midwestern AZCOM, MS-IV

Dr. Lu Yao

CR, Poster Display No. 15

Rationale: Hereditary angioedema is an uncommon disease, and HAE Type II is a very rare subset occurring in 1:250,000 people. HAE Type II is characterized by dysfunctional C1 inhibitor protein with normal or elevated C1 inhibitor protein quantity. This results in recurrent episodes of bradykinin-mediated swelling of the skin and mucosal surfaces. The disease presentation is highly variable, from age of onset to triggers to clinical presentation. Some symptoms, such as facial swelling and laryngeal edema, are frequently seen while others, such as abdominal pain, are rarer. HAE Type II's rarity and indistinct clinical picture both contribute to underdiagnosis. Here we present a case of HAE Type II. Methods: A 57 year old male had numerous episodes of primarily facial and upper extremity swelling over many years and was eventually diagnosed with angioedema. He was placed on androgen treatment with danazol, which was well tolerated and virtually eliminated his angioedema episodes. However, due to abnormal liver function tests danazol was discontinued and the patient had reoccurrence of facial and extremity swelling. Results: Immunological testing showed low C4, normal C3, elevated C1 Inhibitor quantity, and low C1 Inhibitor function. Immunoglobulin levels were all within normal limits. These combined findings were all consistent with HAE II. The patient resumed danazol after being evaluated by his allergist and his symptoms have resolved. Conclusion: Hereditary angioedema Type II is a very rare but life-threatening disease. It is crucial for primary care physicians to consider and test for this disease in patients with recurrent angioedema once ACE inhibitor use and other causes of acquired angioedema have been eliminated.

Hepatic hydrothorax complicated by spontaneous bacterial empyema. A case report

Chris Foss , UofA College of Medicine - Tucson, MS-IV

CR, Poster Display No. 16

Spontaneous bacterial empyema (SBEM) is an unusual clinical entity defined as the spontaneous infection of a preexisting hydrothorax in patients with liver cirrhosis, associated with significant morbidity and mortality. In this report, we present a case of SBEM as an incidental finding of a patient undergoing work up for treatment of refractory hydrothorax. A 57-year old man with a PMH significant for cirrhosis secondary to ETOH abuse and HCV infection, complicated by refractory ascites, esophageal varices and hepatic hydrothorax (confirmed by NM peritoneal shunt study), presented to the emergency department with a chief complaint of shortness of breath. He was previously on diuretic treatment but developed orthostatic hypotension and symptomatic hyponatremia and diuretics were stopped. He was getting therapeutic paracenteses as needed and was undergoing work up for a possible TIPS procedure. A chest radiograph on admission revealed a large right-sided pleural effusion with mass effect on the cardiomeastinum, increased in size compared to previous radiographs. A therapeutic thoracentesis was performed, obtaining 1.5 L serous fluid. Analysis of the fluid revealed a protein ratio 0.18 and a LDH ratio of 0.7. Fluid glucose was 129. Albumin gradient was 1.5. Fluid WBC was 17000 (79% PMN) with RBC of 4200. Gram stain was negative. Cultures of the fluid came back positive for *Pseudomonas aeruginosa* (pansensitive). A diagnostic paracentesis revealed 6500 PMN, SAAG was 1.9. Cultures of the ascitic fluid were negative. The patient had significant symptomatic improvement after the thoracentesis and completed a 2-week course of antipseudomonal antibiotics. He received albumin infusions on days 1 and 3. He will undergo a TIPS procedure in the future. SBEM, defined as the spontaneous infection of the pleural fluid, represents a complication of hepatic hydrothorax. The pathogenesis remains unclear but it seems to be related to direct bacterial spread from the peritoneal cavity. However, up to 40% cases SBEM are not related to spontaneous bacterial peritonitis. SBEM symptoms are unspecific and a high index of suspicion is essential for the diagnosis. Symptoms may include fever, pleuritic pain, worsening dyspnea, encephalopathy, or deterioration in kidney function. Diagnostic criteria include a PMN count > 500 or > 250 with a positive fluid culture, a serum/pleural fluid albumin gradient > 1.1 , and the absence of pneumonia or other contiguous infectious process. Treatment includes appropriate antibiotic coverage (for gram negative enterobacteriaceae). The use of albumin has not been specifically studied although some authors recommend its use. Given the underlying hydrothorax, chest tube placement should not be used for the treatment of SBEM. As mentioned above, given the unspecific symptoms, a high-index of suspicion is necessary for the diagnosis and appropriate treatment.

Atypical Presentation of Henoch-Schönlein Purpura in a Patient with Prader-Willi Syndrome

Sean Kent , UofA College of Medicine - Tucson, MS-IV

Eason Joshua D.O., Ajaz Usman M.D., Chamarthi Gajapathiraju M.D.

CR, Poster Display No. 17

Introduction: We present the case of a 33-year-old woman with Prader-Willi syndrome who presented with a painful, pruritic maculopapular rash with necrotic bullae Case Presentation: A 33-year-old female with Prader-Willi syndrome presented with a two-week duration of a mildly pruritic petechial rash on her lower extremities. Prior to the appearance of the rash, she had complained of diarrhea and sore throat. She was discharged with a Zyrtec prescription and scheduled follow-up appointment with dermatology. Patient was never able to see the dermatologist due to lack of insurance. Patient was re-admitted one week later for a progressively worsening rash that continued to spread in a caudal-cephalad direction, now involving her trunk and distal upper extremities bilaterally. The rash on her lower extremities had begun to coalesce and form large flaccid bullae, some of which had ruptured and were exuding a light-brown colored fluid. Initial immunology work-up was negative for; cryoglobulins, perinuclear anti-neutrophilic cytoplasmic antibody, cytoplasmic anti-neutrophilic cytoplasmic antibody, anti-Smith antibody, rheumatoid factor, anti-nuclear antibody, double-stranded-DNA, and complement levels. Only cyclic citrullinated peptide antibody test was elevated (45.7units). Upon further investigation, a family history of rheumatoid arthritis was discovered (Mother and Aunt). Rash continued to worsen with more extensive involvement of her arms and trunk with increased edema in her lower extremities. Pulse prednisone was initiated and dermatology & rheumatology were consulted. Punch biopsies were obtained by dermatology for Hematoxylin Eosin (H&E) and direct immunofluorescence (DIF) staining. Initial H&E staining results indicated leukocytoclastic vasculitis. After 2 days of little improvement, pulse prednisone dosing was increased. Patient's rash began to resolve over the next few days. Azathioprine was started via rheumatology recommendations as a steroid-sparing agent. She continued to improve and was eventually discharged in stable condition. Considerable effort went into making sure she had a follow-up with rheumatology as an outpatient. After discharge, DIF staining results returned with findings consistent for IgA vasculitis, also known as Henoch-Schönlein purpura (HSP). On follow-up at her outpatient rheumatology appointment, her rash had resolved. Her prednisone was tapered off and azathioprine was discontinued. Discussion: This case illustrates a dramatic presentation of rash associated with HSP. Unlike the classic presentation, there was no hematuria or abdominal symptoms, which made the diagnosis more difficult. The case also highlights the difficulty many people face obtaining health care coverage. If our patient had been able to see dermatology at her follow-up a week after her first presentation, her condition might have been prevented from progressing further requiring hospitalization. Also, had her inability to pay been recognized and better accommodated by the health care system, a single pro-bono follow up visit to dermatology would have been much more cost effective compared to the delayed treatment and nine-day hospital stay.

Mixed Phenotype Acute Leukemia - A Rare Disease

Skye King , University of New Mexico SOM, MS-IV

Andrew Kovoor MD, Faiz Anwer MD

CR, Poster Display No. 18

Mixed phenotype acute leukemia is a rare disease, representing 2-5% of leukemias found in all age groups, carrying with it a poor prognosis with an overall survival of 18 months. We present a case of mixed phenotype acute leukemia (MPAL). Case Report A 65-year-old previously-healthy male presented to the hospital with a several week history of fatigue, dyspnea, abdominal discomfort, and pallor. The day prior to his arrival, he developed fever, chills, diaphoresis, pleuritic chest pain, shortness of breath, and severe lethargy. At a local hospital he was found to be febrile to 105F, tachycardic, hypotensive and hypoxic and was subsequently intubated and started on broad-spectrum antibiotics for presumed pneumonia. Upon transfer to our facility, he was found to be pancytopenic with 66% circulating blasts, thrombocytopenic with platelets of 14, and severely neutropenic. Hematology/Oncology was consulted and a bone marrow biopsy was done with flow cytometry results showing the following phenotype: CD33+, CD7+, CD117+, CD34+, CD61+, CD71+, CD4, CD38+, CD56+, MPO+, and cCD3+, and a subset of cells positive for CD5+. The co-expression of MPO and cCD3 was consistent with MPAL, features suggestive of both AML and ALL. Chemotherapy regimen with Larson #8811 was initiated. His hospital course was complicated by sepsis with multidrug resistant E.coli and pancytopenia. He required 8 units of platelets and 8 units of pRBCs in 2 weeks. Discussion The first report of MPAL was in the 1980s. Since the discovery of this disease, studies aiming to elucidate the epidemiology and cytogenetic/molecular basis of it reported only 2-5% of leukemias as MPAL. As in all leukemias the clinical presentation of MPAL includes symptoms arising from bone marrow failure: fatigue, infections, and bleeding disorders. Initial laboratory analysis reveals leukocytosis with many circulating blasts, non-specific findings making precise diagnosis difficult. Most cases express CD45 and early hematopoietic markers CD34, CD38, TdT, and HLA-DR. Based on recent studies, no single chromosomal abnormality accounts for MPAL, however the most common includes rearrangement of 11q23, the Philadelphia chromosome t(9;22)(q34;q11.2), and deletion of 6q, 5q, and 12p. Our case illustrates a patient with MPAL whose clinical course was characterized by marked sudden deterioration and complications, who was started on chemotherapy. Per the literature, there is no defined treatment protocol for MPAL and prognosis is poor, with decreased overall survival, disease-free survival, and ability to achieve complete remission. In the setting of the rarity of this disease, the genetic basis, pathophysiology, and treatment of this disease is poorly understood. As with other types of leukemia, it is very likely that the treatment approach will rely heavily on the cytogenetic and molecular changes underlying MPAL, and a better understanding of this will lead to emergence of treatment and improvement in survival for these patients.

Pre-aortic paraganglioma initially misdiagnosed as liposarcoma

Shadi Milani BS, Midwestern AZCOM, MS-IV

Michael H. Schild, Steven J. Buskirk, Tasneem Kaleem, Jason Lewis

CR, Poster Display No. 19

Paragangliomas are rare neuroendocrine tumors that are commonly misdiagnosed. They can develop at the aortic bifurcation if the organ of Zuckerkandl does not involute during infancy. We report a case of a pre-aortic paraganglioma that was misdiagnosed and treated as a pleomorphic liposarcoma. It was determined by magnetic resonance imaging that the tumor was located superior to where an organ of Zuckerkandl neoplasm would occur. Biopsy results confirmed the diagnosis of pleomorphic liposarcoma. The tumor was treated with preoperative radiotherapy to 5040 cGy and resected with a positive margin. Final surgical pathology revealed the diagnosis of paraganglioma. This case describes the difficulty of diagnosing pre-aortic paragangliomas. It is important to include paragangliomas into a differential diagnosis for retroperitoneal tumors.

Metaiodobenzylguanidine scan is highly specific for paragangliomas and should be obtained in suspected cases. However, the gold standard for diagnosis is histological examination.

Hyperparathyroid Crisis In Pregnancy

Jonathan Ramin , Midwestern AZCOM, MS-IV

Akash Bhakta MSIV, Mahmood Shahlapour MD, Irfan Ahmad MD, Mohamad Hosam Horani MD

CR, Poster Display No. 20

A 30-year-old G4P1021 Caucasian female, 9-weeks pregnant at presentation, was admitted for nausea and vomiting. She had a prior diagnosis of hyperemesis gravidarum and was on a Zofran pump. She presented to the ED with an elevated blood pressure and a calcium of 15.5 mg/dL resulting in an admission for hypercalcemic crisis. Endocrinology was immediately consulted. The patient previously presented to the ER for similar symptoms with a calcium of 14.0. However, no workup was done for her hypercalcemia. Despite the Zofran pump, she was having up to 10 episodes of vomiting daily. She reports limited appetite and had lost 18 pounds during the pregnancy. She denies a history of pancreatitis, osteopenia or osteoporosis. She denies confusion, headache, or visual changes. However, she also complains of polyuria, polydipsia, and constipation. Pregnancy history was significant for two spontaneous abortions and one uncomplicated full term delivery. Vitals on admission were significant for a blood pressure of 156/98 mm Hg with bradycardia ranging from 47 to 53 bpm. Exam was non-significant. Labs revealed an elevated parathyroid hormone of 286.1 pg/mL along with the calcium of 15.5. Ultrasound revealed a 2.3 x 0.9 x 1.1 cm heterogeneous solid nodule along the medial lower pole of the right thyroid lobe, questionable for exophytic thyroid nodule versus parathyroid adenoma. Surgical consult recommendations were for surgery to be done at 12-weeks gestation. The patient was started on calcitonin and serum calcium down-trended to 9.8 by day four of admission. This is a rare case of parathyroid crisis in pregnancy. As a result of her pregnancy, the diagnostic approach and management of this patient's hypercalcemia was adjusted in order to protect the mother and baby. Multiple studies have shown pregnant women with hypercalcemia are at risk of hyperemesis, nephrolithiasis, urinary tract infection, pancreatitis, bradycardia and death. Additionally, neonates of hypercalcemic mothers are at risk of hypocalcemia and tetany. Other risks to these neonates are low birth weight, preterm delivery, and spontaneous abortion. With plasma volume expansion during pregnancy, it is reported that the upper limit of normal for calcium levels in pregnancy is 9.5. This patient presented to the ER with a calcium of 15.5. This patient's pregnancy prompted use of ultrasound rather than sestamibi parathyroid scintigraphy. In symptomatic patients with primary hyperparathyroidism, parathyroidectomy is the first line treatment. However, because this patient was only 9-weeks pregnant at diagnosis, surgery was deemed unsafe until the second trimester. To control her calcium, she was subsequently started on calcitonin, a category C medication. The patient responded well to the calcitonin which she continued until her second trimester. She then underwent a parathyroidectomy with no complications and her calcium normalized.

12 Year Old Benign Lung Nodule Resurfaces as ACTH Secreting Carcinoid

Maita Moustafa , Midwestern University, MS-III

K. Salim, M. Horani, H. Ashraf, M. Salim

CR, Poster Display No. 21

History: A 54 year old female with a past medical history of atrial fibrillation and psoriatic arthritis was admitted to the hospital for hypokalemia found on outpatient labs, new onset edema, and weight gain that was concerning for Cushing syndrome. On workup the patient was found to have an elevated 24 hour urine cortisol at 5076. A dexamethasone suppression test was performed, which did not suppress the elevated ACTH, indicating an ectopic source for the hypercortisolemia. An MRI of the brain was also negative for any pituitary source. A thyroid ultrasound was performed to assess any malignancy in the thyroid, and was found negative. A Chest CT was performed which demonstrated a right lung lesion. She noted that a prior right sided lung nodule was found in 2003, which was followed for six years with serial scans and presumed to be benign. An IR biopsy was performed which showed no evidence of malignancy. An octreotide scan was negative. She proceeded to have a lobectomy and experienced significant clinical improvement as well as a normalizing serum cortisol value. Pathology eventually revealed a low grade neuroendocrine tumor consistent with carcinoid. Discussion: This case highlights the difficulty that often exists in being able to detect an ectopic growth with imaging. The lesion was detected 12 year prior, yet even with cautious screening for six years after the initial detection the tumor went on to become functionally active. In the case of ectopic Cushing syndrome, establishing a biochemical diagnosis is often comparatively much easier than localizing the tumor itself. One of the tests employed in the workup of the source of the ectopic ACTH was an octreotide scan. This test involves injecting radioactive octreotide into a vein, and radiographically tracking the uptake of the octreotide into tumor cells to determine the location of the tumor.

Unique Presentations of Langerhan's Cell Sarcoma

Michael Schild , Midwestern AZCOM, MS-IV

Tasneem Kaleem, Daniel Miller, Asit Jha, Jason Lewis, Steven Attia

CR, Poster Display No. 22

Langerhan's cell sarcoma (LCS) is a rare neoplasm with a poor prognosis. To our knowledge, only sixty-six cases have been published. We discuss two patients who presented very differently with LCS, as well as a recently published review of all sixty-six cases. Our first case had a complicated history of metastatic, high-grade myxofibrosarcomas and presented with a single skin lesion of LCS which was treated with resection to a positive margin and adjuvant radiotherapy. The LCS recurred loco-regionally and was again resected. The patient is alive two years after initial diagnosis. The second case presented with bone marrow and splenic involvement, leukocytosis, and thrombocytopenia. This patient had an excellent response to etoposide, prednisone, oncovorin, cyclophosphamide, and Adriamycin (EPOCH), with normalization of the complete blood count, negative bone marrow biopsy at follow up, and splenectomy without viable neoplasm. This patient is alive without signs of disease at 16 months after initial diagnosis.

Carcinoid Tumor and Cardiac Mass: Report of an Unusual Case

Karli Singer BS, Midwestern AZCOM, MS-IV

Suzanne Sorof, MD; William Peppo, DO

CR, Poster Display No. 23

Introduction: Cardiac tumors are extremely rare, but have potentially life threatening consequences as the mass can lead to embolic events or interfere with valvular function. They can be asymptomatic and found incidentally while screening for other disorders. We present an unusual case as an example of how they may be discovered. **Case Description:** A 64-year-old male with uncontrolled hypertension saw his primary care provider for his annual physical. He was asymptomatic and his physical exam was unremarkable. A screening colonoscopy was performed which revealed a rectal mass. A biopsy confirmed it to be a carcinoid tumor. The patient underwent further workup and staging of the carcinoid tumor. Incidentally, a partially calcified 1.5 x 2.1 cm mass arising from the left atrial septum was identified on chest CT scan. A transesophageal echocardiogram was performed to evaluate the cardiac mass. A 1.54 x 2.0 cm calcified sessile neoplasm was attached to the middle of the left atrial septum. This was thought to be a cardiac myxoma. There were no clots noted in the atrial appendage. To assess his cardiac function, a cardiac catheterization was completed which showed a 50-60% stenosis of the right coronary artery. The patient was referred to a cardiothoracic surgeon who resected the tumor and removed the atrial septum, replacing it with a graft. A CABG x1 to the RCA was also performed. He did well postoperatively and was discharged home after four days. The tumor was sent to pathology for histologic classification. No typical histologic features of myxoma were identified, but in fact a cardiac calcified amorphous tumor (CAT) was described. The patient is currently doing well and his hypertension is well controlled. He is following up with cardiology and cardiothoracic surgery for the cardiac mass and oncology for his carcinoid tumor. **Discussion:** Calcified amorphous tumors (CAT) of the heart are extremely rare cardiac masses that can often be asymptomatic but cause significant sequelae if they embolize or obstruct cardiac flow. This patient was fortunate to have a carcinoid tumor discovered on screening colonoscopy, since it led to the discovery of the potentially dangerous cardiac mass. CAT was first described by Reynolds et al. in 1997. Cardiac CAT are non-malignant, can occur in all four chambers of the heart, are mobile, and have been shown to recur. Histologically, they are characterized by nodular calcium in an amorphous background of degenerating blood elements, fibrous material, and chronic inflammation. The pathogenesis is unknown. The treatment of choice is surgical removal with consistent follow-up to monitor recurrence. Cardiac CAT can be difficult to distinguish from cardiac myxomas on imaging but they have distinct characteristics and should be in the differential when working up a cardiac mass.

Right-sided frontal cortex venous thrombosis presenting as gait apraxia.

Timothy Tiutan , UofA College of Medicine - Tucson, MS-IV

Roberto Bernardo, MD; Laura Meinke, MD

CR, Poster Display No. 24

Gait apraxia, also known as prefrontal ataxia or Bruns' apraxia, is a disease phenomenon wherein a lesion to the frontal cortex manifests a gait disorder, while strength and coordination of the lower extremities remain intact when tested in a seated position. The mechanism involves disruption of the frontopontocerebellar tract. In this report, we present a case of a right-sided frontal cortex venous thrombosis presenting as gait apraxia. A 57-year-old male with a history of hepatitis C, schizophrenia, cocaine and alcohol abuse, and major depressive disorder, presented to the emergency department with a one-day history of having multiple falls. He reported suffering from around 60 falls, which he believed were due to issues with balance. The patient stated that when he would attempt to walk, his legs would move in a different direction than he had intended. He denied weakness, muscle pain, lightheadedness, or loss of consciousness. On physical exam, he exhibited hyperreflexia in the upper and lower extremities, downgoing babinski reflexes bilaterally, 5/5 strength throughout, and presented without dysmetria or dysidiadokokinesia when seated or lying in bed. A magnetic gait was observed. MRI with and without contrast along with MRA/MRV illustrated restricted diffusion within the right frontal extra-axial space, with an increase in FLAIR and T1 signals, suggesting an acute cortical venous thrombosis. The patient was seen by neurology, started on anticoagulation therapy with a heparin drip, and had aggressive physical and occupational therapy with slow improvement noted. He was discharged with warfarin treatment for an expected duration of three to six months and had a follow-up MRA/MRV before finishing therapy to further assess the need for anticoagulation treatment. There are several ways in which to classify the various types of apraxias due to the complexity of the brain, which are mainly classified based on the location of a given lesion and its associated symptoms. Patients may present with a tendency to slide their feet along the floor instead of possessing the ability to lift or place them normally, otherwise referred to as a magnetic gait. The disease mechanism involves a disruption in the frontopontocerebellar tract, which originates in the frontal lobe (Brodmann's area 10) and transfers information through the pontocerebellar peduncle to the contralateral cerebellum. Although gait apraxia typically presents with bilateral frontal cortex lesions or unilateral left-sided frontal cortex lesions, this report presents an atypical case of gait apraxia due to a right-sided frontal cortex venous thrombus. Given its unusual presentation and the wide variety of locations wherein lesions may cause the disease, gait apraxia may often be misdiagnosed and therefore should be considered in the differential diagnosis when assessing patients with gait abnormalities.

A Case of Septic Arthritis in a Horse Caretaker

Rafael Urcis MD, UACOM at University Campus, PGY

Price Gaynor, MD, Chinh Nguyen, MD

CR, Poster Display No. 25

Introduction: The following case describes septic arthritis secondary to *Streptococcus equi*. The case highlights the importance of obtaining epidemiologic data in order to adequately identify a potential source of outbreak and reduce transmission to humans. **Case Description:** A 63-year-old gentleman presented to the hospital with a 4-day history of fever, chills and an associated 1-day history of erythema and edema of his right knee extending to his foot. Past medical history was significant for atrial fibrillation, chronic venous stasis, and bilateral knee replacement surgery in 2009. The patient worked as a welder and lived on a farm and cared for horses. On admission, the patient was afebrile with a heart rate of 103 bpm and a blood pressure of 163/100 mmHg. Physical exam was significant for right lower extremity erythema, pitting edema, warm and tender to palpation, with a palpable suprapatellar effusion. Additionally, he had an open wound on the ipsilateral plantar surface of the first metatarsal. The remainder of the physical exam was unremarkable. Significant laboratory values comprised leukocytosis of 16,300/uL with bandemia. X-ray of the knee confirmed a suprapatellar effusion. Orthopedic surgery was consulted, blood cultures and synovial fluid cultures were obtained, and intravenous vancomycin and piperacillin/tazobactam were initiated. He underwent a total knee arthroscopy with explantation and washout. All cultures grew group c streptococcus, identified as *Streptococcus equi* ssp *equi*. Lastly, Infectious disease recommended deescalating therapy to ampicillin for 4 weeks prior to knee replacement. **Discussion:** *Streptococcus equi* ssp *equi* and *Streptococcus equi* ssp *zoepidemicus* are the two subspecies of the genus *Streptococcus equi*, sharing 98% genome sequence with each other and 80% genome sequence with *Streptococcus pyogenes* (Fulde, 2013). *S. zoepidemicus* is a mucosal colonizer of a myriad of species, whereas *S. equi* solely infects horses (equine) and is thought to cause a severe upper respiratory tract infection also known as “Strangles”. There have been documented cases of humans contracting both *S. zoepidemicus* and *S. equi* secondary to direct horse exposure. These organisms are capable of causing severe disease in humans, including meningitis, endocarditis, pneumonia, and septic arthritis. (Pelkonen, 2013). The likely portal of entry in this case was through the open wound, however other documented modes of transmission involve consumption of unpasteurized dairy products and aerosols (Fulde, 2013). **Conclusion:** This case represents the importance of obtaining epidemiologic data when taking patient histories, as so many of us physicians forget to do in our increasingly busy schedules. The rapid identification of the organism can help to prevent further outbreaks in stables as well as prevent transmission to other humans working with the horses.

Hemophilic pseudotumor in a patient with Noonan's syndrome and an undefined bleeding diathesis.

Sorcha Allen MBBCH BAO, Mayo Clinic AZ, PGY-1

Dr. Craig Reeder, Dr. Matthew Zarka, Dr. Christopher Beauchamp, Dr. Farouk Mookadam (all M.D.)

CR, Poster Display No. 26

Introduction: Pseudotumors are part of a spectrum of hemophilic cysts. Hemophilic pseudotumors are a well-established yet rare complication affecting between 1 and 2% of individuals with hemophilia. We present the case of hemophilic pseudotumor in a patient with a poorly characterized bleeding diathesis including prolonged APTT, chronic DIC and fibrinolysis, with normal factor XIII and IX levels. **Case Report:** A 46 year old gentleman with Noonan's syndrome, congenital heart disease and bleeding diathesis presented with a progressively enlarging, painful mass on the left side of his lower back. A bone marrow biopsy had been performed at that site, some years previously. On examination vital signs were normal. Lumbar spine range of motion was markedly limited secondary to an extensive fusion. There was a 6-cm mass palpable beneath the skin of the left lower back which was mildly tender to palpation. Strength was 5/5 bilaterally for all movements with the exception of dorsiflexion, which was diminished. Distal lower extremity sensation was decreased in no particular nerve root distribution. Laboratory investigations included a hemoglobin of 13.8g/dL, platelets 109x10⁹/L, protime 14.3s, activated partial thromboplastin time 35.8s, fibrinogen 286mg/dL, d-dimer 16.42mcg/mL, factor VIII 93% and factor IX 117%. MRI of the lumbar and pelvic region demonstrated a 12 cm, lytic soft tissue mass centered in the medial left ilium with extension into the pelvis and lateral displacement of the iliopsoas muscle. The patient's hematologic status was optimized prior to surgery using subcutaneous heparin and fresh frozen plasma. He underwent open biopsy and surgical debridement of the tumor bulk. Frozen section showed no evidence of malignancy and the pathological findings were consistent with hemophilic pseudotumor. The patient recovered well with perioperative FFP administration for mild bleeding episodes. He was discharged home with serial imaging follow up and good interim progress. **Discussion:** Hemophilic pseudotumors are rare and have no agreed-upon management strategies. Options include conservative or surgical management with early surgery being recommended for the management of those in the ilium and femur in order to prevent ulceration, erosion of bone and overlying skin infection. The histopathological features of hemophilic pseudotumor consist of hematoma with dense fibrous capsule. What is interesting is the fact that our patient had these same features, but does not have hemophilia. It is possible that his bleeding diathesis put him at increased risk, but given the lack of available literature it is difficult to say with certainty. MRI is the most useful imaging modality for diagnosing pseudotumor, but is nonspecific unless the radiologist is aware of a bleeding disorder. As a result, these tumors are often initially suspected for malignancy, as was true in our case. This case is presented due to its unique presentation and diagnostic dilemma.

Spontaneous Unilateral Adrenal Hemorrhage due to Metastatic Disease

Kelly Barnett MD, UACOM at University Campus, PGY-1

See Wei Low, Rorak Hooten, Joao Paolo Ferreira

CR, Poster Display No. 27

Adult adrenal hemorrhage is an uncommon presentation, usually reported in 0.3-1.8% of autopsies. Furthermore, unilateral adrenal hemorrhage (UAH) is even more rare than bilateral adrenal hemorrhage (BAH), and is generally due to trauma, liver transplant recipients, use of anticoagulants, or tumors. This case describes a 77-year-old man with a medical history of squamous cell skin cancer and chronic UTIs, as well as a 25 pack-year smoking history, who presented with acute chest and abdominal pain with hypotension. The patient was given fluids and became hemodynamically stable. Labs were relatively unremarkable, showing only an elevated D-dimer and hematuria. CTA chest/abdomen/pelvis revealed right-sided adrenal hemorrhage, a left adrenal nodule, and multiple spiculated nodules of the right lung. Biopsy of the lung nodules showed non-small cell carcinoma. These findings led us to believe that his spontaneous UAH was due metastatic disease to the adrenal glands. Adrenal hemorrhage presents with nonspecific pain in 65-85% of published cases, which can occur anywhere on the chest, abdomen and or back. It is not only rare to diagnose adrenal hemorrhage, but more difficult to narrow down UAH from BAH, due to the deceptive clinical signs of UAH. Acute adrenal insufficiency/crisis symptoms such as fatigue, anorexia, dizziness, diarrhea, nausea, and vomiting may occur in association with extensive bilateral adrenal hemorrhage, where as adrenal crisis is not associated with UAH. Similarly, symptoms of underlying Waterhouse-Friderichsen syndrome such as rash, malaise, headache, dizziness, and cough may also present with bilateral but not unilateral hemorrhages. UAH has mostly been described in case reports or case series and is most commonly cited to be due to pregnancy, anticoagulant use, or high levels of stress such as critical illness or surgery. Lastly UAH has been associated with malignancies - either primary adrenal or more commonly metastasis. In our case, our patient had no other predisposing factors. CT scan had showed suggestion of a nodule on the other adrenal gland in conjunction with spiculated lung nodules highly suggestive of primary lung cancer. Lung lymph node biopsy was positive for non-small cell cancer, and MRI confirmed that the intact adrenal gland did have a likely metastatic lesion. Although his adrenals were never biopsied, in the setting of cancer in his lungs and a history of cancer, metastatic disease was the most likely cause of his UAH. UAH can be difficult to diagnose, as symptoms are often nonspecific. Once diagnosed, in the absence of anticoagulants and acute stress, malignancy should be high on the differential of an elderly patient with unilateral adrenal hemorrhage.

Merkel Cell Carcinoma Following Etanercept Treatment For Rheumatoid Arthritis

Adam Berlinberg MD, UACOM at University Campus, PGY-1

Jaren Trost M.D., Dominick Sudano M.D.

CR, Poster Display No. 28

Introduction: Immunosuppressants are currently very common treatment modalities for rheumatologic diseases, including rheumatoid arthritis (RA). There are many potential side effects related to immunosuppression, primarily related to infection risk. Some of the more rare side effects can include numerous types of malignancy. Etanercept (Enbrel) is a tumor necrosis factor (TNF) blocker that is used in the treatment of RA and numerous other diseases. Prudent observation and follow up is necessary while on biologic medications to avoid and treat complications. One infrequent side effect that is described here is the risk of Merkel Cell carcinoma, which is a rare and highly aggressive dermatologic malignancy. Case Description: A 52-year-old female with a history of RA that is rheumatoid factor positive and cyclic citrullinated peptide (CCP) positive was being followed by the rheumatology clinic. The patient had severe, erosive RA and ongoing synovitis despite moderate dose therapy with methotrexate and prednisone. The patient reported RA symptoms primarily manifested by polyarticular joint pain, diffuse stiffness, and swelling. Symptoms were described as present in bilateral hands, wrists, shoulders, knees, and ankles. Other symptoms included ongoing diffuse morning stiffness lasting up to 60 minutes every morning. The initial RA drug regimen involved prednisone 5 mg daily and methotrexate 15 mg/week. There were no reported fevers, chills, rashes, or Reynaud's phenomenon. The patient was started on etanercept at a dosage of 50 mg subcutaneous weekly. The patient was able to be stabilized with regard to RA symptoms, and was followed regularly by rheumatology. Approximately one year after initiation of etanercept, the patient presented with a small erythematous papule on her left lower leg. Three months later, the lesion had rapidly grown into a raised, almost pedunculated erythematous nodule measuring 2.7 x 2.1 cm. The patient was referred for biopsy and excision and was found to have Merkel cell carcinoma, and was staged to be IIIA (T2n1aM0). Discussion: This case represents an unfortunate outcome in the treatment of rheumatoid arthritis using biologic medications. A major concern with immunosuppression in otherwise healthy patients is infection risk, although malignancy is an uncommon but possible adverse outcome. Merkel cell carcinoma is a rare, aggressive malignancy that can be associated with etanercept use, along with other non-melanoma skin cancers. This case serves as a reminder that proper follow up care and regular physical exams are necessary, and new skin lesions should be fully investigated, especially within the first 24 months of initiation.

An Atypical Presentation of Vancomycin Hypersensitivity Reaction

Ryan Buckley MD, UACOM at University Campus, PGY-1

Ashish Mathur, Tara Carr

CR, Poster Display No. 29

Introduction: We present a case of an atypical hypersensitivity reaction to vancomycin, in a patient who required treatment with vancomycin for Enterococcus bacteremia. Case Description: The patient is a 33-year-old woman with history of tetralogy of Fallot, hemophagocytic histiocytosis (HLH), ESRD on peritoneal dialysis, seizure disorder with febrile seizures, and recent multi-drug resistant Enterococcus bacteremia treated with tigecycline, who presented with fever, chills, nausea vomiting, and was found to have recurrent Enterococcus faecium bacteremia. Vancomycin was identified as preferred therapy based on culture susceptibility testing. The patient had a reported history of vancomycin allergy from approximately 1 year prior, after developing erythroderma during the fulminant stage of HLH. At that time, before the diagnosis of HLH was confirmed, the erythroderma was suspected due to medication hypersensitivity and multiple other drugs were also listed as an allergy. There had been no signs of immediate hypersensitivity during this period. Due to the severe and refractory nature of the recurrent Enterococcal bacteremia, and the requirement for intravenous vancomycin therapy, the decision was made to begin a vancomycin graded dose challenge, to assess for immediate hypersensitivity reactions. The patient was administered 1/100th of the goal dose, then 30 minutes later without evidence of reaction was administered 1/10th the dose, then after another 30 minutes underwent administration of the full dose at a very slow infusion rate. Approximately 2 hours into administration, the patient developed sore throat, erythema of face, chest and arms, and eyelid edema. She then developed fever to 39.5C with rigors, seizure activity, and hypotension. The hypotension, seizure activity and fever resolved within 1 day. However, her skin erythema persisted for 3 days, most notably on the face, trunk, and legs. Diphenhydramine was administered without relief of symptoms. The vancomycin was subsequently discontinued and the patient was transitioned to treatment with alternate therapy for her Enterococcus faecium bacteremia. Due to the concern for inducing ongoing seizure activity, further drug challenges were not undertaken. Discussion: The most common adverse effect of vancomycin therapy is red-man syndrome, a result of direct mast cell activation and histamine release with fast onset and resolution soon after vancomycin discontinuation. The time course of this reported reaction, however, is inconsistent with red-man syndrome. This case illustrates an atypical hypersensitivity reaction associated with vancomycin and the difficulty in managing drug allergies in medically-complex patients.

Persistent dysphonia in a patient who was treated for Tuberculosis

Madhav Chopra MD, Banner UMC Phx, PGY-1

Shakaib Rehman, MD, FACP

CR, Poster Display No. 30

It is estimated that less of 1% of cases of active Tuberculosis (TB) are associated with laryngeal involvement. Laryngeal TB can result in laryngeal scarring and stenosis. This case is about a 36 year old male with a past medical history significant for TB status post 9 months of monitored antibiotic treatment. He presented to the ambulatory resident clinic with complaint of persistent shortness of breath on exertion. Patient reported symptoms for six months that have been “slowly improving,” but his ability to exercise remained limited. The patient denies any cough, hemoptysis or chest pain. The patient also reports a several month history of “hoarseness” in his voice that is intermittent in nature. He denies any pain when speaking, difficulty swallowing or controlling his secretions. The patient has a history of GERD but has been asymptomatic since beginning PPI therapy. Physical exam was unremarkable and vitals within normal limits. CBC, BMP, Urinalysis, sputum cultures were negative. HIV test was negative. PFTs were significant for non-reversible mild obstruction and concerns of a parenchymal pulmonary defect with air-trapping and reduced diffusion capacity. The patient had been referred but unable to follow up with ENT. He was referred again to pulmonology and ENT for further work up. Per pulmonology, patient had a persistent “sore throat” and vocal changes prior to his diagnosis of TB. Given his symptoms, history and obstructive PFTs it was noted that patient likely had extra-thoracic obstruction. Bronchoscopy showed the “presence of a thin tracheal web that has formed just distal to the vocal cord that nearly completely occludes the opening to the trachea complicated by a subglottic stricture. The orifice for which air seems to pass through can be estimated at 5mm in diameter.” The patient was then seen by ENT and endoscopic examination revealed “glottic stenosis/webbing, and epiglottic mass.” The patient subsequently underwent ENT-directed dilation of the subglottic stenosis. Follow up CT scan with 5mm slices showed no obvious mass in light of the subglottic mass. . Patient was followed up by ENT for close monitoring. This case highlights the importance of recognizing potential extra pulmonary TB complications post treatment. Review of the literature supports the notion that extra-pulmonary disease is primarily associated with HIV positive patients. However, this case illustrates that it is an important diagnostic consideration in all patients with active and treated disease.

Dreaded Demyelination

Judy Dawod MD, UACOM at South Campus, PGY-1

Jennifer Huang, DO

CR, Poster Display No. 31

Osmotic Demyelinating Syndrome (ODS) is a very rare syndrome, and classically occurs after rapid correction for hyponatremia. A lot of studies showed that chronic uremia protects against this syndrome, but some studies and case reports showed that hemodialysis and rapid glucose shift can predispose to ODS in end stage renal disease (ESRD) patients. Patients who develop ODS secondary to dialysis have better prognosis compared to ODS caused by rapid sodium shift. A 59 year-old lady with past medical history of type II diabetes mellitus and end stage renal disease on hemodialysis (HD) 3 times a week, presented with a right ankle fracture, and underwent ORIF. She missed two days of HD because of clots in the fistula. On the third hospital day, a tunnel catheter was inserted and patient was started on HD. The patient was drowsy prior to HD, but alert and oriented. Fifteen minutes into HD, she started to become confused and combative, then unresponsive associated with generalized body stiffness for about a minute. There were no convulsions observed. Patient was intubated for airway protection. On physical examination while off sedation, her eyes were open but she didn't track. She had a positive cough, gag, and corneal reflex, but oculocephalic reflex was absent with dysconjugate gaze and non-reactive pupils (patient is blind in both eyes). She did not follow any commands. She was moving her lower extremities spontaneously, but no movement in her upper extremities. She didn't withdraw to painful stimulus either. Her deep tendon reflexes were 0/4, her left toe was mute, but we were unable to assess the right toe because of the cast. Her labs showed glucose shift from 194 to 285 but no sodium or urea shift. MRI of the brain was obtained and showed FLAIR hyperintensity within the pons, no stroke or watershed infarction. Patient started to show some clinical improvement and started track with her eyes and follow commands after one week, she was extubated 15 days after the incident and kept showing clinical improvement. She was discharged to rehabilitation center 10 days later and was awake, alert and oriented to time, place, and person. She was able to talk and move her four extremities. ODS should be considered in all ESRD patients who present with any neurological symptoms or signs related to the pons or brainstem region. It is important for clinicians to be aware that ODS can happen in ESRD patients even without changes in serum sodium levels. In the literature there are only a few case reports about ODS in ESRD patients and it looks like this syndrome is under-diagnosed due to its rarity.

A Unique Case of Subacute Endocarditis Presenting with Thromboembolic Vascular Occlusion in a Young Male with Undiagnosed Atrioventricular Canal Defect

Edward Distler DO, Banner UMC Phx, PGY-1

David Perry, DO; Akil Loli, MD; Umaima Fatima, MD

CR, Poster Display No. 32

Introduction: AV canal defects have a prevalence of 0.19 per 1000 live births. Specifically, transitional AV canal defects are considered an acyanotic congenital heart disease and are generally asymptomatic during childhood. Without surgical repair, complications can develop including heart failure. Less frequently, endocarditis and its sequelae can occur. In this case, mitral valve cleft vegetations with presumed thrombus formation resulted in embolic peripheral arterial insufficiency. Case Presentation: A 31-year-old Caucasian male with a medical history of asthma and tobacco abuse presented with a 1 day history of severe, sudden onset left leg pain followed by gradually ascending numbness and coldness to touch. He noted nausea and diarrhea for one month and recently had spontaneously resolving intermittent leg pain. He denied any recent trauma, surgery, or skin lesions. His only home medication was a tribulus terrestris supplement. His vital signs were within normal limits. Physical exam revealed a III/VI holosystolic murmur most prominent at the LUSB and absent left leg dorsalis pedis and posterior tibial pulses with Doppler. EKG revealed sinus tachycardia and chest x-ray revealed a normal mediastinum and no acute cardiopulmonary process. CBC revealed WBC of 13,000/mm³ and normocytic anemia at 10.5 g/dL. Other labs include: Troponin I of 0.23ng/mL, APTT: 31, INR: 1.3, C Reactive Protein: 126 mg/L, and Rheumatoid Factor: 20 IU/mL. ANA, Factor V Leiden and JAK2 mutations, and lupus anticoagulant were negative. Cardiolipin result was indeterminate. Computed tomography angiography with runoff revealed abrupt occlusion of a 4 cm segment of the left superficial femoral artery and left popliteal artery with findings suggestive of emboli and a nonspecific focus of diminished attenuation in the spleen. Emergent thrombectomy was performed and pathology revealed a thrombus. Transthoracic echocardiogram revealed endocardial cushion defect, offset AV valve with superior bridging, 9mm primum ASD, small inlet VSD, moderate sized cleft mitral valve with large vegetation of mid-anterior cleft leaflet, moderate mitral regurgitation, and mild LV outlet tract obstruction which together indicate a transitional AV canal defect. Blood cultures remained negative throughout the hospitalization. The patient was started on weight-based heparin drip, ceftriaxone, and vancomycin and underwent mitral valve replacement, aortic valve repair, and closure of ASD. The resected mitral valve was negative for fungal, bacterial, gram stain and anaerobic culture; however, pathology review of the valve with methenamine silver stain, modified Steiner stain and gram stain showed structures suggestive of bacteria with signs of acute and chronic inflammation and fibrin deposition. Conclusion: Although rare, AV canal defects can lead to heart failure and atrial fibrillation, so surgical correction is recommended. The AHA recommends against prophylactic antibiotic treatment of non-repaired acyanotic congenital defects. This case highlights the importance of considering congenital defects with endocarditis when working up a vaso-occlusive event.

Proliferative Glomerulonephritis with Monoclonal IgG Deposits: A Case Report

Robert Drutel MD, Banner UMC Phx, PGY-1

Amandeep Khurana, Leslie Krahl

CR, Poster Display No. 33

Proliferative glomerulonephritis with monoclonal IgG deposits (PGNMID) is rare among the spectrum of diseases that damage kidney function via immunoglobulin deposition and is classified within a wider group of disorders known as monoclonal gammopathy of renal significance (MGRS). A 58-year-old male with a past medical history significant for hypertension and coronary artery disease presented with sudden onset anasarca after starting treatment for an upper respiratory tract infection. During the first hospitalization tests showed nephrotic range proteinuria of 8.6 g/day, hematuria, a serum blood urea nitrogen (BUN) of 22 mg/dL, and a creatinine of 2.25 mg/dL. Additional tests found C3 and C4 complement levels of 83 and 21 mg/dL respectively, normal serum and protein immunoelectrophoresis, and negative anti-nuclear antibody (ANA), negative rheumatoid factor, and negative Hepatitis B and Hepatitis C. A renal biopsy was performed and light microscopy revealed a diffuse proliferative glomerulonephritis without necrotic lesions, crescents, thrombi, nor amyloid by Congo red staining. Electron microscopy demonstrated numerous mesangial and subendothelial deposits, and rare subepithelial deposits. There was 80% podocyte effacement. No organizing substructures were identified.

Immunofluorescence showed diffuse granular staining of the mesangium and capillary loops for IgG (3+), C3 (3+), kappa (3+), and C1q (1-2+), the grading scale is 1-4+. There was no staining for IgA, IgM, C4, lambda, fibrinogen, and albumin. He was discharged and seen as an outpatient, diagnosed with 'lupus nephritis' by his nephrologist (despite negative complements, negative ANA and lack of 'full house' deposition on the immunofluorescence). He was placed on prednisone and cyclophosphamide, however, he returned to the hospital one month later with worsening shortness of breath, AKI and worsening edema. A second nephrology and pathology opinion was sought. On his second presentation his proteinuria increased to 11.8 g/day with BUN 62 and creatinine 4.24 mg/dL. The work up was extended to include cryoglobulins, which resulted negative. Given the negative cryoglobulins and strong staining for IgG and kappa with no other heavy or light chain staining, it was decided to send the renal biopsy specimen for IgG subtyping, which showed monotypic staining for IgG3 without staining for IgG1, IgG2, or IgG4 confirming PGNMID. The patient was started on an immunosuppressive regimen with mycophenolate mofetil and methylprednisolone, with slow improvement in edema and creatinine. This demonstrates the importance of a detailed differential diagnosis and not ignoring subtle clues during a work up.

Therapeutic Role of Rituximab in Refractory Cases of Lupus Myocarditis

Joshua Eason DO, UACOM at University Campus, PGY-1

Ajaz Usman M.D., Chudhri Shariq M.D., Lisse Jeffrey M.D.

CR, Poster Display No. 34

Introduction: Lupus myocarditis(LM) is a potentially life-threatening complication of Systemic Lupus Erythematosus(SLE) estimated to occur in 8-25% of these patients. Rituximab could be a potential therapeutic and life-saving treatment for refractory cases of LM. **Case Presentation:** A 16 year-old female with a history of SLE presented with a two-week duration of fatigue, weakness, rash (bilateral palms, fingers, and medial canthi), and worsening non-bloody diarrhea. She was transferred to the ICU after developing hypotension and tachycardia. Initial labs yielded an elevated B-type Natriuretic Peptide(BNP) (900ng/L), Erythrocyte Sedimentation Rate(ESR)>145, decreased complement levels (C3,C36,C4,C8), positive double-stranded-DNA 1:1280, and negative troponins. Echocardiogram(ECHO) revealed left ventricular ejection fraction(LVEF)~35% (previous ECHO~65%). Patient developed hypotension secondary to cardiogenic shock requiring pressors and inotropic agents. Over concern for an acute SLE flare, she received pulse solumedrol for 3 days. Home medications hydroxychloroquine and mycolphenolate mofetil were continued. Patient continued to deteriorate with repeat BNP>3500 and ECHO showing LVEF~10%. She was intubated to offload stress on the left ventricle(LV). Three more days of pulse solumedrol given with minimal response. Bi-ventricular assist device(Bi-VAD) was placed due to diminishing peripheral pulses and development of cool extremities. Myocardial biopsy showed diffuse vacuolization with areas of perivascular infiltration. Complement staining was positive for IgG, IgM, IgA, C3, and C1q. Hydroxychloroquine and myclophenolate were stopped over concern for toxicity. Concurrent cyclophosphamide and rituximab therapy was initiated, with continued solumedrol. Cyclophosphamide was stopped due to development of osteomyelitis. Patient progressed towards hemodynamic stability without mechanical support and underwent decannulation of her BIVAD with extubation shortly after. Steroids were weaned and pressors/inotropes removed shortly thereafter. Repeat ECHO yielded improved LVEF~32%. Patient continued to be hemodynamically stable and was discharged home. **Discussion:** LM is an uncommon but potentially fatal complication in patients who develop heart failure refractory to first-line therapy. This can result in the need for bi-ventricular pacing, mechanical circulatory support, and/or heart transplant. Even with these therapeutic options mortality rates are extremely high. One major pathogenetic hallmark of SLE is thought to involve dysregulation of B-cells. It's hypothesized that Rituximab (chimeric anti-CD20 monoclonal antibody) depletes B-cells (including memory B-cells), allowing re-population of peripheral naïve and transitional B-cells. Despite promising results, there are not any major studies involving the use of Rituximab in patients with refractory LM. Two major studies (LUNAR & EXPLORER) only examined the treatment of lupus nephritis with a high percentage of patients having only mild/moderate SLE without any history of poor response to conventional therapies. Due to a favorable mechanism of action and fewer side effects, Rituximab should be heavily considered as a possible treatment option for refractory cases of LM. The possibility of sparing patients from VADs, heart transplants, or invasive procedures should alone warrant more attention and further investigative research.

Warm Antibody Mediated Hemolytic Anemia Secondary to Angioimmunoblastic T-Cell Lymphoma

Benjamin Ferguson MD, UACOM at University Campus, PGY-1

Skye King MSIV, Roberto Bernardo MD, Laura Meinke MD

CR, Poster Display No. 35

Warm antibody-mediated hemolytic anemia (AHA) is characterized by IgG antibodies attaching to red blood cells and causing lysis. Approximately 50% of these cases are due to underlying lymphoma or leukemia, while the remaining 50% are idiopathic. Here we present a case of warm AHA secondary to Angioimmunoblastic T-cell Lymphoma, a rare form of Non-Hodgkins Lymphoma. Case Report: A 64-year-old male with a past medical history of prostate cancer status-post resection presented with a one-week history of dyspnea, fatigue, anorexia and a 50lb unintentional weight loss over 5 months. On admission, his hemoglobin had dropped from 11.3 to 5.4 over 3 weeks. Peripheral smear showed spherocytosis, and labs showed elevated indirect bilirubin, low haptoglobin, and elevated LDH, consistent with hemolytic anemia. A direct-antibody test was strongly positive for warm antibodies with low reactivity with C3. He completed 5 doses of intravenous immunoglobulin therapy with an increase in hemoglobin. He was started on steroids and workup was initiated for the etiology of his anemia. Imaging revealed hilar and mediastinal lymphadenopathy, raising suspicion that lymphoma was the underlying cause of his anemia. He had an endobronchial ultrasound for core biopsy and several fine needle aspirations of his lymph nodes, all negative for malignancy. Cervical lymph node dissection showed Stage IV Angioimmunoblastic T-cell Lymphoma. His clinical course has been complicated by several re-admissions for NSTEMI and STEMI likely secondary to severe anemia. Discussion: Autoimmune hemolytic anemia (AHA) is characterized by shortened survival of red blood cells mediated by autoantibodies against autologous red blood cells, usually IgG antibodies. Approximately 80% of patients with AHA have warm-reactive autoantibodies and of these patients, approximately 50% of them suffer from this due to identifiable causes such as infections, medications, lymphoma, or leukemia. The other 50% have idiopathic AHA. Our patient was found to have Angioimmunoblastic T-cell Lymphoma (AITL) underlying his AHA. AITL is a rare, aggressive form of peripheral T-cell lymphoma, accounting for only 1-2% of all Non-Hodgkins Lymphoma cases in the United States, and is characterized by high fever, night sweats, skin rash, and autoimmune disorders like AHA or idiopathic thrombocytopenia purpura. Our case illustrates a patient with AHA whose clinical course was characterized by a sudden onset of symptoms and marked anemia, found to have AITL. His clinical course was complicated by NSTEMI, STEMI, and multiple readmissions. Per the literature, treatment for AHA consists of steroids, blood transfusions, and intravenous immunoglobulins. Yet, with Stage IV AITL as an underlying cause, treatment consists of multi-agent chemotherapy regimens and prognosis is grim. Despite the rarity of this type of lymphoma and its manifestation in the form of autoimmune disorders, it is important to keep it mind when treating patients with AHA or other autoimmune disorders of unclear etiology.

Epidural Abscess following Resection of Sinonasal-orbital-cranial Tumor

Kady Goldlist MD, UACOM at South Campus, PGY-1

Rafael Urcis, MD

CR, Poster Display No. 36

Nasal cavity cancers are rare, accounting for less than 3% of primary tumors of the head and neck. More than 50% of patients diagnosed with primary malignant nasal cavity cancer have involvement of more than one anatomic sub-site. But because the cancer is rare, randomized controlled trials defining optimal treatment of these cancers are non-existent. Instead, treatment is based on observational case series. Currently, treatment for nasal cavity cancers often includes surgical resection followed by radiation therapy. The following vignette describes a case of nasal cavity cancer and a complication associated with the current standard of treatment. A 60-year-old Caucasian male, with a recent diagnosis of squamous cell carcinoma status post resection, presented with a bulging forehead and copious amounts of drainage from his nose that started approximately seven days ago. His bulging of the forehead had gotten progressively worse during the past seven days. Three days prior to admission to the hospital, he reports soaking 16 full napkins worth of drainage that was greenish in color. Two months prior to presentation, the patient was diagnosed with invasive squamous cell carcinoma (SCC) occupying his left nasal cavity with invasion of the anterior cranial fossa, frontal lobes and medial wall of the left orbit. The patient underwent a combined ENT and neurosurgical procedure that included an endoscopic resection of the anterior skull base mass and was followed by a bi-frontal craniotomy with resection of the anterior skull base mass. On presentation, his vital signs and laboratory results were all within the normal limits. MRI of the brain showed fluid collection between the soft tissue of the scalp and skull. CT of the head showed extensive pneumocephalus. His nasal drainage was cultured and he was taken to the operating room for his second combined ENT-neurosurgery procedure. The craniotomy revealed an epidural abscess beneath the patient's frontal bone flap. His frontal bone was removed and replaced with a titanium mesh implant. Following his surgery the patient was discharged on IV antibiotics for an extended length of time. The patient improved from antibiotic treatment and saline irrigations. Since many nasal cavity cancers invade locally, there are significant risks of complications associated with these surgical resections. Following the current treatment guidelines for local invasion of nasal cavity cancers can necessitate invasive surgical management and lead to complications such as epidural abscesses. Since nasal cavity cancers are rare, and optimal treatment of them is uncertain, this case is an important example of a complication resulting from surgical intervention and how this complication can be successfully managed.

Mysterious Hepatic Lesion

Jayasree Jonnadula MD, UACOM at South Campus, PGY-1

Sarah Patel, Enrique Villavicencio Sumire, Ahmad-Al-Khashman

CR, Poster Display No. 37

Cystic lesions of the liver include simple cysts, parasitic cysts, cystic tumors, abscess and intrahepatic biliary ductal malformations. Majority are asymptomatic and found as incidental findings when patients are undergoing imaging studies for unrelated reasons. Hepatic cysts can produce complications such as cholestasis, hemorrhage, rupture, portal hypertension and infection. Hepatic cysts can occur in 5% of population, and of those only about 5% develop symptoms. Here we describe an unusual case of a hepatic cystic lesion. A 76 year old lady presented with right upper quadrant abdominal pain, vomiting, lack of appetite, 10 lbs weight loss, and subjective fevers for 2 weeks. She visits Mexico where her family lives on a ranch with many sheeps and dogs. She had seen a physician in Mexico prior to the hospital admission where she was treated with oral metronidazole and cephalexin for 5 days without improvement. On admission her vitals T 99.1 F, HR 74, BP 115/63, RR 18, SPO2 98% and labs showed elevated white cell count of 19,800, elevated AST 63, ALT 36, ALP 322 total bilirubin 1.4. CT scan showed large well-defined cyst, 18.5 x 11 cm in size along with multiple other hypodensities in right and left hepatic lobes. MRI showed similar findings and ring enhancement around the large cyst. Urinalysis, blood cultures, chest radiograph were negative for infective foci. Parasitic causes of hepatic cyst like echinococcus and entamoeba were ruled out. Hepatic ultrasound showed cyst with internal debris representing possible complicated infected biliary duct hamartoma. Surgery service was consulted and the patient underwent exploratory laparoscopic aspiration of the cyst. Fluid culture was negative for any organisms or tumor markers and surgical pathology was obtained which showed infected bile duct hamartoma. She received total 10 days of oral metronidazole, albendazole and IV ceftriaxone prior to the surgery. Patient symptoms improved and leukocytosis and cholestasis resolved. After 2 weeks Jackson Pratt drain was removed and patient remained asymptomatic with complete resolution of her symptoms. Biliary hamartomas are benign asymptomatic lesions without clinical significance. Incidence is about 0.69%. Biliary hamartomas are usually multiple and small well-circumscribed nodules ranging from 1 mm to 1.5 cm. In some cases, it may present as single coalescent large mass, in that case its radiological diagnosis is very difficult. So histopathologic examination is required for final diagnosis. We present an interesting case of a hepatic lesion. Clinicians should consider infected biliary hamartoma if patient presents with RUQ pain, vomiting, lack of appetite or weight loss. Laparoscopic resection of symptomatic liver cysts is a feasible and effective method to relieve symptoms with minimal surgical trauma.

An unusual cause for a usual complaint

Radhamani Kannaiyan MD, UACOM at South Campus, PGY-1

Muhammad Husnain, MD, Bujji Ainapurapu, MD

CR, Poster Display No. 38

Venous thrombosis occurs when there is stasis of blood, endothelial injury or dysfunction and pro-thrombogenic profile. Venous thrombosis usually occurs in the veins of the extremities, sometimes extending to the iliac veins from lower extremity veins. Rarely, thrombosis can occur in portal vein, renal vein, cerebral venous system, IVC, SVC and jugular veins. Less than twenty five cases of thrombosis of testicular vein has been reported in the literature. Here, we report a case of intra-testicular vein thrombosis in a young male presenting with acute scrotal pain. Patient is a 26 year-old male, with no significant past medical history presents with the complaint of swelling and pain in his right side of scrotum. Patient was in his usual state of health 5 days prior to presentation when he started experiencing pain in his right side of scrotum, which was aggravated by movement and progressively getting worse. Patient denies any dysuria, hesitancy, frequency, urgency, trauma, or fever. Review of systems otherwise normal. Initial vital signs showed blood pressure 120/64 mmHg, pulse 86/min, temperature 37.2° C. Physical examination was benign except for conjunctival pallor and right scrotum with swelling, erythema and tenderness to palpation and on elevation of the right scrotum. Initial laboratory exam revealed negative urinalysis, WBC 8.6, Hb7.9, hematocrit 27.3, MCV- 58.7, MCH - 16.9, MCHC - 28.8, platelet 534. PT/INR and aPTT are within normal limits. Ultrasound of the right scrotum with venous Doppler revealed near-complete thrombosis of an intra-testicular venous channel, without frank signs of venous ischemia. MRI abdomen and pelvis was performed and was negative for extra-testicular extension of the thrombus. Peripheral smear revealed hypochromic and microcytic anemia. Iron study confirmed iron deficiency anemia. Factor V Leiden mutation was negative. Urology consult was obtained. No clear recommendations exists in the literature regarding anti-coagulating patients with testicular vein thrombosis. Patient was treated symptomatically and discharged with an appointment with hematology clinic. Though thrombosis of pampniform plexus is a well-known complication of varicocele, thrombosis of otherwise normal pampniform plexus and testicular vein, have been rarely documented. In addition to local inflammation, anatomical abnormality of the veins resulting in stasis, testicular vein thrombosis could be caused by pro-thrombogenic state either due to an underlying malignancy or a hematological abnormality. Given the picture of iron deficiency anemia in a young male with no significant history of melena or hematochezia and thrombosis in an unusual site, this patient likely has an underlying hematological abnormality. Unfortunately, patient was lost to follow up. This case highlights recognition of intra-testicular vein thrombosis as a rare cause for acute scrotal pain in a young male and need for comprehensive evaluation.

Cytomegalovirus-associated thrombotic microangiopathy following kidney transplantation.

Tripta Kaur MD, Mayo Clinic AZ, PGY-1

Dr. Joseph Charles

CR, Poster Display No. 39

Purpose: Thrombotic microangiopathy (TMA) is a serious complication of renal transplantation and is known to be associated with immunosuppressive drugs such as calcineurin inhibitors, viral infections, and acute humoral rejection. Cytomegalovirus (CMV) is the most common viral infection following renal transplantation. CMV infection is infrequently associated with TMA. We present a case of TMA associated with primary CMV infection following kidney transplantation. **Case Description:** A 64 year-old male with end-stage renal disease secondary to diabetic nephropathy received a deceased-donor renal transplant. The donor was CMV seropositive and recipient seronegative. Post-transplantation, he had delayed graft function and required two weeks of hemodialysis. He was compliant with his immunosuppressive and prophylactic regimen of mycophenolate mofetil, tacrolimus, prednisone, trimethoprim-sulfamethoxazole, and fluconazole. Valganciclovir for CMV prophylaxis was discontinued due to the development of thrombocytopenia. Four months after his renal transplantation he presented with shortness of breath, diarrhea, and decreased urine output associated with fever, tachypnea, bilateral basilar crackles, pancytopenia, and an elevated BUN and creatinine. He was found to have oliguric acute kidney injury (AKI) and a concurrent CMV gastroenteritis and viremia, and was started on IV ganciclovir. His creatinine continued to increase and he had a progressive pancytopenia. A renal biopsy showed acute thrombotic microangiopathy (TMA). The lack of peripheral schistocytes, negative ADAMST13 (a disintegrin and metalloproteinase with thrombospondin type 1 motif, 13) and Shiga toxin, and elevated haptoglobin indicated that systemic TMA such as thrombotic thrombocytopenic purpura (TTP) and hemolytic uremic syndrome (HUS) were unlikely. The TMA was localized to the renal allograft. The patients' CMV PCR levels began to decline after two weeks of IV ganciclovir but his pancytopenia continued to worsen and was treated with filgrastim and epoetin alfa. In the setting of persistent oliguria and elevated creatinine, hemodialysis was reinstated, and a repeat renal biopsy showed advanced cortical necrosis (80%) and acute cellular rejection with features of chronic active T-cell mediated rejection and no evidence of CMV parenchymal infection. His renal function did not improve with the resolving CMV viremia and he became hemodialysis dependent. His local renal allograft TMA was attributed to the severe CMV infection. **Conclusion:** TMA is a microvascular disease that is pathologically diagnosed by arteriolar platelet thrombi, endothelial widening, red blood cell fragmentation, and glomerular capillary occlusion. TMA can either be localized to the renal allograft or manifest systemically in the form of TTP and HUS. CMV-associated TMA has been rarely reported and the majority of cases have resulted in complete renal recovery with IV ganciclovir. The trifecta of CMV infection, TMA, and acute and chronic cellular rejection can lead to irreversible AKI and renal allograft loss.

A congenital cause of atypical chest pain

Shu Ting Kung MD, Mayo Clinic AZ, PGY-1

Dr. Molly B. Disbrow

CR, Poster Display No. 40

A congenital cause of atypical chest pain Dr. Shu Ting Kung and Dr. Molly B. Disbrow Introduction: Adult Meckel Diverticulum is often asymptomatic and found incidentally with symptoms of painless rectal bleed or melena black stool. Case Presentation: A 39 year old without any known coronary artery disease was brought to the hospital via EMS due to a gradual onset of substernal chest pain. The pain was associated with dizziness, nauseousness, and diaphoresis. He was admitted to the cardiology service for further evaluation. Chest radiograph, EKG, Echocardiogram, and 3 serial troponins were unrevealing. Cardiology service was notified later by his nurse that he had a large bowel movement with frank blood and melena. He was hemodynamically stable and had no history of ongoing aspirin or NSAID use. He had no history of reflux-like symptoms, odynophagia, dysphagia, or alcohol abuse. There was no personal or family history of inflammatory bowel disease. He was maintained on a continuous IV proton-pump inhibitor and Gastroenterology was consulted for further evaluation. His hemoglobin dropped from 13.3g/dL on the day of admission to 10.7g/dL by the following day. Endoscopy was then performed and showed a clean-base ulcer with no definitive source of active bleeding. Colonoscopy showed normal mucosa and was otherwise unrevealing. Stomach antrum biopsy showed no active cryptitis, H. pylori, or intestinal metaplasia. Interestingly, a couple of days into the hospitalization, his family shared that there was concern for Marfan's when he was a toddler, but this was ruled out. Patient also had a history of 2 episodes of bloody stools, but as these were self-limited, no further workup was done at the time. Meckel's diverticulum was included in the differential diagnosis for GI bleeding in a young person, so ultimately he had a nuclear medicine Meckel's scan. There was increased uptake within the central anterior abdomen at the level of the aortic bifurcation, and the findings were felt to be most consistent with Meckel's diverticulum. He had no further episodes of rectal bleeding thus General Surgery was consulted for definitive management. Ultimately, patient was discharged with plans to return for semi-urgent laparoscopic small-bowel resection for Meckel's diverticulum. However, for unclear reason, patient cancelled the surgery and was lost to follow up. Discussion: Meckel's diverticulum is a true diverticulum, containing all layers of the small bowel wall. Diagnosis is generally made with Meckel's scan, mesenteric arteriography, or abdominal exploration. Meckel's scan has a sensitivity of 85 to 97 percent in the pediatric patient, but its sensitivity and positive predictive value are lower in the adult at about 60 percent each. Treatment is selective surgery, generally with laparoscopic resection.

VANC-quishing the Myth: Oral Vancomycin Absorption with Drug Induced Immune Thrombocytopenia in Clostridium difficile Colitis

Patrick Leonberger DO, Banner UMC Phx, PGY-1

CR, Poster Display No. 41

Introduction: The common misconception among healthcare providers that orally administered vancomycin is not systemically absorbed has the potential to cause morbidity and mortality in patients being treated for severe Clostridium difficile colitis. The following case describes a patient with refractory thrombocytopenia thought to be related to oral absorption of vancomycin in the setting of severe Clostridium difficile colitis. **Case Presentation:** A 70 year old man with a prolonged hospital course, ventilator dependent respiratory failure status post tracheostomy, recurrent episodes of sepsis from multidrug resistant organisms, and resolved Clostridium difficile colitis was transferred from the general medicine floor to the medical intensive care unit after he had greater than 6 watery stools, respiratory decline, and fluid refractory hypotension. He was treated for sepsis thought due to aspiration pneumonia versus relapse of his Clostridium difficile associated diarrhea and initially received broad spectrum antibiotics including intravenous vancomycin, cefepime, tobramycin, and oral vancomycin. He was also given intravenous heparin for less than 24 hours due to a concern for a myocardial ischemia. Two days after the transfer the patient's platelet count dropped from 108,000 to 6,000. Diagnoses of heparin induced thrombocytopenia (intermediate 4 T's score of 5), immune thrombocytopenic purpura, and thrombotic thrombocytopenic purpura were entertained. All antibiotics except PO vancomycin were discontinued per infectious disease recommendations. A peripheral smear showed minimal schistocytes and a HIT ELISA was negative. While on PO vancomycin, the patient's thrombocytopenia continued despite platelet transfusions and steroids. Hematology evaluated the patient on the sixth day of oral vancomycin therapy and felt his thrombocytopenia was caused by vancomycin induced immune thrombocytopenia. The following day a vancomycin level was 18.42. Vancomycin was discontinued, IVIG was initiated, and one unit of platelets was transfused with an increase in platelets of 3,000 to 61,000 the following day. Antibiotics were changed to fidaxomicin and tigecycline while the patient was awaiting stool transplant, however he unfortunately passed related to respiratory decline before this was possible. **Discussion:** Systemically absorbed vancomycin has the potential to cause multiple adverse effects including nephrotoxicity, ototoxicity, and rarely thrombocytopenia. The recently elucidated mechanism behind vancomycin induced immune thrombocytopenia has been found to be related to vancomycin induced anti-platelet antibodies. While orally administered vancomycin in healthy subjects has very poor systemic absorption, disruption of the normal colonic mucosal barriers in subjects with severe Clostridium difficile colitis is thought to increase the systemic absorption of the drug thereby elevating the risk of potential adverse effects. This point seems especially salient given Clostridium difficile colitis is the most frequent indication for oral vancomycin.

Accidental Cannulation of the Right Ascending Lumbar Vein Through Femoral Vein – Does it even matter?

See Wei Low MBBS, UACOM at University Campus, PGY-1

Kareem Ahmad, Afshin Sam

CR, Poster Display No. 42

Background Femoral venous catheter malposition into the ascending lumbar vein is a rare event but has potential life-threatening consequences. We describe a case of accidental right ascending lumbar vein (ALV) cannulation through the femoral vein without complications in an adult patient. **Case Presentation** A 34-year-old lady with multiple comorbidities including ventriculo-peritoneal (VP) shunt and recent perforated pyloric ulcer complicated by secondary peritonitis and methicillin resistant staphylococcus aureus (MRSA) intraperitoneal abscess was admitted for externalization of her VP shunt. Due to failed attempts of peripheral cannulations and the need for access for blood drawing and fluid/ antibiotic administration, an ultrasound guided central venous catheter (CVC) was inserted in her right femoral vein. On subsequent evaluation of the intrapelvic abscess using computer tomography, the tip of the CVC was accidentally found to be in the right ALV without complications. The catheter was removed with alternative site placement of venous cannulation. **Conclusion** Complications of femoral CVC placement are rare but can be associated with significant morbidity and even mortality. Clinicians should be mindful of the possibility of misplacement while inserting a femoral vein catheter, and to be aware of ways to prevent the misplacement and the signs and symptoms of misplacement before complications occur.

Leflunomide-induced Autoimmune Hepatitis in a Patient with Rheumatoid Arthritis

Mark McPherson DO, Maricopa Medical Center, PGY-1

Abdul Nadir, MD, Konstantinos Parperis, MD

CR, Poster Display No. 43

Leflunomide-induced Autoimmune Hepatitis in a Patient with Rheumatoid Arthritis Mark McPherson DO, Abdul Nadir MD, Konstantinos Parperis MD Maricopa Integrated Health System Introduction: While liver toxicity is a well-known side effect of the disease-modifying antirheumatic drug, leflunomide, an autoimmune-type hepatitis caused by leflunomide has not been described in the literature to date. We report a case of a 59 year old woman with seropositive, erosive rheumatoid arthritis who developed autoimmune hepatitis while on leflunomide. Case Report: A 59 year old woman with a 12-year history of seropositive, erosive rheumatoid arthritis affecting her hands, shoulders, knees, and ankles started taking leflunomide 20 mg daily. Concomitant medications included daily prednisone and naproxen or ibuprofen as needed for her joint pain. After three consecutive monthly blood tests within normal limits, blood tests showed a sharp increase in LFTs with INR and total bilirubin within normal limits. The patient reported anorexia and fatigue. No other clinical signs or symptoms of hepatotoxicity were present on exam. She had no history of alcohol abuse or viral hepatitis. Leflunomide was immediately discontinued and a cholestyramine washout was prescribed for 11 days. After a peak in her liver enzymes one week later to ALT of 1024, AST of 985, and alkaline phosphatase of 195, her LFTs began to slowly trend down. An ANA level was found to be positive with a titer 1:320 while a hepatitis panel for A, B, and C was negative. Her F-actin (smooth muscle) IgG was positive at 177. IgG and IgM levels were elevated at 2789 mg/dL and 375 mg/dL, respectively, with normal serum IgE levels. Liver biopsy was performed and showed severely active chronic plasma cell rich portal, lobular, and interface hepatitis with individual hepatocyte necrosis and mild portal and pericellular fibrosis. Given the history, clinical findings, and laboratory data, we considered autoimmune hepatitis induced by leflunomide as the most likely diagnosis. The patient was then treated with high-dose prednisone. Her LFTs slowly trended down with weekly blood work. Discussion: Liver toxicity is a well-known side effect of the disease-modifying antirheumatic drug, leflunomide. While there are many reports of leflunomide-induced hepatitis, several features of this patient's hepatitis were consistent with an autoimmune hepatitis, such as the presence of high titers of anti-smooth muscle antibody, a high serum IgG, and liver biopsy histological findings. Treatment consists of high-dose steroids and stopping the inciting agent. Conclusion: This case illustrates the first reported case of leflunomide-induced autoimmune hepatitis and reiterates the need for consistent monitoring of liver function tests after initiation of leflunomide. It also demonstrates the need to distinguish drug-induced liver toxicity from an autoimmune-type hepatitis in cases of elevated liver function tests as therapeutic modalities subtly differ between these two liver toxicities.

Breast Cancer Chemoprevention in the setting of a PTEN mutation: A Risk Prevention Conundrum for the Pre-Menopausal Woman

Jaya Mehta MD, Mayo Clinic AZ, PGY-1

Natalie Ertz-Archambault, Brooke M. McLaughlin, Donald W. Northfelt, Juliana M. Kling

CR, Poster Display No. 44

Introduction: Chemoprevention use in women with increased breast cancer risk is a grade B recommendation by the United States Preventative Service Task Force (USPSTF) and strongly recommended by the American Society of Clinical Oncology (ASCO). Tamoxifen is recommended for those with a five-year risk of 1.66% or greater based on the Gail Risk model. Genetic testing can provide important information to guide counseling and surveillance for high-risk women. **Clinical Scenario:** A 38 year-old female with an abnormal breast MRI and a family history significant for breast cancer presented for consultation. Her past medical history included multiple benign breast biopsies and a benign right breast lumpectomy. Her family history included breast cancer diagnosed in her sister at age 39, her maternal grandmother in her 40s, her maternal great grandmother at 72, and a maternal aunt at 39. She had a family history of testicular cancer, throat cancer, and uterine cancer. Based on the Gail risk model, her 5-year risk for developing breast cancer was found to be 2.7% and 32.5% lifetime (compared to 0.5% and 12.5% in the general population). Genetic counseling was recommended; she proceeded with genetic testing and was found to be positive for a genetic alteration in the PTEN gene of uncertain significance. **Discussion:** Although she did not have a disease-associated PTEN gene mutation, after meeting with medical oncology, it was determined that future cancer surveillance would follow NCCN guidelines for PTEN gene alterations given her extensive family history. PTEN gene mutations are associated with cancers of the breast, endometrium, thyroid, kidneys, colon and skin. Per guidelines surveillance includes annual mammography and breast MRI starting at age 30-35, prompt response to symptoms concerning for endometrial cancer, annual thyroid ultrasounds, colonoscopy beginning at age 35, and annual dermatological screening exams. It is established that Tamoxifen therapy confers a risk of endometrial cancer in post-menopausal women. While not shown to definitively increase the risk premenopause, studies have not looked at Tamoxifen use in premenopausal women with an existing risk of endometrial cancer. Unfortunately, no guidelines exist for chemoprevention in PTEN mutation carriers. Therefore, acknowledging our patient's individualized risk for endometrial cancer in the setting of a PTEN gene alteration, she was advised not to initiate tamoxifen therapy. **Conclusion:** Risk reducing strategies such as chemoprevention are important to consider in women at increased risk of breast cancer as supported by guidelines. PTEN gene mutations found during genetic testing require alternative counseling and surveillance, especially in regards to chemoprevention with tamoxifen given the increased risk of endometrial cancer. This case highlights how genetic testing can assure appropriate individualized counseling for women with a high risk of breast cancer as well as the lack of guidelines for chemoprevention in carriers of a PTEN mutation.

To Scan or Not to Scan? : Utility of Cardiac MRI in Asymptomatic Sarcoidosis

Balaji Natarajan MBBS, UACOM at South Campus, PGY-1

Jennifer Huang-Tsang, MD; Eugene Trowers, MD; Rajesh Janardhanan, MD

CR, Poster Display No. 45

Sarcoidosis is a rare, multi-systemic, inflammatory disorder of unknown etiology. Pulmonary and skin sarcoidosis are most common, however cardiac involvement has been described in approximately 20% cases of systemic sarcoidosis. Only 5% have symptomatic cardiac involvement. Cardiac sarcoidosis (CS) can manifest in isolation or as part of a generalized systemic disease. We report an interesting presentation of early, completely asymptomatic CS diagnosed by Cardiac MRI (CMR) in a patient with biopsy proven pulmonary sarcoidosis. A 54-year-old man with no past medical history presented with worsening fatigue, bilateral hip and low back pain and a non-productive cough over a few months. He did not have any cardiac symptoms. Physical exam was within normal limits. CBC and CMP were also normal. X-ray of the chest followed by a high-resolution chest CT showed numerous scattered peribronchovascular nodules (less than 5mm size), predominantly in both the upper lobes. Mild mediastinal and upper abdominal lymphadenopathy were also noted along with scattered lytic lesions in the posterior ribs. Bronchoscopy with transbronchial needle aspiration/biopsy showed non-necrotizing granulomas consistent with sarcoidosis. Further work-up did not reveal any specific infectious or immunologic etiology. Screening EKG was normal. Echocardiogram was completely normal without any abnormalities. However on CMR, patchy, delayed gadolinium enhancement (DGE) involving the basal segment of the infero-lateral wall in a non-vascular distribution (classically seen in sarcoidosis) was visualized, which clinched a diagnosis of CS. Cardiac manifestations of sarcoidosis are driven by the formation of inflammatory granulomas in the heart, which heal by scarring. It can range from asymptomatic conduction abnormalities and ventricular dysfunction to life-threatening ventricular arrhythmias. Recent guidelines recommend screening all sarcoidosis patients with a detailed cardiac history, ECG and echocardiography. Advanced non-invasive imaging modalities such as CMR has replaced endomyocardial biopsy, the gold standard invasive test to diagnose CS. CMR has a high sensitivity (100%) albeit lower specificity (78%) for CS. Current expert consensus guidelines do not recommend routine CMR in asymptomatic patients with a negative initial screen. However, as in our patient, the majority of asymptomatic CS rarely demonstrates any obvious structural abnormalities on initial screen but may show DGE on CMR suggesting early fibrotic inflammatory changes in the myocardium. It is important to identify these occult cases for the following reasons: (1) CS portends a poorer prognosis than do patients without cardiac involvement (2) It helps to assess response of disease to anti-inflammatory therapy. This case highlights the fallibility of relying on routine screening tools alone and emphasizes the utility of advanced CMR imaging for identifying early myocardial involvement, which has prognostic value in asymptomatic CS.

The Utility of Allogenic Stem Cell Transplantation in Cyclic Neutropenia

Onyemaechi Okolo MD, UACOM at University Campus, PGY-1

Faiz Anwer, MD

CR, Poster Display No. 46

The Utility of Allogenic Stem Cell Transplantation in Cyclic Neutropenia Onyemaechi Okolo, PGY1, Department of Medicine, University of AZ, Tucson, AZ Faiz Anwer, Division of Hematology/Oncology, University of AZ, Tucson, AZ Cyclic Neutropenia is an inherited disorder primarily affecting bone marrow stem cells. Symptom presentation varies from benign to severe, and rarely, death. Symptomatic individuals may have regular episodes of fever, bacterial infections, and varying cutaneous manifestations that usually begin within the first year of life. ELANE mutation is responsible for the disease and has various phenotypic presentations making it difficult to predict disease severity. At this time, G-CSF is the standard of care. The patient is a 25-year-old Caucasian male with a long-standing history of cyclic neutropenia diagnosed around age one. Since childhood he has dealt with multiple hospitalizations due to severe infections, surgeries, abscesses, buttock infections, and intermittent bouts of bloody diarrhea. His neutropenic cycles were 25-28 days with 3-5 days of nadir. Although he experienced improvement in his cycles with the addition of G-CSF to his treatment regimen, he remained vulnerable to infections during his nadirs and suffered a number of opportunistic infections. The patient presented to the University of AZ Cancer Center to discuss alternative methods to manage cyclic neutropenia. The possibility of BMT as a treatment option was presented. Preliminary work up included testing to confirm ELANE mutation. A medically unrelated donor was found and the patient was admitted for transplant. He received cyclosporine for GVH prophylaxis and conditioning with cyclophosphamide, fludarabine, and anti-thymocyte globulin. On day -2 he received total body irradiation and on day 0 he was infused with 345ml of allogenic bone marrow. On day +14 he developed engraftment syndrome, which was treated with high dose steroids. The patient spent a total of 29 days in the hospital and was discharged on prophylactic voriconazole and valacyclovir. One month following infusion of allogenic bone marrow, the patient showed improvement overall; ANC is up trending, and he has been infection free. Long-term follow up is required to definitively state that the patient has been cured of cyclic neutropenia. This case illustrates the use of BMT to treat severe cyclic neutropenia. Most people affected do not exhibit life-threatening infections and are usually treated with G-CSF and antibiotics as needed. But for few, G-CSF is not enough and the disorder affects quality of life. Allogenic stem cell transplantation is a potentially curative treatment for individuals with severe illness but due to the rarity of the disease and even fewer cases of BMT as treatment, it is not considered a standard of care. Analysis of ELANE mutation genotype-phenotype may be useful in predicting disease severity and utility of BMT in symptomatic individuals.

Bone Marrow Biopsy in the Rapid Diagnosis of Disseminated Mycobacterium Avium-Intracellulare in a Renal Transplant Recipient

Aditya Paliwal MD, UACOM at University Campus, PGY-1

Wasl Al-Adsani, DO, PhD, Razan El Ramahi, MD, Ahmed K. Pasha, MD, Tirdad T. Zangeneh, DO, MA, FAC

CR, Poster Display No. 47

Mycobacterium Avium-Intracellulare, related infections occur with an incidence of between 0.16% and 0.38% (3, 6, 7) in renal transplant recipients, result in pulmonary, skin, soft tissue, musculoskeletal, lymphadenitis, and even disseminated infections (6,10) in the presence of immunosuppression (9). Expedient diagnosis and treatment is essential to management of an otherwise possibly devastating disease. A 66-year-old Caucasian woman with a history of living-donor kidney transplant in 2002 was evaluated for a seven-day history of recurring fever, malaise, weight loss, night sweats, fatigue, and loose stools. She was admitted four times in the preceding four months for complicated UTIs, Clostridium difficile enterocolitis with recurrence, and self-resolving fever of unknown origin (FUO). The patient was seen in clinic five days prior to admission for evaluation of FUO following repeated negative chest imaging and blood cultures. A bone marrow biopsy was performed to rule out marrow-infiltrative infection two days prior to admission and sent for standard testing including acid-fast bacteria (AFB) with culture, Gram stain with culture, and fungal stain with culture. Preliminary results showed abundant acid-fast stain-positive organisms, prompting her admission. She was treated empirically with Azithromycin, Ethambutol, Isoniazid, Rifabutin and Pyrazinamide and eventually tapered to Azithromycin, Ethambutol, and Rifabutin with negative sputum PCR for Mycobacterium tuberculosis. On admission, patient was initially febrile (38.8C), with bibasilar crackles, diminished breath sounds, and mild diffuse abdominal pain. Laboratory testing was remarkable for creatinine of 2.3 ml/dL (baseline 1.5 ml/dL) and blood cultures showed no growth. On admission day seven, the patient became febrile, tachycardic, and hypotensive; she was transferred to the intensive care unit, intubated, and found to have new right upper lobe consolidation without cavitory lesions by computed tomography. Intravenous amikacin and meropenem were added to the regimen. Eventually, bone marrow, blood (mycobacterial blood isolator), and bronchoalveolar lavage (BAL) confirmed Mycobacterium avium complex (MAC) infection. Mycophenolate was discontinued at admission and Tacrolimus was held upon admission to the ICU. She was hemodynamically stabilized, extubated on day ten, and discharged on day fifteen. The patient was kept on three-drug therapy (Clarithromycin, Ethambutol, Rifabutin) treating MAC for 18 months; repeat blood cultures became negative for MAC. The patient made a full recovery. Bone marrow culture and histopathology can be used as a means of establishing timely diagnosis and determining the presence of disseminated disease (11-14). Nontuberculous mycobacteria prevalence data collected by the Center for Disease Control (CDC) from 1993 through 1996 indicated that MAC was isolated from the bone marrow (90%), blood (90%), wounds (33%), and lung (46%). An invasive bone marrow biopsy carries its own risks, but the benefits in cases such as this for the rapid diagnosis of many infectious diseases may outweigh the risks, especially when pulmonary manifestations of MAC are initially absent (15).

LMA-Induced Pneumomediastinum

Rui Wen Pang MD, UACOM at South Campus, PGY-1

Jennifer Huang-Tsang, DO

CR, Poster Display No. 48

Over the years, colonoscopy has been of increasingly use for screening, diagnostic and therapeutic purposes. The purpose of sedation during colonoscopy is to minimize anxiety and discomfort, which improve overall patients' tolerability and satisfaction. Moderate sedation, where the patient is able to purposefully respond to verbal and tactile stimuli while maintaining ventilation and cardiovascular function, is the stage targeted during most colonoscopies. A 57yo female with the past medical history of myocardial infarction presented to the ED with the chief complaint of increased neck swelling, sore throat and hoarseness. She had undergone colonoscopy few hours earlier, which was complicated by laryngospasm and desaturation of her oxygen level to low 50s. This was managed with positive airway pressure followed by Laryngeal Mask Airway (LMA) placement for airway protection. Patient did not complain of any neck swelling immediately after surgery. On presentation, she denied any shortness of breath, wheezing, fever or chills. Vital signs were stable and patient's oxygen saturation was >92% on room air. In the ED, CT scan of the neck was obtained which revealed extensive subcutaneous emphysema extending from the oropharynx into bilateral cheeks, extending inferiorly through neck soft tissue into the anterior chest wall soft tissues and into the mediastinum and pericardium. Subsequently, ENT was consulted and the patient underwent flexible laryngoscope visualization that showed no evidence of trauma or bruising in the hypopharynx. Esophagram later showed a small leak of extravasation of contrast from the superior aspect of hypopharynx at the level of hyoid bone. Throughout the patient's hospital stay, she was able to protect her airway and never required intubation. Dobhoff tube was inserted per ENT's recommendation for the initiation of tube feeds. 30 days later, the patient was weaned off these interventions and no leakage was noted on repeat esophagram. LMA is a common alternative to bag-valve mask ventilation with the benefit of less gastric distension which reduces regurgitation and aspiration risk. Subcutaneous emphysema is a very rare complication of LMA. In a study done by Verghese, there was a 0.15% occurrence of airway complication with none requiring intensive care in a non-emergent situation. On literature search, there have only been 2 cases that found the association of LMA classic with pharyngeal perforation and one with LMA-Supreme. In this patient, the mechanism of perforation is unknown but is speculated that the excessive high cuff pressure, a larger than necessary LMA and intra-procedure laryngospasm may play a part in creating a weak spot or injury in the mucosa. It is important for a clinician to have awareness that LMA could cause perforation of the pharynx.

If a black thyroid crosses your path(olgy)...

Christine Parsons MD, Mayo Clinic AZ, PGY-1

Mishark, Kenneth, MD

CR, Poster Display No. 49

Introduction: Black thyroid is a rare clinical entity in the literature. Controversy surrounds its pathogenesis, the mechanism of pigment deposition, and whether the finding is clinically significant. Case Description: A 78 year-old male with hypothyroidism, chronic lymphocytic leukemia, and diverticulitis complicated by bowel perforation was admitted for planned takedown of his colostomy with primary anastomosis. Postoperatively, he developed severe intra-abdominal sepsis with *E. coli* bacteremia. Laparoscopy was performed, and an infected hematoma was identified, debrided, and washed. Cultures of the intra-abdominal fluid collections grew *Pseudomonas aeruginosa*, *E. coli*, and vancomycin-resistant *Enterococcus*. The patient was found to have an anastomotic leak and was taken back to the operating room a 3rd time for an exploratory laparotomy, takedown of prior coloanal anastomosis, and Hartmann's procedure with end colostomy. Through his surgical courses, the patient developed hypoxic respiratory failure and difficulty weaning from the ventilator. Tracheostomy was performed and a black thyroid was visualized incidentally. Pathology of a biopsy showed benign tissue with visible black discoloration, black pigment distributed throughout most of the colloid microscopically, and negative iron stain. The patient denied prior minocycline use. The patient's sepsis resolved with broad-spectrum antibiotics focused on the pathogens identified. Discussion: Black discoloration of the thyroid gland was first reported in a human in 1976, and was associated with minocycline use. Although many articles cite the number of black thyroid cases as less than 100, a recent study examining thyroidectomy patients indicates that this entity is not uncommon. Tetracycline use and its derivatives (particularly minocycline) have been implicated as the causative agents, even after exposure as short as 12 days. There are case reports of black thyroid in patients without exposure to minocycline. Hypothyroidism has occasionally been associated with black thyroid. The nature of the pigment and mechanisms regarding its deposition remains unclear. One suggested mechanism is that degradation products of minocycline combine with lipofuscin, an intracytoplasmic pigment associated with aging. There is notably an association with black thyroid and older age. Other proposed mechanisms include oxidation degradation of minocycline itself, drug interaction and alteration of tyrosine metabolism, and lysosomal dysfunction. Previous literature reported that most cases were incidental findings and clinically insignificant, but patients have presented with hyperplasia, adenomas, and papillary and follicular carcinomas. The study examining thyroidectomy patients found that the incidence of thyroid cancer was 55.4% in black thyroid glands compared to 32.8% in non-black thyroid glands ($p < 0.0001$). Black thyroid may be more common than previously documented and may not be associated with prior minocycline use. Although the mechanism is not elucidated, it also may not be a benign entity as evidence indicates a significant association with thyroid malignancies.

(Atypical Pneumonia)^2

Sagar Patel MD, Mayo Clinic AZ, PGY-1

Dangerfield, Benjamin D.O.

CR, Poster Display No. 50

Introduction: *Mycoplasma pneumoniae* is a ubiquitous organism that is transmissible via respiratory droplets. A long incubation period of 2-3 weeks can make diagnosis of this condition difficult. There are many sequelae of mycoplasma infection, and it often presents as an atypical pneumonia. Unrecognized and untreated mycoplasma infections can potentially lead to fulminant infection and even death in the otherwise young healthy patient. This case explores two uncommon symptoms of mycoplasma, hemolysis and splenomegaly.

Case Summary: An 18-year-old female, without significant past medical history, presented with a two week progression of weakness and fatigue with associated intermittent episodes of shortness of breath, lasting 30 minutes. These episodes occurred both while lying down and with physical activity, such that it inhibited her ability to regularly exercise. Her symptoms began after she was on day 8 of a 10-day course of amoxicillin-clavulanate for bilateral otitis media. She completed the antibiotics and her symptoms progressively worsened, and she returned for further evaluation. At her primary care physician's office, a complete blood count revealed a hemoglobin of 6.5 g/dL, prompting referral to an emergency department for emergent evaluation. There, a repeat hemoglobin was 7.9 g/dL. Due to continued symptoms of lethargy, fatigue, and a pre-syncopal symptoms when standing, the patient was admitted for further workup of severe symptomatic anemia. Further studies were indicative of a hemolytic anemia with an elevated LDH, high total bilirubin, low haptoglobin, and elevated liver function tests. A peripheral smear showed polychromasia. Her hemoglobin dropped overnight to 7.5. Evaluation was negative for warm agglutinins and serum PCR EBV tests. Due to continued hemolysis, a cold agglutinin test was performed to evaluate for more uncommon causes of hemolysis. Subsequently, an ultrasound of the abdomen showed splenomegaly. *Mycoplasma* IgM and cold agglutinins tests then came back positive. Patient was discharged with a five day course of Azithromycin and followed up on day 3 of treatment. Hemoglobin was 8.9 and all patient's symptoms had resolved, patient agreed to call if symptoms recurred.

Discussion/Conclusion: *Mycoplasma* is typically a clinically silent disease. When symptomatic, this infection often presents as an atypical pneumonia, or may mimic other benign disease processes such as Epstein Barr Virus infection. However, mycoplasma infection infrequently causes morbidity and mortality in otherwise young, healthy patients. Therefore, it is important to keep this infection in mind when evaluating young, otherwise healthy patients with new onset symptoms. In our patient hemolysis and splenomegaly, rare manifestations of mycoplasma infection, were present in the setting of mild pneumonia-like symptoms. This situation is in contrast to the more severe pulmonary syndrome that is commonly associated with severe hemolysis in *Mycoplasma* infection.

Protein S Deficiency: A Rare Case of Embolic NSTEMI

William Reichert MD, Banner UMC Phx, PGY-1

Jessica Weiss DO, Kamaldeep Singh DO, Adam Brodsky MD

CR, Poster Display No. 51

Introduction Protein S is a vitamin K-dependent anticoagulant protein which can be found in deficient amounts due to acquired or congenital factors and is well-described to cause a hypercoagulable state. Thrombosis usually presents in the venous system and accounts for 3-6% of individuals who have a personal or family history of recurrent thrombosis. We present a case of protein S deficiency in a patient with NSTEMI where the suspected route of paroxysmal thrombosis was through a patent foramen ovale where it attached to the left ventricle, showering emboli to the coronaries. **Case report** A 21-year-old African-American female presented with two hours of sub-sternal, non-radiating chest pressure, shortness of breath, and nausea. She has a history of protein S deficiency, recurrent DVTs, tobacco use, obesity, and 8 months prior had a STEMI with 2 bare metal stents placed in the proximal LAD. The patient was found to have a NSTEMI with an ECG showing normal sinus rhythm with a new right bundle-branch block and inferior infarct as well as troponins peaking at 46. Her INR was sub-therapeutic at 1.0. Chest CTA showed a pedunculated left ventricular thrombus. Transthoracic echocardiogram showed an LVEF of 50-55% and a large mobile density in the LV cavity that appeared adherent to the papillary muscle and was consistent with a LV thrombus. Coronary angiography revealed patent LAD stents but there were multiple hazy opacities in the distal LAD as well as the distal OM1 that were consistent with non-flow limiting thrombi. She was treated with intracoronary Integrilin. Cardiothoracic surgery performed a thromboembolectomy and an intraoperative transesophageal echocardiogram revealed a PFO (not identified on previous echocardiogram) that was sutured during surgery. The patient was discharged on a Coumadin bridge with plans to follow up with hematology to transition to a more stable oral anticoagulant agent (direct Xa inhibitor or direct thrombin inhibitor) due to history of non-compliance as patient was not ready to make the decision to transition during her stay. **Discussion** Protein S deficiency is a rare disease that usually presents with DVT and thrombosis. Approximately 1-2% of people diagnosed with a DVT are found to have protein S deficiency. This case was unique because the etiology of this patient's NSTEMI was believed to be due to embolization of venous thrombosis through the PFO to the left ventricle, where a larger clot was formed due to her hypercoagulable state. This clot then showered emboli into multiple distributions of the coronary arteries. In cases such as this, early surgical intervention of LV thrombi in patients suffering an ACS event with hypercoagulable disease may provide a reduction in mortality. This case also raises the question of using more stable anticoagulation in patients that are at risk for non-compliance.

Osmotic Demyelination syndrome-A Case of A Fad Diet leading to a severe Neurological outcome

Jarred Sargeant MD, UACOM at University Campus, PGY-1

Adam Berlingberg MD

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Little has been published with regards to “fad diets” and outcomes related to neurologic dysfunction. This diet regimen involves a bowel cleanse with consumption of purely distilled water for 40 days without further supplementation. This case reports resulting severe hyponatremia and eventual ODS with locked in syndrome. A 44 year old woman previously high functioning with PMH of depression was transferred to our hospital from an outside facility with AMS and new onset tonic-clonic seizure. The patient completed a 40 day body cleanse, with nothing but distilled water. On presentation to the outside facility her sodium level was 95, along with severe hypokalemia, hypochloremia, hypophosphatemia, and hypomagnesemia. She was treated with hypertonic saline and then transferred. When she arrived her initial sodium level was 125, they corrected her sodium to rapidly with hypertonic saline. It had been 48 hours since she had likely been at the overcorrected sodium level. The patient displayed no focal neurologic symptoms and initial MRI did not suggest any acute processes. The sodium levels continued to rise despite no replacement therapy. The patient progressed with unusual behavior, including staring blankly, not responding to questions or commands, and consistent drowsiness. She had intervals of normal response and awareness. Psychiatric concluded that her presentation was secondary to a neurological process, non-convulsive status epilepticus. EEG demonstrated diffuse background seizure activity. The patient was started on phenytoin and levetirecetam. Repeat MRI brain on hospital day 7 displayed severe hyperintensity in the pons region on T2 and Flair consistent with ODS. This case represents an unfortunate neurologic outcome related to a fad diet. There is no evidence of health benefits and high risk for fatal electrolyte abnormalities with this diet. This particular patient, despite aggressive interventions, progressed to ODS with severe neurologic dysfunction. There are no current published case reports on this topic, and it represents an area in need of medical education to the public as patients continue to attempt drastic, non evidence based methods to lose weight and become healthier. The patient spent 3 weeks at our facility, her sodium levels were allowed to auto-correct. Her neurological status showed gradual improvement throughout the admission and was able to answer simple questions and commands. She began to ambulate with assistance. She remained non-conversational and will need a longer period to regain her functional capacity. Permanent neurological dysfunction is a possibility. The patient was discharged to a Rehabilitation center for further therapy. In conclusion it is imperative to have appropriate monitoring of electrolyte replacement despite how depleted initially. Proper guidelines were followed for replenishment but poor execution of patient safety goals and protocol lead to a adverse event. Public education may be warranted in this situation for proper diet practices.

A Case of Disseminated Varicella Following Vaccination in an Immunocompetent Patient

Allison Scotch MD, MPH, Mayo Clinic AZ, PGY-1

Elika Hoss, MD; Adriane Budavari, MD

CR, Poster Display No. 53

Introduction Varivax[®], a live attenuated varicella vaccine, became available in the United States in 1995; since that time over 55 million doses have been distributed. Mild reactions including localized rash may be associated with vaccination, but serious adverse events are rare. Disseminated varicella infections after vaccination have been reported in patients with underlying immune deficiencies including natural killer T cell defects, as well as those with acquired immune deficiency in the setting of leukemia, bone marrow transplant, and other conditions. Systemic post-vaccination infections are rare in immunocompetent adults. Case Presentation A 53-year-old woman presented to the Emergency Department with a diffuse pruritic rash seventeen days after receiving the live varicella vaccine. The rash began on her chest then spread to her face, abdomen, back, and arms. She had negative varicella serology prior to vaccination and no history of immune deficiency or recurrent infections. Physical exam revealed numerous targetoid lesions a few millimeters in size with thin erythematous borders, central clearing, and red-purple centers with erosion. There were also skin-colored vesicles. Her palms, soles, and mucous membranes were spared. On presentation her white blood cell count was 1.9 g/dL, absolute neutrophil count was 0.79 x10⁹/L, and platelet count was 68 x10⁹/L. Transaminases were elevated with ALT 86 U/L and AST 94 U/L. Cerebrospinal fluid showed normal cell count, protein, and glucose, and varicella PCR was negative. Chest x-ray was normal. Her infectious work-up including HIV and hepatitis serologies and EBV IgM were negative. She received two days of intravenous acyclovir for presumed disseminated varicella infection after which her rash improved and her white blood cell and platelet counts increased. She was discharged and completed five more days of oral acyclovir. Punch biopsy of a lesion on her back demonstrated positive varicella zoster immunostaining. A second sample was sent for viral culture and returned positive for varicella. On follow-up with her primary care physician seven days after discharge her neutropenia and thrombocytopenia had resolved and her rash was almost completely gone. Transaminases remained elevated. We recommended follow-up with Immunology to evaluate for underlying immune deficiency, but the patient declined this work-up. Discussion This patient presented seventeen days after receiving the live varicella vaccine with a diffuse vesicular rash and lab abnormalities concerning for disseminated varicella infection. The differential diagnosis also included drug reaction or erythema multiforme caused by medications or vaccination. Positive immunostaining and viral culture confirmed the varicella diagnosis, and she responded well to treatment. This is an unusual case as disseminated varicella after vaccination is rare in immunocompetent adults. The patient declined further immunologic work-up, but it is possible she has a mild immune deficiency such as an NK cell defect of which she is not aware.

Hereditary Spherocytosis leading to Pulmonary Hypertension

Nirmal Singh MBBS, UACOM at South Campus, PGY-1

Bhupinder Natt, Ainapurapu Bujji, Eugene Trowers

CR, Poster Display No. 54

Pulmonary hypertension (PH) has multifactorial pathogenesis especially in patients with hereditary spherocytosis (HS). Most common cause in HS is pulmonary artery hypertension. Splenectomy, cardiac shunt, infected intravenous lines, and chronic inflammatory states appear to be independent risk factors for thromboembolism especially in pulmonary vasculature. There is no indication for extended thrombosis prophylaxis after splenectomy in patients with HS without PH. Although pulmonary hypertension due to chronic thrombotic and/or embolic disease (CTEPH) has been well studied in general patient population including thalassemia, there has only been limited cases reported of pulmonary hypertension in HS attributable to CTEPH. Patient is a 31 year old Caucasian male with a PMH significant for HS status post-splenectomy at age 5, chronic smoker, who presented with right medial thigh pain and swelling that began 2 weeks ago associated with dyspnea on exertion and dry cough. On admission, he was tachycardic, afebrile, BP=138/86. On physical examination patient appeared jaundiced with tenderness and erythema on right medial thigh. The rest of the examination was unremarkable. Laboratory tests showed normal iron panel, WBC=17.4, Hb=16.8, Hct=47.2, MCV=116.7, RDW=63.9, T. Bili=4.3, D. Bili=1.1, LDH=553, CRP was elevated, Haptoglobin <8, BNP=487. Patient was negative for Factor V Leiden and Prothrombin G20210A gene mutation. He was found on CT-PE imaging to have multi-lobar segmental and sub-segmental pulmonary embolism with subacute/chronic appearance. Right ventricle was enlarged and pulmonary artery [PA] was 3.3 cm suggestive of secondary pulmonary hypertension. Venous Doppler ultrasound of the right leg revealed occlusive thrombus in the greater saphenous vein. EKG showed mild right axis deviation. Echocardiogram demonstrated enlarged right atrium, severe right ventricle hypertrophy with right ventricle systolic pressure of 75mmHg + CVP with peak PA pressure >70mmHg. In the recent past, patient had 3 similar episodes of pain and swelling in right arm and both legs since Nov 2014, which was treated with Antibiotics as cellulitis and it usually resolved. Treatment of PE was initiated. Patient was discharged with pulmonary and hematology follow up. Patient with HS post splenectomy are more prone to venous thromboembolic phenomenon leading to secondary pulmonary hypertension as our case. It seems a plausible proposal that decision for screening Hereditary spherocytosis patients for thromboembolic phenomenon and thrombotic prophylaxis be made on case to case basis especially in patients with cardiovascular risk factors such as smoking, alcoholism or hypertension, given the satisfactory outcome in our case

Deadly Diarrhea: The Perfect Camouflage

Roberto Swazo MD, UACOM at South Campus, PGY-1

Kareem Bannis, Balaji Natarajan, John McClane, Anca Georgescu

CR, Poster Display No. 55

Aortic dissection is one of the great imitators which can clinically present in many ways depending on the portion of the aorta undergoing dissection. Therefore, it is of utmost importance to consider the variety of presentations, including those that are rare, in order to not miss this potentially fatal diagnosis. Our case is important because we believe that AD should warrant a high index of suspicion in a wide variety of patients, regardless of age, medical, or social history. A 46 year old gentleman with no significant PMH presented to the ED complaining of nausea, non-bilious vomiting, and 8-10 episodes of diarrhea becoming progressively bloody. His symptoms were typical for enterocolitis because they started after eating a homemade meal the night before admission. Initial vital signs revealed that the patient was hypotensive at 95/54 (equal BPs bilaterally in the upper extremities), tachypneic at 30 BPM, oxygen saturation was 98% on room air, with no signs of tachycardia or fever. Laboratory revealed: WBC 17.8, hemoglobin 13.5, BUN/Cr 22/2.0 and stool workup was negative for C. Difficile. CT Abdomen/Pelvis without contrast revealed only signs of enterocolitis. Therefore, while performing the RUQ ultrasound to rule out cholecystitis, the technician visualized a discontinuity of the distal abdominal aortic wall with a flap extending into the proximal left iliac artery, concerning for AD. Bilateral upper extremity BPs were repeated, showing a difference of 100mmHg between the arms (legs were not evaluated). Subsequently, a STAT CTA Aorta performed revealed a complex AD extending from the sinuses of valsalva to the iliac arteries, involving cervical and abdominal branches. The patient underwent immediate vascular surgical intervention via replacement of the ascending aorta by supra-coronary tube graft leading to an uncomplicated post-operative course. Pathology discovered a focal, medial degeneration of the outer third of the media, leading to the AD. Although AD tends to be more common in the elderly and those with risk factors (hypertension, CVDs, previous cardiac interventions, and drug abuse) it can still present in the younger population without risk factors. Consequently, it is essential to have a high index of suspicion, even in patients not presenting with "typical symptoms" (hypertension, chest, back, and migrating pain). This rare presentation in AD similar to enterocolitis presents in <5% of patients, indicated by nausea, vomiting, and bloody diarrhea. As this case demonstrates, fatal diseases such as AD can effectively imitate others, preventing diagnosis and intervention. Thus, although patient complaints should be used to steer the medical team in the right direction, certain conditions such as AD are difficult to exclude based on presentation alone.

A Peculiar Rash: Trastuzumab-induced Skin Eruption

Khang Tran MD, Mayo Clinic AZ, PGY-1

Joseph Charles

CR, Poster Display No. 56

Introduction: Trastuzumab is a chemotherapy agent used in HER2-positive breast cancer. We present a case of a patient with an acute cutaneous facial eruption following trastuzumab treatment. **Case Description:** A 49-year-old female with recently diagnosed locally invasive ductal carcinoma of the left breast presented with a facial rash. Her breast cancer was ER weakly positive, PR negative, and HER2 positive. She underwent mass excision and 6 cycles of chemotherapy with carboplatin, docetaxel, pertuzumab, and trastuzumab. One week after her 6th cycle of chemotherapy, she developed an erythematous, warm, tender, pruritic lesion beginning on the tip of her nose that spread to the right side of her face and forehead. The rash was not associated with fevers or chills. The physical examination revealed pink plaque with boggy edema and superficial erosion involving her glabella, nose and bilateral cheeks in a malar distribution, right greater than left. She was admitted with a diagnosis of infectious erysipelas and received IV antibiotics. Two days into her treatment, her rash did not show improvement and pustule formation was evident. Dermatology and oncology specialists were consulted due to concern for a chemotherapy-induced cutaneous eruption. Given the character of the eruption, it was deemed that the patient had an acneiform eruption secondary to trastuzumab. She began treatment with topical desonide 0.05% cream, topical clindamycin 1% cream, and oral doxycycline 100 mg twice a day. Upon follow up in one week, her rash showed subsequent resolution with minimal erythema present. She continued oral doxycycline 100 mg twice a day for prophylaxis as she continues with trastuzumab chemotherapy. She was advised to minimize her sun exposure and use sunscreen while taking doxycycline. **Discussion:** The epidermal growth factor receptor family promotes cell growth and proliferation. EGFR receptor inhibition has been a common target of oncologic therapies. Skin toxicities have been reported in HER1-directed chemotherapies. However, reports of HER2-targeted agents, used mainly in breast cancer, causing cutaneous side effects are rare. EGFR receptors are present in the skin and are important for keratinocyte growth and proliferation. Inhibition of these receptors can lead to local inflammation and hyperkeratosis leading to skin manifestations such as papulopustular eruptions. Our case demonstrates that HER2 inhibition is significant enough to cause a cutaneous eruption, and should be considered in the differential diagnosis for patients receiving these agents. Management of EGFR-inhibitor associated skin eruptions includes topical steroids, topical antibiotics, and oral antibiotics (doxycycline or minocycline). Low-dose isotretinoin can be added in refractory cases. **Conclusion:** Appropriate recognition and treatment of papulopustular acneiform skin eruptions in patients receiving HER2 inhibitors can improve patients' quality of life.

It is not a tumor!

Jaren Trost MD, UACOM at University Campus, PGY-1

Dr. Adam Berlinberg, Dr. Dominick Sudano

CR, Poster Display No. 57

Introduction: Idiopathic granulomatous mastitis (IGM) is a rare, benign disorder that causes significant pain and can mimic breast cancer. Very little is known about the proper treatment. Many case reports describe using steroids, antibiotics and methotrexate as acceptable treatments. Case Description: A 46-year-old female presented to clinic with a history of a left breast mass in the right upper quadrant. The mass had been increasing in size over a 2-month period, so a biopsy was performed. Pathology demonstrated granulomatous mastitis, and she was treated with Bactrim for 2 weeks with minimal resolution. She was then evaluated in rheumatology clinic and had no new complaints denying rash, fever, fatigue, muscle aches, joint pain, history of asthma, and other symptoms related to connective tissue disease. The patient also denied any masses at other sites. The patient's symptoms started to get worse as she was still draining a serosanguinous discharge from the biopsy site. She was given an additional two-week course of Bactrim. Two weeks later, the drainage had improved but she continued to have tenderness around the mass and increased redness. Additional treatment options were explained to the patient including the use of steroids and/or methotrexate; however, she elected to seek a second opinion given the rarity of the disease. Discussion: IGM is a rare, benign, and chronic disease of the breast. No gold standard for treatment exists, and the diagnosis is made pathologically by finding numerous epithelioid cells, multinucleated Langerhans-type giant cells, neutrophils, lymphocytes, and stromal cells in the sample. Many case reports have described using steroids, antibiotics and methotrexate as acceptable treatments, but there is no consensus on standard for treatment. This case demonstrates the difficulties providers face when treating rare diseases. As IGM is a relatively benign condition, the decision to escalate therapy to steroids and methotrexate should be weighed carefully. Clinically, the treatment of IGM is important because it is a mimic of breast carcinoma.

Renal limited P- ANCA associated vasculitis induced by cocaine abuse

Enrique Villavicencio Sumire MD, UACOM at South Campus, PGY-1

Sarah patel, MD, Jayasree Jonnadula, MD

CR, Poster Display No. 58

Cocaine is a recreational drug, which is a potent activator of the sympathetic nervous system leading to intense vasoconstriction and endothelial dysfunction. AKI associated with cocaine use may result from several mechanisms including renal infarction and vasculitis. Most cases of vasculitis affecting the kidneys present with associated cutaneous manifestations, here we present a case of renal limited vasculitis secondary to cocaine abuse. A 56 year old male patient with past medical history of MI in 2006 and cocaine abuse for the past 25 years, presented to the emergency department complaining of shortness of breath with less than ordinary activity during the past week and PND associated with intense anxiety. Upon review of systems, he also reported pink colored urine during the last 10 days, that he attributed to increased watermelon intake. No changes in the amount or frequency of urination or dysuria was noticed. Vitals at presentation were positive for hypertension (BP 174/100). Physical exam showed pallor, peripheral pitting edema on both lower extremities, no petechia, mild crackles on lower lung fields. Pertinent labs showed normocytic anemia, thrombocytopenia (Hb: 8.0 Plat: 101. WBC: 3.7. MCV 91). His creatinine was markedly elevated at 11, BUN was 72 and FENa < 1%. Urinalysis showed hematuria with RBC casts. Peripheral smear was normal. Cardiac echo revealed a EF of 35% with global hypokinesis. Further testing showed low C3, Myeloperoxidase antibodies were elevated at 134., positive P-ANCA and positive Hepatitis C antibody. The patient underwent a renal biopsy which showed a focally crescentic glomerulonephritis consistent with a pauci-immune complex glomerulonephritis. He was treated with cyclophosphamide and steroids showing only mild improvement of renal function with creatinine improving to 5.1, on last evaluation, he continues to receive dialysis 3 times a week until now. Upon further questioning, the patient was told that his first MI was also caused by cocaine use and he presents now with renally limited cocaine induced vasculitis. A case series of 30 patients with ANCA-associated vasculitis in relation with cocaine reported 4 patients with AKI. These 4 patients were all positive for a characteristic several fold higher titer of myeloperoxidase (MPO) titer and 50% also had co-existent P ANCA as is the case with our patient. However, all of them also had cutaneous involvement, absence of which was unique in this case. The specially high MPO titers, and the decreased level of C3 are different from regular P ANCA vasculitis and point towards cocaine induced vasculitis as the diagnosis. Clinicians should be aware that the kidney could be a potential isolated target organ for vasculitis in cocaine abuse.

The Killer Fat: An Unlikely Culprit of Life-threatening Metabolic Acidosis

Kelly Wickstrom DO, UACOM at University Campus, PGY-1

Jaspreet Chahal M.D., Gajapathiraju Chamarthi M.D

CR, Poster Display No. 59

Introduction: Severe hypertriglyceridemia (HT) is defined by fasting serum triglyceride > 1000 mg/dL and may result from primary or secondary causes. HT is a common sequela of life-long alcoholism. Alcohol ingestion increases triglyceride (TG) synthesis by the liver and stimulates lipolysis further raising TG levels. Well-known complications of severe HT include pancreatitis and acute coronary syndrome. We present a rare case of alcohol-induced severe HT causing high anion gap metabolic acidosis (HAGMA) successfully treated with continuous insulin infusion. Case Description: A 59-year-old male with a history of alcoholism presented with intractable epigastric abdominal pain, nausea, and vomiting for 2 days. He endorsed drinking one pint of vodka a day. Physical exam was notable for generalized tremors, sinus tachycardia, and diffuse abdominal tenderness. Labs were significant for sodium 128 mMol/L (136-145 mMol/L), potassium 5.5 (3.5-5.0 mMol/L), bicarbonate [HCO₃⁻] < 5 (20-29 mMol/L), anion gap 24 mMol/L (8-12 mMol/L) albumin 2.8 g/dL (3.5-5.0 g/dL), AST 81 IU/L (5-34 IU/L), and ethanol 128 mg/dL. Of note, lipase was 18 U/L (8-78 U/L). Arterial blood gas demonstrated pH 7.37 (7.35- 7.45), pCO₂ 27 mmHg (35-45 mmHg), calculated HCO₃⁻ 15.6 and lactate 2.9 mMol/L (0.5-2.2 mMol/L). Complete blood count was undeterminable due to gross lipidemia. A lipid panel revealed total cholesterol 660 mg/dL (< 200 mg/dL), HDL 16 mg/dL (>40 mg/dL), and TG 3979 mg/dL (< 150 mg/dL). He was started on an intravenous insulin infusion at 3 U/hr along with D5 normal saline to prevent hypoglycemia. After 36 hours of therapy, TGs decreased to 1049 mg/dL, HCO₃⁻ normalized to 22 mMol/L, and gross lipidemia resolved. Insulin infusion was stopped and he was started on gemfibrozil at discharge. His severe HT was secondary to his excessive alcohol consumption in the setting of possible underlying genetic dyslipidemia. Discussion: A study by Bessembinders et al. concluded excessive alcohol consumption is the predominant risk factor for developing severe HT. Severe HT can decrease electrolyte measurements through dilution thereby creating a pseudo-hyponatremia and HAGMA (Salim et al). Therefore, severe HT should be considered in the differential of a patient with HAGMA of unknown etiology. In the acute setting, insulin, heparin and plasmapheresis are appropriate methods of treating severe HT (Seda et al); however, no guidelines currently exist and literature is limited. We safely and successfully reversed our patient's severe HT, HAGMA and prevented complications associated with high morbidity and mortality through low-rate continuous insulin infusion.

Terrifying Thyroid with Paralyzing Potassium.

Wei Xiang Wong MD, UACOM at South Campus, PGY-1

Juan Adrian Sandoval MD, Jennifer Huang MD, Bujji Ainapurapu MD

CR, Poster Display No. 60

Wei Xiang Wong MD, Juan Adrian Sandoval MD, Jennifer Huang MD, Bujji Ainapurapu MD, Title: Terrifying Thyroid with Paralyzing Potassium Thyrotoxic periodic paralysis (TPP) is a rare but well establish phenomenon. It is characterized by a sudden onset of severe hypokalemia and paralysis which predominantly affects bilateral lower extremities in thyrotoxicosis. Potassium level of <3.0 mMol/L is a routine finding in TPP and it occurs in only 0.2% of thyrotoxic patient in North America. There is a high incidence among men, with a ratio of 70:1, compared to women. Conversely, hyperthyroidism incidence favors women at 9:1 ratio. 24 year old Hispanic gentleman presented with sudden onset bilateral lower extremity paralysis. He has no prior history of similar presentations. He reported palpitations, multiple emetic episodes, numbness and weakness of all extremities with an ascending pattern. He denied any chest pain, SOB, fever, intolerance to heat, flushing, tremors, swelling, abdominal pain, or diarrhea. He reported ingesting immeasurable amounts of alcohol in the last two days, in addition to cocaine use the day prior. He also admitted taking vitamin/energy formula called "Biometrics". Physical examination revealed normal vital signs with the exception of HR 105, he appeared mildly diaphoretic, strength was 0/5 in both legs proximally and distally. The remainder of his physical exam findings were unremarkable. Labs revealed profound hypokalemia of 1.5, 1.7 on repeat, bicarbonate 22, Magnesium 2.0, CK 385, WBC 14.9, and urine K 32.4. His urine toxicology positive for cocaine, TSH <0.01 , FT4 2.5 and T3 9.8. Cortisol, renin, aldosterone, PTH, vitamin D level were all within normal limit. CT head and CT spine was negative. Serum potassium level increased to 4.4 after 4 hours of aggressive potassium replacement therapy in which he received a total of 120 mEq per oral and 60 mEq IV potassium. He was also treated with propranolol and methimazole. Paralysis gradually resolved over the following day. He was discharged home on propranolol and methimazole after his potassium had been stable for more than 24 hours and had return of motor function to baseline. The mechanism of TPP remains unclear. Common presentations of thyrotoxicosis are rarely manifested in the early paralytic episode. TPP can present with any degree of hyperthyroidism and should be treated with potassium supplements and nonselective beta-blockers. Patients should remain on continuous telemetry monitoring and should have serum potassium levels checked every 4 to 6 hours until stabilized, as rebound hyperkalemia can occur. Avoidance of precipitating factors while awaiting normalization of the thyrotoxic state is also germane. Definitive therapy for thyrotoxic periodic paralysis is the resolution of the thyrotoxic state and restoration of euthyroidism. Physicians need to consider thyrotoxicosis in their differential diagnosis among patients who present with motor weakness and severe hypokalemia.

Workup for Elevated Aminotransferases Unmasking Dysferlin-Deficient Muscular Dystrophy

Tyler Aasen DO, Banner UMC Phx, PGY-2

Stacy Achdjian DO, Yousef Usta MD, Rakesh Nanda MD

CR, Poster Display No. 61

Introduction: Often exclusively thought of as indices of liver damage, alanine aminotransferase (ALT) and aspartate aminotransferase (AST) are also present in the kidney, heart, brain, and skeletal muscle tissue. This multi-locational distribution of aminotransferases makes them nonspecific markers of liver injury and cases of extra-hepatic transaminase leakage are often diagnostic challenges. Although rare, few cases of transaminase elevation leading to the diagnosis of muscular dystrophy have been reported in young children. This phenomenon in adults is exceedingly rare and often results in years of diagnostic delay and extensive liver workup with no diagnostic endpoint. Case Report: A 24-year-old male combat veteran with no past medical history presents to clinic for evaluation of persistently elevated aminotransferases of six months duration. During a routine physical he was noted to have ALT 240 IU/L and AST 225 IU/L with alkaline phosphatase 41 IU/L and bilirubin 0.3 mg/dl. The patient denied any personal or family history of liver disease and complete review of systems was unremarkable. Physical examination revealed a physically fit young man with 5/5 upper and lower extremity strength with no detectable muscular abnormality, no hepatosplenomegaly or stigmata of liver disease. Extensive and thorough laboratory and imaging workup for causes of chronic liver disease was performed with no identified pathology. Percutaneous liver biopsy was performed and revealed nonspecific grade 1 chronic inflammation and was unable to explain the persistent degree of transaminase elevation. The patient returned to clinic with continued elevation of ALT and AST and new complaints of fatigue. Creatinine kinase and aldolase were checked. Results revealed elevation of both creatinine kinase to 4956 IU/L and aldolase to 46.9 IU/L. Electromyography was performed which showed mild myopathic features of the iliopsoas muscle. Biopsy of the deltoid muscle showed a mild number of moderately atrophic type I and type II muscle fibers and further immunohistochemistry for dystrophy-associated proteins demonstrated inconsistent and weak dysferlin expression. The diagnosis of dysferlin-deficient muscular dystrophy was secured and the patient began developing lordosis, difficulty standing, and paraspinal atrophy over the following years. Conclusion: Often thought to be exclusive to the liver and commonly mislabeled as marks of liver function, AST and ALT are present in a variety of extra-hepatic sites including skeletal muscle. The persistence of transaminase elevation despite negative liver workup should trigger clinicians to seek extra-hepatic causes of transaminase elevation. Workup in these circumstances should include serum creatinine kinase to evaluate for myopathy along with a thorough history. Correlating aminotransferase elevation with musculoskeletal pathology promptly may represent an opportunity for clinicians to detect myopathies such as muscular dystrophy in their preclinical stages.

A Unique Presentation of Secondary Sclerosing Cholangitis during Pregnancy

Yasir Abdulqader MD, Maricopa Medical Center, PGY-2

CR, Poster Display No. 62

A Unique Presentation of Secondary Sclerosing Cholangitis during Pregnancy Yasir Abdulqader MD, Keng-Yu Chuang MD, Jyotsna Ravi MD, and Abdul Nadir MD Introduction: A case of secondary sclerosing cholangitis (SSC) that manifested in pregnancy is described. There has been no case of SSC reported in association with pregnancy. Case Report: A 24-year-old Hispanic woman presented to the gastroenterology clinic two weeks after the delivery of her third child with symptoms of intermittent jaundice and itching. She had no prior history of drug or alcohol abuse. During her second pregnancy, at age 20, she had developed mild elevation of her transaminases and alkaline phosphatase and had a normal RUQ ultrasound. She was treated with cholestyramine for pruritus. After delivery of her second child, her transaminases and alkaline phosphatase levels decreased but did not return to normal. Her third pregnancy was again complicated by development of RUQ abdominal pain and elevation of transaminases and alkaline phosphatase. Repeat ultrasound was reportedly normal and she was treated with ursodeoxycholic acid 900 mg/day during her last trimester. During her workup by gastroenterology, she underwent extensive workup, including a liver biopsy which showed bile duct damage and the classic onion-skin appearance of the bile ducts. MRCP showed structuring of the intrahepatic biliary tree most pronounced in the left lobe of the liver, hypertrophied caudate lobe, splenomegaly, and Roux-en-Y limb drainage of the biliary tree. A trans-hepatic cholangiogram showed stricturing and dilation of intrahepatic biliary tree and several stones. She underwent a colonoscopy which did not reveal evidence of inflammatory bowel disease. Extensive review of her past medical history revealed a complicated cholecystectomy at age 13 years with damage to the left and right hepatic ducts during which she required hepaticojejunostomy for biliary drainage. She has subsequently developed worsening liver disease and underwent band ligation of esophageal varices at age 25 after suffering a variceal bleed. Her transaminases and alkaline phosphatase levels remain mildly elevated, consistent with pre-pregnancy values. Discussion: This is the first report of SSC manifesting itself during pregnancy. In the present case, sclerosing cholangitis developed as a consequence of a complicated cholecystectomy. Absence of ANCA, normal colon histology, and a prior history of hepaticojejunostomy support a diagnosis of SSC. As this case highlights, differentiating primary sclerosing cholangitis or SSC from intrahepatic cholestasis of pregnancy can be a daunting task. However, it is critical to know the cause of the transaminase elevation because it has significant impact on the pregnancy and subsequent delivery.

The "Kiss" of Death

Rhonda Alkatib MD, UACOM at South Campus, PGY-2

Norman Beatty, MD

CR, Poster Display No. 63

The "Kiss" of Death Rhonda Alkatib, MD; Norman Beatty, MD Banner University Medical Center-South, Tucson, AZ Triatomine insects, known locally to the Western United States as "kissing bugs", are amongst the most common cause of insect bite-related allergic reaction, ranging from a minimal local reaction to the feared anaphylactic shock. Few unforeseen cases have resulted in hospitalization requiring stabilization in the intensive care unit, given the widespread use and availability of anti-histamines and Epinephrine. Patient is a 56 year old male with a past medical history of hypertension and asthma who presented with shortness of breath. He was going about his daily activities at home when he noticed his Right elbow region begin to itch. He found a 'Kissing bug' nearby to which he attributed the 'bug bite.' He quickly began to feel generalized malaise, with associated nausea and fatigue. This escalated suddenly to tingling of the tongue and feeling of throat closure, with rapidly progressing shortness of breath. Pt self-administered a single dose of Benadryl 100mg PO while awaiting EMS. Upon their arrival, patient was tachycardic, tachypnic and in acute respiratory distress. They quickly administered Epinephrine 0.5mg IM x 2 doses, along with Solumedrol 125mcg IV and Benadryl IV. The patient's symptoms minimally improved, and upon arrival to the ED, he required emergent intubation for acute hypoxic respiratory failure. On admission, vital signs were: 37.4 °C (99.3 °F), Heart rate 120bpm, Respiratory Rate 35, Oxygen saturation 100% room air, Blood pressure 138/120 mmHg. Physical exam findings significant for diffuse urticaria predominantly on upper trunk and abdomen, tachycardia, respirations with significant accessory muscle use, supraclavicular retractions with abdominal breathing, stridor, and poor aeration across bilateral lung bases. The patient was stabilized in the intensive care unit, where he continued to require IV steroids, IV anti-histamines and IV diuretics as he developed pulmonary edema secondary to his excessive secretions. Attempts to extubate initially failed, requiring an ENT consult with flexible laryngoscopy which conveyed vocal cords remained edematous 48 hours later. The patient continued to require parenteral medical therapy until he was successfully extubated 5 days later. He remained hemodynamically stable thereafter. This case demonstrates the importance of quick anaphylactic recognition, particularly with Triatomine insect bites. The patient was known to have had exposure and previous bites from kissing bugs, however had never experienced anaphylactic symptoms. Triatomines are of increasing medical interest as they have been identified as insect vectors for the protozoan *Trypanosoma cruzi*, which causes Chagas disease. In addition, the Triatomine insects remain a species for which allergy immunotherapy has not yet been made commercially available, thus recognition and early treatment of allergic symptoms becomes crucial to avoid anaphylactic reactions and unexpected visits to the intensive care unit.

Medullary disinhibition: A rare cause of sinus arrest

Senthil Anand MBBS, UACOM at South Campus, PGY-2

Frank Markus MD, Nisreen Yaghmour MD

CR, Poster Display No. 64

Posterior circulation strokes frequently present with neurological manifestations involving the affected motor, sensory, cerebellar, and cranial nerve pathways. Rarely, they can present with cardiovascular and respiratory symptoms. We present a case of sinus arrest secondary to a cerebellar stroke. A 38 year-old man presented to the ER with one-day history of sudden onset vertigo, nausea, vomiting, and truncal instability. His past medical history was significant only for hydrocephalus treated with a ventriculo-peritoneal shunt. His physical examination was significant for ataxia on right-sided finger-nose testing but no other neurological deficits. An MRI with contrast of the brain revealed a new posterior-inferior cerebellar artery infarction. The patient was admitted to the ICU. On the second day after admission, he was noted to have intermittent asymptomatic bradycardia with his pulse rate decreasing to 30-40beats/minute. A repeat CT of the head showed edema secondary to the infarct with mild right to left cerebellar herniation, and upward transtentorial herniation. On the 5th day after admission his telemetry showed periodic sinus arrest. In the subsequent 48 hours, he had a total of 72 episodes of asymptomatic sinus arrest. Most were between 2-3 seconds in duration, with the longest being 4 seconds. An ECG showed sinus arrhythmia but no other abnormalities. An echocardiogram showed a left ventricular ejection fraction of 65% with no regional wall motion abnormalities or enlargement of any cardiac chambers. Since he was asymptomatic, and it was thought that his periodic sinus pauses were likely due to his cerebellar infarct with subsequent edema, the decision was made not to perform cardiac pacing. Upon discharge, he was advised to wear a 30 day event monitor and to follow up with cardiology as an outpatient; however the patient declined any further evaluation. Three months after the admission, he was completely asymptomatic. Discussion There have been 7 cases of sinus arrest reported as a complication of posterior circulation strokes. The pathogenesis of autonomic dysfunction in brainstem strokes is not known. The prevailing theory is that strokes involving the medulla affect centers for cardiorespiratory regulation with subsequent disequilibrium of the sympathetic and parasympathetic outflow tracts. In studies in rats, stimulation of P2X purinoreceptors of the Nucleus Tractus Solitarius in the medulla produced bradycardia and hypotension by both sympathetic withdrawal and parasympathetic activation. A study done involving 6 people with medullary strokes, and 8 with non-medullary strokes showed that patients who had medullary strokes had lower levels of heart rate variability and circulating catecholamines. Authors have suggested that medullary infarctions disrupt central inhibition of the NTS with a resultant increase in parasympathetic activity. In our case it is likely that the sinus bradycardia and arrests were due to compression of the medulla by the edema from the cerebellar stroke.

Severe GHB withdrawal

Douglas Andersen DO,MSE, Verde Valley Medical Center, PGY-2

CR, Poster Display No. 65

Severe GHB withdrawal Doug Andersen, PGY-2, Internal Medicine, Verde Valley Medical Center Introduction: Gamma hydroxybutyrate (GHB) is an anesthetic salt with strong GABA agonist properties. GHB, known as 'liquid X' as a street drug, has been used as a date-rape drug due to aphrodisiac and sedating properties. GHB is FDA approved in the US for cataplexy under the trade name Zyrem, however, cessation and withdrawal have not been evaluated in clinical trials. Case reports indicate that withdrawal can be serious and even fatal, therefore inpatient detoxification is recommended. Case Presentation: A 70-year-old man presented to the emergency department mildly agitated and confused, expressing that he needed help for GHB withdrawal because he has had seizures during previous withdrawal. The patient made his own GHB and was taking 3 grams every 1-3 hours around the clock for the last 20 years, but recently ran out of ingredients due to newer regulations. His last dose was 1.5 hours prior to arrival. The patient was observed in the ED and given lorazepam for withdrawal symptoms. The patient's confusion and agitation increased, and so he was admitted to the ICU for acute GHB withdrawal. Patient agitation escalated despite benzodiazepines and he required intubation which was complicated by aspiration of gastric contents. Due to high doses of sedation required, vasopressors were started for blood pressure support. EEG was performed showing no evidence of epileptiform activity. The patient tolerated withdrawal of sedation on day 4. Due to poor urine output, hypoalbuminemia and fluid resuscitation, he developed frank anasarca. He was successfully extubated on day 13 after aggressive diuresis, pleural effusion evacuation, and bronchoscopy with mucus plug aspiration. The patient was discharged to a nursing facility for rehabilitation due to debility from his prolonged ICU stay. Discussion: This case illustrates how cessation or withdrawal from GHB can be quite abrupt and serious. Withdrawal from GHB is extremely rapid, occurring 1-6 hours after cessation. Early withdrawal symptoms include anxiety, insomnia (often profound), delirium, tremor and nausea. In a case series, symptoms progressed to refractory agitated delirium in over 50% within the first day. Treatment of withdrawal with high dose longer acting benzodiazepines has been the rule, but studies are lacking. Symptoms may last 4 to 15 days and often require ICU admission and intubation. Hyperthermia, rhabdomyolysis, DIC and seizures are also reported complications. GHB, in the form of sodium oxybate or Zyrem, is now being used much more widely for cataplexy, and it is currently under study for EtOH withdrawal, insomnia, chronic fatigue syndrome, schizophrenia, binge eating, Parkinson's disease, and chronic cluster headache. As prescription use of GHB may increase, it is important that we are aware of GHB and its complications, including abrupt cessation as presented.

A Pain in the Head: A Case of Fibrous Dysplasia

Wint Aye MBBS, Mayo Clinic AZ, PGY-2

Dr. Curtiss Cook

CR, Poster Display No. 66

Introduction Fibrous dysplasia occurs when normal bone is replaced by fibrous connective tissue. The disorder is a result of a mutation in the guanine nucleotide stimulatory protein gene. When fibrous dysplasia occurs in the setting of precocious puberty, café au lait spots, or other endocrine disorders, it is known as McCune Albright Syndrome. **Case** A 56 year old previously healthy female undergoing evaluation for headaches and dizziness was found to have replacement of normal marrow signal in the left sphenoid wing and within the diploic space of the left frontal bone on a brain MRI. A follow-up CT scan revealed a left frontal calvarial lesion in the diploic space with ground glass sclerotic and lucent areas, left frontal bone with increased sclerosis, left anterior temporal bone and lesser and greater wings of the sphenoid bone demonstrating cortical thickening and heterogeneity of the marrow space. Radiologic findings were consistent with fibrous dysplasia. Her history was significant for several month's history of transient frontal morning headaches with blurry vision and lightheadedness. Relevant positives include multiple light brown birth marks, early menses at age 8, and a "bump" on her head which she attributed to a childhood injury. There was no family history of endocrinopathies or bone diseases. Physical exam was remarkable for a café au lait spot on her inner thigh and a palpable bony deformity involving the left fronto-parietal area. Additional studies were notable for PTH of 70 with otherwise normal endocrine work up and skeletal survey showing increased patchy opacity in the left calvarium. **Discussion** McCune Albright Syndrome (MAS) is a rare genetic disorder characterized by precocious puberty, café au lait spots, and fibrous dysplasia of bone. It is caused by the somatic mutation of the alpha subunit of the G3 protein that activates adenylate cyclase causing continued stimulation of endocrine function such as thyrotoxicosis, acromegaly, Cushing's syndrome, hyperparathyroidism. MAS most often presents in childhood and is more common in females than males. With MAS, fibrous dysplasia occurs in multiple bones. Most commonly affected bones are the proximal femur, tibia, ribs and skull. Patients may be asymptomatic, or experience bone pain, pathologic fractures or bone deformity. Radiographs show lytic lesion with ground glass appearance. Asymptomatic patients are observed with serial X-rays while those with symptoms are treated with curettage, bone grafting or bisphosphonates. **Conclusion** McCune Albright Syndrome and its associated endocrinopathies in addition to the fibrous dysplasia have implications in terms of morbidity and mortality as it relates to increased risks of osteoporosis and cardiovascular disease as well as gross disfigurements. Treatment is necessary to improve quality of life and longevity.

Rare Case of ARDS Following Use of Granulocyte Colony Stimulating Factor

Aung Bajaj MD, UACOM at University Campus, PGY-2

Hem Desai MD, Abhijeet Kumar MD

CR, Poster Display No. 67

Abstract Background Granulocyte-colony stimulating factor (G-CSF) is widely administered to neutropenic patients who are receiving chemotherapy. It is often used to accelerate recovery of neutropenia after chemotherapy. It is considered a safe medication, but is sometimes associated with rare, but major adverse reactions, including Acute Respiratory Distress Syndrome (ARDS). **Case Study** We report a case of an otherwise healthy 83-year-old female with peritoneal carcinomatosis secondary to a likely primary pancreatic adenocarcinoma. She was on active chemotherapy with gemcitabine and abraxane, and had been tolerating it for several weeks; however, she suddenly became neutropenic, for which she was given filgrastim. A few days later, she presented to the emergency department with shortness of breath and an increased oxygen requirement, and was subsequently admitted for acute respiratory failure. Computed tomography of the chest showed bilateral pulmonary infiltrates with moderate pleural effusions and no pulmonary embolism. Transthoracic echocardiography showed normal ejection fraction without valvular abnormality. No signs of active infections were present on multiple diagnostic studies, including bronchoscopy. Due to her worsening respiratory status, she was transferred from the inpatient floor to the intensive care unit ICU, and was placed on non-invasive positive pressure ventilation. During her hospital stay, patient did not require endotracheal intubation. She was diuresed and managed with supportive care. Her respiratory symptoms improved several days later, and she was discharged home on supplemental oxygen. **Conclusion** ARDS may result from filgrastim use, which is thought to activate oxidative burst causing alveolar damage and downstream complex cytokine-mediated inflammation. Clinicians administering this medication and treating patients who have received it should be aware of this rare but serious adverse event.

Primary Peripheral Primitive Neuroectodermal Tumor of the Liver Posing as Advanced Polycystic Liver Disease: A Unique Mimicry.

Norman Beatty MD, UACOM at South Campus, PGY-2

Anil Potharaju, MD

CR, Poster Display No. 68

Introduction: Peripheral primitive neuroectodermal tumor (pPNET) is a poorly understood, highly malignant, small round cell tumor that is thought to arise from fetal neuroectodermal precursor cells. We present a rare case of primary pPNET of the liver mimicking advanced polycystic liver disease (PLD). Case report: A 29-year-old Hispanic female presents with a three-month history of nausea, abdominal pain, and distension. She was initially evaluated at an outside facility and was told that she had "liver cysts". She was asked to follow-up with Gastroenterology as an outpatient. Review of systems revealed malaise with unintentional weight loss. Family history is significant for diabetes and hypertension in both living parents; siblings are healthy. The patient consumed alcohol occasionally and denies tobacco or illicit drug use. She endorsed frequent travel to Mexico with consumption of local foods and water. She was afebrile, hemodynamically stable, and in no acute distress. Pertinent physical exam findings reveal a protuberant abdomen with diffuse tenderness and extensive hepatomegaly. Ascites was suspected but there was no shifting dullness. She did not have any signs of portal hypertension and or jaundice. Initial laboratory work was significant for hypoalbuminemia (2.0 g/dL) and elevated alkaline phosphatase (278 IU/L). Magnetic resonance imaging of the abdomen revealed massive hepatomegaly with an innumerable number of cysts throughout the entire liver. The kidneys showed no cystic lesions. This imaging suggested advanced PLD, but other diagnoses were considered including infectious causes. Echinococcus granulosus and Entamoeba histolytica antibodies were both negative. Gastroenterology suggested starting lanreotide and aspiration of one of the cystic lesions for fluid analysis. Findings from computed tomography guided aspiration revealed fluid consistent with simple cyst with no evidence of infection and or malignancy. Transplant service then initiated the work-up for liver transplant candidacy. Meanwhile, the patient began showing clinical evidence of end-stage liver disease with associated respiratory compromise. Repeat imaging was now demonstrating inferior vena cava compression as well as severe bibasilar atelectasis due to a rapidly enlarging cystic liver. The patient was expedited for a liver transplant and a donor's liver became available. Unfortunately the patient did not tolerate the procedure and succumbed to cardiac arrest. After her passing the family requested an autopsy that revealed that this was not advanced PLD. Histology and immunohistochemistry analysis confirmed the diagnosis of primary pPNET of the liver with evidence of early metastasis. Discussion: Primary pPNET of the liver mimicking advanced PLD has not yet been documented in the literature. This malignancy, when found in the liver, is usually the consequence of metastasis from another primary location. The rarity of this presentation, unfortunately, led to confusion and an unforeseen outcome. Although rare, primary pPNET of the liver should be considered when approaching a patient with cystic liver disease.

Thyrotoxic Periodic Paralysis with Hypokalemia Mistaken as Spinal Trauma

Lance Bechtold MD, UACOM at South Campus, PGY-2

CR, Poster Display No. 69

Thyrotoxic Periodic Paralysis with Hypokalemia Mistaken as Spinal Trauma Lance Bechtold, MD; John Bloom, MD; Elaine Cristan, MD; Jessica August, MD Graves' Disease is the most common cause of hyperthyroidism. Undiagnosed or untreated disease can be life threatening scenarios for patients, such as thyroid storm. On rare occasions patients present with atypical presentations, possibly delaying necessary treatments and exposing them to dangerous consequences of uncontrolled hyperthyroidism. A 25 year-old Spanish speaking immigrant male with no significant past medical history presents with acute onset bilateral lower extremity paralysis for one day duration. The patient reported that he had experienced a three year history of bilateral lower extremity weakness with difficulty walking. He and his family had attributed it to an altercation three years ago in which he was severely beaten and sustained lower back trauma. Patient worked as a landscaper and was otherwise healthy. At presentation he reported that he had experienced nightly diaphoresis for one year, three years of intermittent diarrhea and a 100 lbs weight loss over the past two years. The patient was admitted after he suddenly collapsed while walking with his girlfriend. He denied excessive exertional activities or a large meal leading up to the event; although he did report having an insatiable appetite for the past three years with continued weight loss. At presentation he was found to be tachycardic with heart rates ranging from 120-150s, afebrile, and BP 136/59mmHg. Physical and neurologic exam findings included mild thyromegaly, mild exophthalmos, bilateral upper-extremity tremors, and bilateral lower-extremity paralysis. Labs showed he was severely hypokalemic with a serum potassium of 1.7 that only improved to 1.8 after 140mEq total of potassium supplementation. An MRI of the spine was unrevealing for any neurologic explanation for the acute paralysis. It did reveal some generalized retroperitoneal, inguinal and subclavian lymphadenopathy as-well-as a possibly enlarged thyroid gland that was not fully visible. Follow up lab results show an undetectable TSH and an elevated free T4 value. TSH Receptor antibodies were later found to be positive. This patient was treated symptomatically for his hyperthyroidism with Methimazole, Propranolol and appropriate potassium supplementation with marked improvement. Thyrotoxic Periodic Paralysis is a rare manifestation of hyperthyroidism. TPP is often accompanied by hypokalemia and episodic events of muscle weakness and/or paralysis. The lower extremities are affected more often than the upper extremities. There is a male predominance and more often found in Asian populations. It is believed that the hyperthyroid state results in increased Na-K ATPase activity in the skeletal muscles; which in turn drives potassium intracellularly resulting in the hypokalemia. This case highlights the need to maintain an open mind for atypical manifestations of disease processes in underserved population with limited healthcare access.

Hypoxia as a Harbinger of a Hematologic Malignancy

Zachary Berg MD, Mayo Clinic AZ, PGY-2

Michael Pham MD, Coralie Baumann PA, Ayan Sen MD

CR, Poster Display No. 70

Introduction: Multiple myeloma (MM) is a plasma cell malignancy characterized by overproduction of monoclonal immune globulin. Though rare, MM can present as pulmonary renal syndrome. **Case:** A 47 year old female with an underlying history of common variable immune deficiency and chronic idiopathic urticarial and angioedema was seen for a second opinion regarding a recent episode of purpura and hemorrhagic bullae. Outside biopsies were consistent with leukocytoclastic vasculitis. In the clinic, she was noted to be hypoxic on room air and was admitted to the hospital. Rapidly progressive hypoxia ensued, requiring transfer to the ICU and emergent intubation. Admission labs showed hemoglobin 9.3, WBC 1.4, ABG with pH of 7.2, PaCO₂ of 46.6, PaO₂ of 207.3, bicarbonate 18.3. SVO₂ was 69.7, creatinine 2.6, BUN 42, lactate 0.5 consistent with metabolic acidosis and acute kidney injury. Bedside bronchoscopy showed blood tinged bronchoalveolar lavage fluid through serial washings consistent with diffuse alveolar hemorrhage. Additional labs showed negative ANA, anti-PR3, antiphospholipid antibodies, MPO, anti-beta 2 glycoproteins IgG and IgM. There were low levels of IgG and IgM; however IgA levels were markedly elevated, concerning for an IgA secreting malignancy. Repeat skin biopsies confirmed leukocytoclastic vasculitis and immunofluorescence demonstrated IgA deposition. Serum protein electrophoresis demonstrated an elevated beta globulin and bone marrow biopsy showed greater than 40% lambda light chain producing plasma cells, consistent with multiple myeloma. Due to worsening renal function she was treated with plasma exchange and required dialysis. She was initiated on myeloma specific therapy with cyclophosphamide, bortezomib and dexamethasone. Subsequently her pulmonary function began to improve and was extubated. Renal function improved to near baseline and hemodialysis was discontinued. She was discharged from the hospital in good condition and returned home for further outpatient therapy.

Discussion: Pulmonary renal syndrome is characterized by the presence of diffuse alveolar hemorrhage and glomerulonephritis. Common causes include systemic lupus erythematosus, Goodpasture's syndrome, and ANCA-positive vasculitides. Multiple myeloma presenting as pulmonary renal syndrome is rare; in fact, a search of the literature identified two previous cases of pulmonary renal syndrome, and two other case reports of pulmonary hemorrhage in multiple myeloma. Hemorrhage in general is rarely seen as a manifestation of multiple myeloma. In 2003, a systemic review of 1027 patients with multiple myeloma described the clinical and laboratory features of newly diagnosed multiple myeloma, none of whom presented with any type of hemorrhage. Possible underlying mechanisms of pulmonary hemorrhage in patients with multiple myeloma include amyloid deposition within the pulmonary parenchyma or concurrent infection. Identification of this unusual cause of pulmonary hemorrhage allowed this patient to receive specific and successful treatment.

Cement Toxicity; An Unprecedented Triad of Clinical Presentation!

Jawad Bilal MD, UACOM at University Campus, PGY-2

Jessica E. Yan MD, Yasir A. Khan MD, Amitabh C. Pandey MD

CR, Poster Display No. 71

Cement toxicity was first described in the era of industrial revolution as an occupational hazard. However, the varying presentations and uncommon occurrence make it a challenging diagnosis for physicians. This case demonstrates the “art of medicine” which requires a detailed history in order to generate a unifying diagnosis. A 53-year-old cement industry worker with a known diagnosis of hepatitis C presented with non-exertional dyspnea and hemoptysis for 5 days. On physical examination, temperature was 36.5 °C, blood pressure 135/85 mmHg, pulse 78/min and respiration 18/min with normal oxygen saturation. He had diffuse erythematous rash with active oozing on his back and arms. Labs revealed normocytic anemia (hemoglobin; 8.9 g/dL), elevated total bilirubin (1.7 mg/dL) and indirect bilirubin (1.2mg/dL), elevated LDH (632 IU/L), decreased haptoglobin (<8mg/dL), reticulocytosis (10.13%), and hemoglobinemia (80mg/dL). Direct Coomb’s test was negative. Chest radiograph demonstrated bronchial wall thickening bilaterally suggestive of airway inflammation. The dermatitis improved with use of barrier creams while the hemolytic anemia and respiratory symptoms resolved spontaneously. Frank cement exposure was thought to be the primary culprit for his manifestations as he was not using safety measures at work. Symptoms completely resolved after cessation of exposure. This patient presented with a triad of respiratory, dermatologic and hematologic manifestations secondary to cement toxicity. It was historically thought that dermatitis was the only adverse effect associated with cement; however it is now known that any organ of the human body can be affected. The clinical “triad” manifested in this patient has not been previously reported in the literature. Contact dermatitis secondary to cement exposure is common. Alkaline nature of cement, presence of chromates and lime, and lack of training in preventive measures are factors associated with cement dermatitis. Our patient had allergic contact dermatitis with characteristic skin lesions. Education, protective measures, barrier creams, and addition of ferrous sulfate to cement can reduce these complications. The differential diagnosis for acute onset dyspnea, productive cough and hemoptysis is broad. In our case, history and workup supported the diagnosis of cement induced inhalation injury. Combination of hot gas and chemical irritation of cement dust are responsible for such injury which can also result in respiratory failure. Avoiding direct cement exposure with protective equipment and safety education can prevent such events. In a murine model study, chromium-induced deformation and fragility of erythrocytic membranes was observed, resulting in hemolysis. There is only one reported case of hemolysis after acute dichromate poisoning. Our patient’s intravascular hemolysis was likely secondary to cement exposure which resolved with symptomatic care. There was no recurrence after adopting safety methods at work. Further research is needed to elucidate the mechanism of hematologic toxicities secondary to cement exposure.

Initially Missed Diagnosis of ALL in Young Male with Abdominal Pain

Kelly Carver DO, Mountain Vista Medical Center, PGY-2

CR, Poster Display No. 72

Case Presentation: ALL Acute Lymphoblastic Leukemia/lymphoma or ALL is hematological malignancy that is classified by cell lineage. Lineage of either precursor B cell or T cell lymphoblastic leukemia/lymphoma will determine prognosis and treatment of disease process. Precursor B cell leukemias will have >25% blast cells on bone marrow aspiration vs. Precursor T cell leukemia which will have <25% blast cells. ALL is the most common form of childhood malignancy with 2500-3500 new cases each year. Peak incidence occur in children 2-5 years of age but can also occur in adults with a median age of 39 in the United States. Early symptoms include fatigue, easy or spontaneous bruising/bleeding, and infections and classic B-symptoms, such as fever, night sweats, and unintentional weight. Additionally hepatomegaly, splenomegaly, and lymphadenopathy can be seen in up to half of adults on presentation. Case of a 20 year old male with past medical history of hypothyroidism presented with complaints of right upper quadrant pain. He was initially evaluated to have mesenteric adenitis, thrombocytopenia (50,000) and minimally enlarged spleen. He was sent home on oral antibiotics. Symptoms improved but one week later abdominal pain resumed with addition of petechiae on upper thighs. He did report feeling feverish night prior to formation of petechiae but no other symptoms. On return visit he was found to have thrombocytopenia with platelet count of <10,000. Given presentation of symptoms a large differential was established including TTP, ITP, viral infections including EBV/CMV, lymphoma and acute leukemia. Acute Lymphoblastic Leukemia being the final diagnosis. Standard treatments include a three phase process of induction, consolidation, and maintenance. Including intrathecal chemotherapy for CNS preventive therapy. Choice of treatment protocol is also determined depending upon immunophenotype and risk category.

Pulmonary Sequelae of Sickle Cell Disease

Nan Chen MD, UACOM at University Campus, PGY-2

CR, Poster Display No. 73

Purpose for study: Through a case presentation we discuss common pulmonary sequelae of sickle cell disease (SCD). A 29-year-old male with SCD was admitted for progressive dyspnea. On admission, he was hypoxic, tachypneic, in moderate respiratory distress. Chest radiograph was negative for new infiltrates. The patient was afebrile, his lungs were clear to auscultation. Significant exam findings included a holosystolic murmur over the fourth left sternal border and a palpable left parasternal heave. He was treated with empiric broad spectrum antibiotics and supplemental oxygen. As his hemoglobin level was stable (10g/dL), transfusion was not administered. Subsequent echocardiogram demonstrated significant tricuspid regurgitation and right ventricular hypertrophy. Pulmonary hypertension (PHTN) was confirmed on right heart catheterization. He was started on inhaled nitric oxide therapy with good clinical response and was transitioned to riociguat. Follow up echocardiogram demonstrated improvement of the tricuspid regurgitation and his right ventricular pressures.

Discussion: Although pulmonary complications of sickle cell disease are a major cause of morbidity and mortality in affected patients, they remain underdiagnosed by physicians. Clinical lung involvement of sickle cell disease can be generalized into two forms: the acute chest syndrome and sickle cell chronic lung disease. Acute chest syndrome (ACS), characterized by fever, chest pain, and appearance of a new infiltrate on chest radiograph, is a common complication of SCD and therefore frequently associated with pulmonary manifestation of SCD. Chronic lung disease, on the other hand, manifests as subtle radiographic interstitial abnormalities, impaired pulmonary function, and, in its most severe form, by the evidence of PHTN. Chronic pulmonary sequelae of sickle cell disease include:

- Airway hyper-reactivity is associated with increased rates of pain and acute chest syndrome episodes and premature death. Given the association of asthma with inflammation, oxidative stress and hypoxemia, factors known to contribute to a vasculopathy in SCD, wheezing in SCD should be treated aggressively.
- Secondary pulmonary hypertension is an increasingly recognized complication in patients with SCD. Patients present with impaired exercise tolerance, lethargy, fatigue, symptoms of progressive right heart failure. High index of suspicion and appropriate screening by echocardiogram and treatment that may potentially reverse the disease process, prevent the increased morbidity and mortality.
- Thromboembolism: may contribute to both ACS and chronic lung disease. Patients with SCD are known to be hypercoagulable. While it is known that chances of developing in situ pulmonary artery thrombosis increases with worsening of PHTN, whether thromboembolism contribute to PHTN remains to be elucidated. While a significant number of SCD patients presenting with respiratory complaints have ACS, alternative diagnoses should be entertained in the patient with atypical findings. A systematic, algorithmic approach to the SCD patient with pulmonary symptoms is crucial to elucidate the underlying etiology and guide treatment.

Mycobacterium Avium-Intracellulare: An Uncommon Cause of Osteomyelitis

Sravya Dasyam MD, St. Joseph's Hospital, PGY-2

Libu Varughese, MD and Mirella Mircescu, MD

CR, Poster Display No. 74

Introduction: Mycobacterium avium-intracellulare complex (MAC) is a slow growing nontuberculous mycobacterium that causes opportunistic infections in severely immunocompromised patients. Here, we report a rare case of a disseminated mycobacterium avium complex infection presenting as osteomyelitis. **Case Report:** The patient is a 25 year old male with a past medical history of HIV/AIDS who presented with worsening left knee pain. Two months prior, he was diagnosed with disseminated MAC with a CD4 count 29 cells/mm³ and viral load of 67,000 copies/mL while on the combination medication cobicistat/elvitegravir/emtricitabine/tenofovir. On admission, he was tachycardic but afebrile and normotensive. Physical examination of the left knee showed no evidence of erythema or edema but there was tenderness to palpation from the anterior aspect of the distal femur down to the shin and ankles. He was leukopenic with a white blood cell count of 3.1 thousand/ μ L and had an elevated C-reactive peptide at 62.4 mg/mL. X-ray revealed a heterogeneous appearance of the left tibia that was accentuated proximally with questionable lateral periosteal reaction. Magnetic resonance imaging showed serpiginous peripheral T1 hypo intense, T2 hyper intense lesions in the medullary cavity of the proximal tibia and distal femur. He underwent irrigation, debridement, biopsy, and corticotomy of left proximal tibia and distal femur. Histologic sections showed bone with granulomatous inflammation and fibrosis but were negative for malignancy. Methenamine silver fungal stains revealed numerous beaded organisms, several of which were identified on Fite's acid fast bacilli stain, and thus, the diagnosis of disseminated MAC was made. He was started on azithromycin and ethambutol but not on rifampin due to interactions with his antiviral therapy. He was instructed to continue treatment until his CD4 count exceeded 100 cells/mm³ for at least 12 months and was free of signs and symptoms. **Conclusion:** Mycobacterium avium complex are slow growing organisms that are ubiquitous in the environment, including water and soil. While nontuberculous mycobacterial osteomyelitis is rare, there are specific risk factors such as trauma, surgery, and compromised immune status, which predispose people to these infections. General features of these infections include involvement of several joints or skeletal sites, septic arthritis, and cutaneous lesions. The definitive diagnosis is made by bone biopsy with cultures and staining for mycobacteria. Once diagnosed, a combination of surgical and antimicrobial therapy is required to completely eradicate the infection. Standard treatment of MAC osteomyelitis involves a three drug combination of clarithromycin, rifabutin, and ethambutol for 6 months. High risk patients need chronic maintenance therapy until they have sustained a CD4 count >100 cells/mm³, are free signs and symptoms of MAC disease, and have completed at least 12 months of therapy.

Use of Ampicillin increased antibacterial activity of Daptomycin in patient with Vancomycin-resistant Enterococcus infection

Hem Desai MD, UACOM at University Campus, PGY-2

Ryan Wong,MD; Jhon Po,MD

CR, Poster Display No. 75

Use of Ampicillin increased antibacterial activity of Daptomycin in patient with Vancomycin-resistant Enterococcus infection. Introduction: Unchecked use of antibiotics has led to emergence of Vancomycin resistant enterococci (VRE). VRE treatment options include daptomycin, linezolid, quinupristin/dalfopristin, and tigecyclin. In case of daptomycin, its increased use has resulted in cases of decreased daptomycin efficacy. Recent in vitro studies have shown effective use of combination therapy of beta-lactams and daptomycin or vancomycin in treatment of VRE. We describe a case of effective dual therapy treatment in a patient with VRE. Case: A 76 year old gentleman with past medical history significant for extensive coronary artery disease and bilateral arthroplasty was admitted with a swollen left knee. Initial work up of blood cultures was positive for VRE, and left knee joint aspirate showing leukocytosis and alpha defensins. Extensive imaging failed to show any other source of the infection. Culture sensitivities result showed enterococci sensitive to daptomycin with 1:2 dilutions and resistant to Ampicillin with 1:32 dilutions. Patient was started on IV daptomycin 6 mg/kg * 24 hrs. His Left knee prosthesis was explanted and a spacer was placed. Patient continued to have VRE positive blood cultures for 10 days after removing the knee prosthesis. Due to persistent bacteremia, the patient was trialed on combination IV ampicillin and daptomycin. 2 days after the combined therapy blood culture turned negative for the first time since admission and continued to remain negative. Patient was discharged home with the PICC line to continue 6 weeks of IV ampicillin & daptomycin. Discussion: This case demonstrates successful clinical implementation of the “seesaw effect” phenomenon. The exact mechanism of the daptomycin/ampicillin synergy effect is unclear. Current hypothesis suggests that ampicillin causes a reduction in the net positive charge of the bacterial surface, possibly by releasing lipoteichoic acid (LTA) from the cell wall. This process increases the ability of the cationic daptomycin/calcium complex to bind more effectively to the cell wall. In fluorescence labeled daptomycin assays, ampicillin pre-treatment allowed for increased daptomycin binding. Additionally, the release of LTA may contribute to bacteria cell wall destabilization by releasing cell autolysins. Sakoulas et al. has showed a three-fold decrease in daptomycin MIC when VRE strain was grown in medium containing 50 and 100mg/L ampicillin. With increased prevalence of VRE related infections, effective treatment strategies become more and more important. There are very few if any in vivo randomized control trials on the effectiveness of dual antibiotic therapy. In patients with persistent bacteremia due to multidrug resistant organisms, the use of combination antibiotics with the goal of validating the “Seesaw effect” is merited.

Seizure Induced Takotsubo Cardiomyopathy

Rayna Doll DO, Verde Valley Medical Center, PGY-2

CR, Poster Display No. 76

Seizure Induced Takotsubo Cardiomyopathy Rayna Doll, Internal Medicine, Verde Valley Medical Center, Cottonwood AZ The type of stress that is commonly thought to trigger Takotsubo cardiomyopathy is intense emotional stress, but other states of sudden high release of catecholamines, such as epileptic events, can also lead to cardiac injury resulting in Takotsubo cardiomyopathy. A 85 year old male was brought into the ER by his family members after they witnessed what appeared to be a generalized tonic clonic seizure that lasted for approximately ten minutes. He had been previously diagnosed with partial complex seizures and was placed on Keppra, however, could not tolerate a full dose and was subsequently placed on a small dose of Keppra at 250 mg daily as an out-patient. While in our emergency room he was somnolent and lethargic with no recollection of the event and all history had to be obtained from family members who were present during the event. An EEG was performed which revealed an electrical dysrhythmia in the left temporal region consistent with a seizure focus and his dose of Keppra was increased as tolerated. On hospital day number two the patient started to complain of shortness of breath and chest pain. An EKG was ordered which demonstrated new T wave inversions in V2, V3, and V4 and a troponin was elevated at 0.33. The patient was taken emergently to the cardiac cath lab where a left ventriculography demonstrated classic apical ballooning and hypokinesis constant with the diagnosis of Takotsubo cardiomyopathy. No significant coronary lesions were found and no further intervention was performed in the cardiac cath lab. The patient was then started on a small dose of Carvedilol and Lisinopril, however, he was unable to tolerate secondary to hypotension. Throughout the remainder of his hospitalization, the patient did not suffer from further epileptic episodes or chest pain. Two days later the patient was discharged home with a larger dose of Keppra than what he had been taking previously which he had been tolerating well during his hospital stay. A beta blocker and ACE inhibitor were to be started as an outpatient by his cardiologist as his vital signs could tolerate. This case illustrates that more than just intense emotional stress can lead to Takotsubo cardiomyopathy. The large release of catecholamines during an epileptic event may lead to cumulative cardiac injury. Understanding this potential connection is important to recognize so that life saving diagnostic procedures and therapy can be initiated.

Venous Thromboembolism in a young female: An underdiagnosed condition

Mohan Dutt MD, St. Joseph's Hospital, PGY-2

Shruti Mony MD, Betre Workie MD

CR, Poster Display No. 77

Venous thromboembolism (VTE) is a major health care problem resulting in mortality, morbidity, and expenditure of resources. It is necessary to have a comprehensive workup for the diagnosis of VTEs as death can occur when misdiagnosed. Here we talk about an interesting case of deep vein thrombosis (DVT) caused by May-Thurner Syndrome (MTS). MTS is an anatomical abnormality characterized by the compression of the left common iliac vein between the right common iliac artery and the spine. A nineteen year old African American female with history recent airplane travel and use of oral contraceptives presented to the hospital with one day history of painful left lower leg swelling. On presentation, her vitals signs were within normal limit. Physical examination demonstrated swelling of the left thigh and left calf tenderness. Labs were significant for only a mild leukocytosis of 11,600. A left lower extremity Doppler ultrasound revealed an occlusive thrombus in the left common femoral, profunda femoral, femoral and popliteal veins. CT scan of the abdomen and pelvis again confirmed a left common femoral vein deep venous thrombosis that extends to the left common iliac vein and distal IVC, near the bifurcation. Patient was started on full dose anticoagulation and underwent catheter-directed thrombolysis and infusion of alteplase with heparin for 24 hours. Her follow up venogram showed reduced clot burden and the remaining clot was removed by suction thrombectomy. The repeat venogram also showed chronic narrowing of the left common iliac vein near the iliac vein confluence due to external compression by the right common iliac artery, compatible with May Thurner syndrome. The stenosis was treated with stent placement. She was started on aspirin and rivaroxiban and discharged home the following day. MTS was first described in 1957 when it was noted that 22% of 430 cadavers on autopsy possessed an anatomical variant in which an overriding right common iliac artery caused compression of the left common iliac vein against the lumbar spine. Despite the relatively high incidence of this anatomical variation, the clinical prevalence of MTS-related DVT is surprisingly low, reportedly occurring in only 2% to 3% of all lower extremity DVTs. While our patient had both a history of oral contraceptive use and a recent history of air travel, if the diagnosis of MTS had not been made, it is possible that this patient would present with recurrence of DVT after finishing initial course anticoagulation. Our case demonstrates that while an individual may have factors that predispose them to the formation of DVTs, the presence of such an anatomical abnormality needs to be considered in a patient with clots extending to the iliac veins or IVC.

Gastrointestinal Bleeding Secondary to Trimethoprim/Sulfamethoxazole-Induced Vitamin K Deficiency

Azadeh Fotouhie MD, UACOM at University Campus, PGY-2

Nour Parsa MD, Hem Desai MD, John Po MD

CR, Poster Display No. 78

There is a well-known association between Vitamin K deficiency and gastrointestinal bleeding, just as there is a well-documented association between Vitamin K deficiency and cephalosporin use. This case explores gastrointestinal bleeding secondary to chronic trimethoprim/sulfamethoxazole (TMP/SMX)-induced Vitamin K deficiency. Case: A 52-year-old gentleman with a history of B-cell ALL status-post 6 cycles of chemotherapy including Dasatinimab and recent C. diff infection presented to the hospital with a 1-day history of diarrhea mixed with bright red blood. Upon evaluation he was hemodynamically stable and his clinical examination was unremarkable, with a rectal exam negative for external hemorrhoids, anal fissures, or palpable masses. Laboratory analyses showed a PTT greater than 200, PT 32.5, an INR of 3.2, normal hemoglobin, hematocrit, and liver function tests. A 10mg dose of Vitamin K was given orally to the patient and over the next day his INR had improved to 1.0 and he had no further episodes of hematochezia. Further history revealed no prior history of GI bleeds, a diet limited to cheeseburgers and fried chicken, with very little intake of green leafy vegetables, and daily TMP-SMX prophylactically in the setting of Dasatinimab-associated neutropenia as well as oral Metronidazole and Vancomycin for treatment of his recent C. difficile infection. The patient was discharged in stable condition 2 days later and underwent a colonoscopy 2 months later, revealing normal colonic mucosa. Discussion: Iatrogenic vitamin K deficiency in the setting of chronic antibiotic use is thought to be due to direct inhibition of the liver through vitamin K versus secondary to the eradication of intestinal vitamin K-producing gut flora. Vitamin K1 and vitamin K2 are utilized by the liver for formation of clotting factors II, VII, IX, X and protein C and S. K1 and K2 are also referred to as phyloquinone and menaquinone and deficiency of either of these can contribute to the bleeding consequences of vitamin K deficiency. Our case illustrates a patient who most likely developed a vitamin K deficiency secondary to poor oral intake of dietary vitamin K, compounded by decreased synthesis and absorption of this vitamin due to the chronic use of antibiotics, specifically TMP-SMX. This is supported by the normalization of the INR after a single dose of vitamin K during his hospital course without any further episodes of hematochezia. This case illustrates the importance of considering less conventional antibiotics as a possible etiology for gastrointestinal bleeding due to vitamin K deficiency, as well as the importance of that realization that prophylactic antibiotics can have unintended and detrimental consequences. It is important to assess dietary habits in addition to considering possible vitamin K supplementation for those at risk.

A Case of Choledocholithiasis Masquerading as Acute Hepatocellular Injury

Rishi Harry MD, St. Joseph's Hospital, PGY-2

Rashmi Kumar MD

CR, Poster Display No. 79

Choledocholithiasis is a condition that requires prompt evaluation and treatment in order to avoid serious complications, including pancreatitis and ascending cholangitis. This condition has a characteristic profile seen on a comprehensive metabolic panel including elevated bilirubin with a cholestatic pattern. However, in this case a profile more consistent with direct hepatocellular injury was observed. A 32 year old female with a history of gastroesophageal reflux disease originally presented to the ED with a chief complaint of burning epigastric pain which was worsened by lying supine. There was no radiation or relationship with food. She was discharged from the ED after being given a GI cocktail, which provided some relief. Two days later she returned to the ED, this time complaining of right upper quadrant (RUQ) and epigastric pain, which radiated to her right shoulder and was now worsened by food intake. She complained of nausea with associated vomiting, but did not endorse any fevers or chills. The patient had a family history remarkable for ovarian cancer in her mother. The patient had a 5 pack-year smoking history, was an active smoker, and denied use of illicit drugs or alcohol. On physical exam the patient was not in any acute distress; she was afebrile with a temperature of 36.9, respiratory rate of 16, and heart rate of 56 with a blood pressure of 115/68. She exhibited tenderness to palpation in the RUQ. Abdominal ultrasound demonstrated cholelithiasis and dilated common bile duct (CBD) of 7 mm. The patient was found to have ALT of 1035 units/L, AST of 638 units/L, alkaline phosphatase of 179 units/L, and total bilirubin level of 3.3 mg/dl with a direct fraction of 2.7 mg/dl. Lipase level was 87 units/L. Acute hepatitis panel and acetaminophen level were negative, and the patient denied taking any hepatotoxic substances. ERCP demonstrated choledocholithiasis with several small stones, which were extracted. Surgery was consulted and the patient underwent laparoscopic cholecystectomy the following day. The patient had an uncomplicated post-operative course, and she was discharged to home on post-operative day 1. This case illustrates how choledocholithiasis can present with a laboratory profile that is more commonly associated with hepatocellular injury as opposed to cholestasis. We often associate levels of ALT and AST near 1,000 with conditions such as acetaminophen toxicity, shock liver, autoimmune or acute viral hepatitis. This profile occurs infrequently with choledocholithiasis, but when it does it is seen in younger patients with a relatively smaller CBD diameter. It is important to be cognizant that choledocholithiasis can have an atypical presentation that can mimic the profile seen in hepatocellular injury.

A RARE CASE OF ADRENAL MICROCYSTIC/RETICULAR SCHWANNOMA IN A YOUNG FEMALE

Sami Hoshi MD, St. Joseph's Hospital, PGY-2

Saifuldeen Al-Qaisi, MD., Fawaz Georgie, MD., Monty Hawkins, MD., Anna Boron, MD

CR, Poster Display No. 80

Introduction: An adrenal Schwannoma is a rare type of adrenal incidentaloma. Schwannoma is a benign neurogenic tumor originating from Schwann cells. These produce the myelin sheath that covers peripheral nerves which are often affected. We are presenting a rare case of an adrenal microcytic/reticular Schwannoma in a 37 year old female who complained of a two months history of abdominal pain. **Case report:** A 37 year old female was referred by her primary care physician to Endocrinology clinic for further evaluation of a right adrenal incidentaloma. The patient initially presented to her PCP for evaluation of a persistent abdominal pain of 2 months duration, associated with a recent 6 lbs weight gain, and weakness. CT scan of the abdomen and pelvis revealed a 5.2 cm, lobulated right adrenal gland mass with 79 HU and the patient was referred subsequently to Endocrinology. On physical exam, the patient was afebrile with completely normal vital signs. Cardiovascular and pulmonary exam was unremarkable. Her abdomen was soft, non-distended with audible bowel sounds, with minimal tenderness over the epigastric area. Skin exam was normal. Investigations for a functioning incidentaloma included aldosterone-renin ratio, 24 hour urinary cortisol, plasma ACTH, DHEA sulfate, serum metanephrine and serum and urinary catecholamines were done and all were within normal range and the tumor was deemed as non-functioning adrenal incidentaloma. Due to the fact that the tumor was larger than 4 cm and painful, patient underwent right adrenalectomy which was done successfully. Subsequent pathologic evaluation showed classical features of a very rare variant of schwannoma; which is microcytic/reticular schwannoma. The patient has done well since the surgery and there were no intraoperative or post-operative complications. **Discussion:** Schwannomas are benign tumors, which arise from peripheral nerve sheaths, mostly at the subcutaneous tissue of head and neck region or distal extremities. Microcystic/Reticular Schwannomas were considered as a distinct clinico-pathological variant for their predilection for visceral organs and unique morphological features. Microcytic/reticular Schwannoma was first described by Rliegl in 2008 in 10 cases of Schwannomas and only one of those 10 cases was found in the adrenal gland, with a striking microcytic and reticular growth pattern with anastomosing and intersecting strands of spindle cells with ill-defined eosinophilic cytoplasm. In 2015, another case was reported in the right adrenal gland in China. This case is particularly important because it not only just represents a rare location of primary Schwannoma, but also it represents a rare histopathological form of the disease entity.

Sometime it's not just a urinary tract infection!

Muhammad Husnain MD, UACOM at South Campus, PGY-2

Sarah Patel MD, Ahmad Al-Khashman

CR, Poster Display No. 81

Candida endophthalmitis is a serious life-threatening condition. Prompt recognition and early intervention plays a pivotal role in avoiding the devastating complications associated with this rare entity. Endogenous fungal endophthalmitis results from fungal seeding of the eye via bloodstream. We present an interesting case with non-specific symptoms of fungal endophthalmitis, which emphasizes the need for a high degree of suspicion for prompt recognition of this rare entity. A 22 year-old male with past medical history of intravenous drug abuse and uncontrolled diabetes mellitus presented with suprapubic and right flank pain for 1 day. He was evaluated for similar complaints 2 weeks ago. At that time he was found to have a urinary tract infection and completed 10 day course of cephalexin with minimal improvement. Careful review of previous lab results revealed *Candida albicans* (25,000-50,000 CFU/ml) in his urine culture. Review of systems was unremarkable except for blurring of vision in left eye for 3 weeks. On physical exam, the only pertinent finding was visual acuity of 20/20 in right eye and 20/60 in the left eye. Significant lab abnormalities were WBCs of $29 \times 10^3/\text{ml}$, urinalysis was positive for >400 WBC, positive leukocyte esterase, budding yeast and hyphae. Because this patient had uncontrolled diabetes with a prior urine culture that grew *Candida albicans*, there was concern for disseminated fungal infection. Pt was started on IV fluconazole and Zosyn empirically after blood cultures were collected. Ocular examination revealed multiple creamy-white, well-circumscribed retinal lesions consistent with vitritis and retinitis. The working diagnosis of endogenous *Candida* endophthalmitis was made. Intravitreal injection of amphotericin B x 2 was administered to the left eye and patient was started on IV amphotericin and oral fluconazole. His vision in left eye continued to worsen despite aggressive treatment requiring surgical evaluation (pars plana vitrectomy). He received IV Amphotericin for 2 weeks and was continued on oral fluconazole for 5 weeks. Blood cultures and fungal cultures did not show any growth. Tran esophageal Echocardiogram was negative for any vegetation. His vision in left eye improved after 3 weeks of treatment. He was discharged home to follow up with ophthalmology and infectious disease as outpatient. Isolated candiduria can represent colonization of urinary tract; however persistent candiduria especially in diabetics should prompt further evaluation especially for fungal endophthalmitis if there is a history of decreased vision or floaters. A thorough history is imperative. Ophthalmological consultation should be requested when systemic or disseminated *Candida* infection is suspected, as the ophthalmoscopic features of *Candida* endophthalmitis are characteristic. This clinical diagnosis should lead to early high dose systemic anti-fungal treatment without delay. Microbiological confirmation may take some time, and may only become positive late in the disease and has a reported sensitivity as low as 50%.

Monitoring anticoagulation status in a patient with antiphospholipid syndrome with underlying need for continued anticoagulation in the setting of acute hemorrhage

Rebin Kader DO, UACOM at University Campus, PGY-2

Manjinder Kaur DO, Nour Alhoda Parsa MD, Dominick Sudano MD

CR, Poster Display No. 82

Antiphospholipid syndrome (APS) is caused by presence of antibodies against phospholipids leading to cell damage and thrombosis. Patients with APS require lifelong anticoagulation therapy and warfarin is most commonly prescribed therapy. However, due to presence of antibodies against phospholipids, the clotting time of in-vitro laboratory tests can be prolonged resulting in falsely elevated International Normalized Ratio (INR). We present a case of 63 year-old women with APS in the setting of recent antibiotic use, difficulty measuring anticoagulation status, and the need for continued anticoagulation in the setting of active bleeding. The patient presented to the emergency department with chief complaint of left flank bruising and vague abdominal pain. She has history of APS, mechanical mitral valve, and atrial fibrillation requiring long-term anticoagulation therapy. On presentation she was in no acute distress, her only complaint was vague abdominal pain and left flank pain after she bumped into a shopping cart earlier that day. Physical exam was only significant for left flank ecchymosis that was mildly tender to palpation. Otherwise, her physical examination and vitals were stable. Laboratory findings revealed INR of 5.1 that increased to 8 next morning. Warfarin was held in the setting of supra-therapeutic INR. Hemoglobin was 8.7 on presentation that decreased to 6.9 after 48 hours. Computed tomography (CT) scan of abdomen was performed on presentation that revealed a 4x6x7cm abdominal wall hematoma. Patient had received 1 unit of fresh frozen plasma (FFP) in the setting of active bleeding and elevated INR. Reversal of INR with vitamin K was considered, however it was decided against because of unreliable measurement of patient's anticoagulation status. Chromogenic factor X activity assay was performed 48 hours after presentation that showed an activity level of 21%, which corresponded to corrected INR level of ~3.5. Warfarin was restarted after hematoma appeared stable after 48 hours. The chromogenic factor X activity assay has been proven to be useful in monitoring warfarin therapy in patients with APS and patients being transitioned from direct thrombin inhibitors to warfarin. As evident by our case, given the complexity in treating a patient with APS it is important to know the therapeutic INR level in order to prevent misinterpretation and/or overcorrection. Further history revealed that she was recently diagnosed with upper respiratory tract infection and had been on oral antimicrobial therapy for 7 days. It was hypothesized that her recent antimicrobial use likely contributed to the elimination of bacterial flora and resultant decrease in vitamin K and subsequent increase in INR leading to bleeding after minor trauma to left flank. We present this case in order to highlight the complexity of safely anticoagulating and monitoring patients with APS in the setting of acute hemorrhage with underlying need for continued anticoagulation.

Successful Treatment Of Neuro-Behçet's Disease With Infliximab: four years follow-up

Manjinder Kaur DO, UACOM at University Campus, PGY-2

Emily S. Nia MD, Rebecca A. Millus MD, Dominick G. Sudano MD, Jeffrey R. Lisse MD

CR, Poster Display No. 83

Neuro-Behçet's disease (NBD) is a rare but severe manifestation of Behçet's disease. Some patients do not respond adequately to conventional therapy (corticosteroids and immunosuppressants). This has led to treatment gaps in the therapy of NBD. The patient is a 39 yo male with a history of Behçet's disease since age 21. He presented with progressive left sided weakness and recurrent seizures. Two months prior to admission, the patient was evaluated at an outside hospital and was found to have an abnormal MRI/MRA of his brain. At that time, the dose of Azathioprine was increased to 150mg daily and patient was started on Prednisone 60mg daily. The patient continued to experience progressive left weakness, balance problems, memory impairment, headaches, neck and back pain resulting in admission at our hospital. At presentation, patient endorsed recent oral ulcers and double vision with floaters. A comprehensive metabolic panel, complete blood count, urinalysis and infectious workup were unremarkable with the exception for an elevated sedimentation rate (50 mm/hr) and C-reactive protein (202mg/L). MRI of the brain showed bilateral homogeneous white matter parietal lobe lesions without brainstem involvement. On day 1 of admission, he experienced status epilepticus and had to be intubated. Continuous EEG showed slowing and occasional spikes without any clinical seizures. Brain biopsy was performed before patient was started on methylprednisolone 1 gm daily for three days followed by Prednisone 60 mg daily. Brain biopsy showed multifocal perivascular inflammation and acute vasculitis. Ophthalmology was consulted for concern of episcleritis or retinal vasculitis. However, no ocular involvement was found on ophthalmoscopic exam. Since his previous medication history included methotrexate, cyclosporine, cyclophosphamide IV, and etanercept, without much clinical benefit to prevent relapse; he was considered an appropriate candidate for Infliximab infusion. He was started on Infliximab 5mg/kg infusion at weeks 0, 2 and 6 and every 8 weeks thereafter. A repeat follow up MRI at 81 days from previous MRI, showed almost complete resolution of previously described lesions and midline shift, and marked improvement in white matter disease. It has been 4 years since induction, and patient remains in full remission of the skin lesions, neurological disease and vision involvement while on infliximab 5mg/kg every 8 weeks along with azithroprine 150mg daily, and Carbamazepine 200mg BID. This is the first case to document MRI improvement in conjunction with clinical remission, and brain pathology based on biopsy. Given infliximab's effect on immunopathogenesis of Behçet's disease and resolution of symptoms within days and improvement of laboratory and imaging findings, infliximab can be an effective strategy for treatment of NBD.

Cervical Cancer Metastasis to the Bile Duct

Manraj Khosla , St. Joseph's Hospital, PGY-2

Patrick Eiben MD, Aaron Ziegelbaum MD, Ponas Fidias MD

CR, Poster Display No. 84

Introduction A recent estimate showed that every year in the US 12,966 women are diagnosed with cervical cancer and that 6,605 die from the disease. The most common forms of cervical cancer are Squamous Cell Carcinoma (SCC) and Adenocarcinoma, with SCC being the most common. Cervical cancer rates have been decreasing in developed countries due to the use of screening and prevention programs. For a significant portion of the population who developed cervical cancer prior to the aforementioned screening and prophylactic measures being implemented, it can still be a devastating disease process with a high risk for metastasis. Spread of this cancer can occur both locally to surrounding structures and distally through hematogenous or lymphatic routes. Case A 63 year old woman was admitted with painless jaundice. She was diagnosed four months prior with stage IV-A Cervical Carcinoma and underwent chemotherapy with cisplatin and whole pelvic radiation. After completing five courses of brachytherapy, the last of which was one month prior to admission, she was determined to be in clinical remission. During her admission she underwent MRCP which showed evidence of biliary obstruction. Shortly afterward, ERCP demonstrated high grade proximal common bile duct stricture and beading of the intrahepatic bile ducts, which was treated with stenting. Due to comorbidities and poor status there was no role for hepatobiliary surgery. ERCP brushings confirmed metastatic disease with atypical epithelial cells consistent with metastatic SCC. P16 demonstrated strong and diffuse cytoplasmic and nuclear staining and MIB-1 staining was present in 40-50% of the neoplastic cells. If this had been caught earlier, treatment would have consisted of a platinum-based combination chemotherapy regimen with the angiogenesis inhibitor Bevacizumab and potentially surgical intervention. At this point, Oncology recommended no chemotherapy or invasive treatments. After extensive discussion with the primary team and consulting physicians, the patient and her family opted for palliative care and hospice measures. Discussion When considering metastasis of cervical cancer the most common sites for hematogenous spread are the lungs, bone and liver. Less common sites are the adrenal glands, spleen, bowel, and brain. Though unusual, it is important to note that bile ducts are a potential metastatic site in patients with a history of cervical cancer. Most important in the management of this disease, as demonstrated by the significant reduction in incidence, is ongoing preventative therapy with HPV vaccination, regular gynecological examination, and screening for those women within the age appropriate window.

Streptococcus intermedius: Not All Streptococcus Empyema are Created Equal

Joon Kim DO, Verde Valley Medical Center, PGY-2

CR, Poster Display No. 85

Introduction: *Streptococcus intermedius* is one of three subspecies of *S. milleri* (also known as *S. anginosus*), a subgroup of *S. viridans*, able to cross tissue planes including the lung, interlobar fissures, chest wall, mediastinum, and diaphragm, and is almost always associated with abscess. The mortality rate with *S. intermedius* bacteremia with or without abscess is as high as 26% and the mean length of hospital stay is 18-32 days. In spite of the high lethality, only a few case reports of *S. intermedius* induced thoracic empyema are published. Here we present a case of pneumonia with rapid evolution of parapneumonic effusion and loculated empyema caused by *S. intermedius* that resolved only after video-assisted thoracoscopy (VATS) was performed.

Case presentation: An 87-year-old male with diabetes mellitus type II presented to our hospital for progressively worsening shortness of breath with non-productive cough and generalized malaise. He was diagnosed with pneumonia as an outpatient 6 days prior to admission, but amoxicillin/clavulanic acid was not received until a day prior to hospitalization. Physical examination revealed decreased bilateral bronchial breath sounds, and left sided rhonchi and dullness on percussion over the upper and lower zones posteriorly. The patient was hypoxic requiring 4 liters per minute nasal cannula. Laboratory data showed marked neutrophil predominant leukocytosis with bandemia (20%) and elevated lactic acid (7.1 mmol/L). Respiratory viral panel and urinary *S. pneumoniae* and legionella antigen were negative. A chest X-ray and CT of chest showed an extensive left pleural parenchymal opacity and a complex multiloculated pleural effusion. Broad spectrum IV antibiotics were started. An ultrasound guided thoracentesis was done. Results of the pleural fluid analysis and cytology were consistent with exudative fluid and the presence of positive gram-stain of cocci, confirming empyema. The pleural fluid culture yielded only growth of *S. intermedius*, sensitive to penicillin. Patient continued to deteriorate despite piperacillin/tazobactam. VATS was performed draining 2.5 liters of empyema and decorticating multiple pockets of abscess and fibrotic peels. Patient required 21 days of hospitalization on IV piperacillin/tazobactam and remaining 7 day on oral amoxicillin/clavulanic acid as an outpatient, a total of 28 days of antibiotic treatment.

Discussion: This case highlights the pathogenicity of *S. intermedius*. Thoracic invasion of *S. intermedius* leads to rapid evolution of complicated parapneumonic effusion and loculated empyema despite the use of appropriate antibiotics. *S. intermedius* is often grouped together with less virulent members of *S. viridans* in the microbiology lab and this can diminish the sense of urgency and lethality of *S. intermedius*. When *S. intermedius* is found to cause empyema, an early VATS with decortication should be strongly considered.

Cancer, chemo and nausea: Is it always the same old story?

Amir Kiyani MD, Maricopa Medical Center, PGY-2

Keng-Yu Chuang, MD

CR, Poster Display No. 86

Introduction: Nausea and vomiting is a common side effect of chemotherapy; however, there might be serious, even life-threatening, underlying diseases that warrant prompt action. Case Report: A 54-year-old diabetic female with history significant for NSCLC (Stage IB, T2N0M0) status post left lower lobectomy with partial resection of the diaphragm and primary repair undergoing Cisplatin-based chemotherapy came to ED for intractable nausea and vomiting for one month that had become more frequent over the past few days. She was recently started on triple antibiotic therapy for H. pylori. She also has moderate epigastric and LUQ pain with diarrhea and non-bilious vomitus. No fever, chills, hematemesis, melena, recent travel, or sick contacts reported. Physical exam was significant for epigastric and left lower hemithorax tenderness. Lab result was significant for severe hypokalemia and hypomagnesemia. GI service was consulted and barium study was done which showed the fundus of the stomach was below the diaphragm and antrum of the stomach was above the diaphragm and after multiple positioning attempts the contrast did not empty into the duodenum. Chest/abdomen CT confirmed these findings and mesenteroaxial volvulus of the stomach with gastric outlet obstruction was diagnosed. Surgery service was consulted and patient was immediately taken for surgery and exploratory laparotomy, reduction of gastric volvulus, repair of diaphragmatic defect, and left tube thoracostomy was performed for the patient. On post operation day 5, the tube was pulled out, patient was tolerating food and pain was perfectly controlled. Patient is currently continuing chemotherapy with no complications. Discussion: Acute gastric volvulus usually presents with Borchardt triad of epigastric pain, retching without vomiting, and inability to pass nasogastric tube. According to the axis around which the stomach rotates it may either be organoaxial or mesenteroaxial, or a combination of both. Mesenteroaxial volvulus is less common in adults, less associated with diaphragm defects, and may be associated with severe strangulation and obstruction. Both conditions are surgical emergencies

Leptomeningeal Multiple Myeloma

William Love MD, Mayo Clinic AZ, PGY-2

CR, Poster Display No. 87

Leptomeningeal Multiple Myeloma Introduction: Multiple Myeloma is a malignant proliferation of plasma cells commonly involving the skeletal system with infrequent extramedullary disease. Direct central nervous system, and more specifically leptomeningeal, involvement is a rare complication of multiple myeloma. Case Description: A 60-year-old female with history of IgG lambda multiple myeloma, four and a half years post autologous stem cell transplant and currently on CyBorD (Velcade and Cytoxin) therapy presented to the emergency department with complaint of headache and new onset seizure. The patient described having headaches that were throbbing in nature, occurring most days of the week, for the last two months. She had four episodes of generalized seizure prior to presentation and one witnessed episode in the emergency department. The patient was found to be hypokalemic with potassium of 2.0 and this was vigorously replaced. She was started on levetiracetam 500 mg for seizure prophylaxis. Non-contrast CT of the head was unremarkable. MRI of the brain was obtained and revealed leptomeningeal enhancement with abnormal signal over the convexities. Osseous disease of the bony calvarium and dural-based mass in right-sided Meckel's Cave were also noted. The lateral and third ventricles were increased in caliber raising concern for early communicating hydrocephalus. Lumbar puncture revealed 177 nucleated cells, reported on pathology as abundant, atypical, neoplastic plasma cells. CSF analysis and imaging were consistent with leptomeningeal multiple myeloma, confirming diagnosis. Ommaya reservoir for intrathecal chemotherapy was offered, but patient deferred. Symptoms were managed with systemic steroids and levetiracetam for seizure prophylaxis. The patient is currently under the care of Palliative Medicine. Discussion: This case demonstrates an uncommon manifestation of a common malignancy. The incidence of multiple myeloma is 5.6 in 100,000, and direct CNS involvement occurs in approximately 1% of these patients. Recognition of central nervous system disease is important as therapeutic options are available for both the meningeal myelomatosis and associated side effects, i.e. seizures, headaches. Unfortunately, prognosis remains poor with review of literature revealing only small case series and case reports demonstrating a median survival from time of diagnosis of 1.5 months.

A RARE CASE OF LUPUS AND ISOLATED MITRAL REGURGITATION

Shruti Mony , St. Joseph's Hospital, PGY-2

Manraj Khosla MD, Ashbeel Smauel, Gabriel Colceriu, MD

CR, Poster Display No. 88

INTRODUCTION: Systemic lupus erythematosus (SLE) is an autoimmune disease exhibiting great diversity in presentation. Pericarditis and endocarditis are the most common cardiac manifestations secondary to SLE while isolated valvular disease is very rare. We present a unique case of a young 34 year old male with Lupus causing multi-organ dysfunction and severe mitral regurgitation. **CASE REPORT:** A 34 year old Hispanic male with a past medical history of SLE, Antiphospholipid syndrome (APS) and stroke presented with symptoms of recurrent hemoptysis, shortness of breath and fatigue for 3 months. He had multiple outside hospital admissions for shortness of breath wherein he was found to have massive pulmonary hemorrhage confirmed by bronchoscopy and acute kidney injury requiring temporary hemodialysis. He also underwent a kidney biopsy which confirmed crescentic lupus nephritis. He failed therapy with high dose IV Steroids, Rituximab, Cytoxan, and 1 month of Plasmapheresis. Due to his refractory status and respiratory decline he required intubation, following which he was transferred to the critical care unit at our hospital for further evaluation. On admission, he appeared in acute distress and was ventilator dependent. His laboratory data revealed Hemoglobin/Hematocrit-6.6/19 gm/dl, platelet count 50,000/uL, and Creatinine 4.68mg/dl (from 2.45mg/dl 1 month ago). His chest X-ray was consistent with pulmonary hemorrhage showing diffuse bilateral interstitial opacities. For further evaluation, he underwent a transthoracic and transesophageal echocardiogram which showed severe Mitral regurgitation and moderate pulmonary hypertension, no vegetations were noted. He was deemed a poor candidate for further cardiac procedures and was thus managed medically. In addition to daily high dose IV steroids, and hemodialysis he received mycophenolate mofetil. But his hospital course was further complicated with thrombocytopenic purpura (TTP) requiring a repeat cycle of plasmapheresis. Despite all aggressive measures patient failed to improve and his family decided to withdraw care, following which patient expired. **DISCUSSION:** The lifetime prevalence of the cardiac manifestations of systemic lupus erythematosus (SLE) is estimated to be approximately 50 %. Fibrinous pericarditis and Verrucous Endocarditis is the most recognized cardiac abnormality in SLE, but lesions of the myocardium and coronary vessels may also occur. The prevalence of Lupus associated valvular disease, mainly endocarditis, is 18-74 %, of which mitral and aortic valves are more commonly involved. In reviewing literature there has been only one case reported of Lupus associated mitral regurgitation. Our case is unique as the patient was diagnosed with severe mitral regurgitation without any prior vegetation or associated cardiomyopathy. Treatment options for valve disease include surgical replacement and outcomes are varied depending on multiple prognostic factors. Since cardiac involvement is an increasing cause of mortality and morbidity, one should be aware of the varied manifestations of Lupus. Early recognition and treatment is necessary to avoid disastrous outcomes.

A Case of Brugada Pattern on Electrocardiogram Unmasked by Fever

Katie Murphy MBBCh BAO, Mayo Clinic AZ, PGY-2

R Todd Hurst, MD

CR, Poster Display No. 89

Introduction Brugada Syndrome is a rare autosomal dominant genetic disorder of cardiac sodium channels that carries an increased risk of ventricular tachyarrhythmias and sudden death. We present a case of Brugada pattern on EKG unmasked by fever. Case Report A 56 year old Caucasian female with a history of recently diagnosed pulmonary embolism, chronic lymphocytic leukemia and metastatic pulmonary adenocarcinoma was admitted to the hospital with fever and chest pain. She did not have a history of syncope or a family history of sudden cardiac death. Upon presentation she was febrile and tachycardic with a heart rate of 150 bpm. Examination was significant for bilateral lung crackles. Laboratory testing revealed an elevated white cell count of $22.4 \times 10^9/L$, potassium of 4.4 mmol/L, magnesium of 1.5 mg/dL and two negative troponin levels. Chest computed tomography showed multifocal pneumonia and worsening burden of thromboembolic disease. The patient's prior EKG at the time of diagnosis of pulmonary embolism showed sinus rhythm with an incomplete right bundle branch block. EKG obtained when the patient was febrile showed coved type ST elevation in leads V1 and 2 with a negative T wave consistent with a Brugada pattern. Differential diagnosis included right heart strain secondary to progressive pulmonary emboli. Transthoracic echocardiogram showed normal right ventricular size and function. Repeat EKG obtained when the patient was afebrile was negative for Brugada pattern. Given the patient's significant comorbidities and lack of cardiac symptoms no further cardiovascular management was indicated. Discussion Brugada Syndrome was initially described in 1992 by Pedro Brugada. It is a genetic disorder of cardiac sodium channels, autosomal dominant with variable expression. Multiple genetic mutations including that of SCN5A encoding for the alpha subunit of the cardiac sodium channel have been identified. It has a prevalence of 5/10,000 and is estimated to be responsible for 4% of all cases of sudden death. The prevalence is higher in people of Asian descent. The syndrome is diagnosed when the classic EKG pattern is associated with clinical symptoms and family history. It is well described that Brugada syndrome can involve dynamic or concealed EKG changes which can be unmasked by various precipitants including fever. The pattern is 20 times more common in febrile patients. Fever increases risk of cardiac arrest. In 1999, Dumain et al induced expression of the SCN5A mutation in frog oocytes. They found that the loss of function of sodium channels was accentuated at higher temperatures. In addition, mutations in genes encoding neuronal sodium channels have been linked to familial diseases with temperature-dependent symptoms, such as generalized epilepsy with febrile seizures and inherited erythromelalgia. Conclusion Patients who are known to have Brugada Syndrome should have fever aggressively treated to avoid ventricular tachyarrhythmias and cardiac arrest.

Recurrent VIPoma in an 84 year old Caucasian male

Ali Nasir DO, Canyon Vista, PGY-2

Santsaran Patel, MD

CR, Poster Display No. 90

Background: VIPoma is a rare cause of intractable diarrhea, and not usually a typical diagnosis clinicians tend to think of when approaching the typical patient with chronic diarrhea. Case Report: Patient is an 84 year old non smoker, Caucasian male with a past medical history of VIPoma with resection in 2009, bladder cancer s/p TURBT, chronic renal failure, severe aortic stenosis and hypothyroidism who presented to the clinic with recurrent symptoms of intractable diarrhea. The patient was initially diagnosed with VIPoma and had a tumor resection in 2009 with resolution of symptoms shortly thereafter. However, as his follow-up visits progressed over time, newly diagnosed tumors resurfaced. Each were treated and dealt with accordingly, but within this time frame the patient's aortic stenosis worsened, complicating his neoplastic treatments. The patient arrived back in the clinic, a total of 6 years after initial treatment and resection of his VIPoma with recurrent symptoms of intractable diarrhea, however now with recurrence and metastasis to his liver. The patient was scheduled to undergo surgery to have the tumor resected, however he no longer qualified for surgery as his cardiac risk has increased with his severe aortic stenosis. Therefore, the patient will undergo radiation therapy for his metastatic VIPoma to his liver. After this has been completed, the patient plans to undergo aortic valve replacement. However, could this have been treated earlier or prevented, if more aggressive therapy was started initially? Discussion: This case demonstrates the importance of approach modification in patients with intractable diarrhea and history of recurrent VIPoma. Typically, VIPomas are cured after initial resection of the tumor; however, in this rare instance it has not only recurred but has become metastatic. This patient's predicament brings to light the importance of timely therapy and early diagnosis. Now, the patient will have to approach each complication separately, as opposed to initially treating his condition with a more broad and assertive approach. In hindsight, an interesting hypothesis arises. If more aggressive diagnostic and therapeutic modalities had been implemented earlier, would this have had an impact on the patient's latest pathological dilemma? If so, the patient would likely have an improved quality of life and better chance of treating the metastatic VIPomas before his associated co-morbidities became worse and complicated the available therapeutic modalities.

Hey Doc!! Where's My GPA

Nina Ngo MD, Mayo Clinic AZ, PGY-2

CR, Poster Display No. 91

Introduction: Granulomatosis with polyangiitis (GPA), previously named Wegener's granulomatosis, is a systemic vasculitis of the upper and lower respiratory tracts and kidneys. The prevalence in the US is 3/100000 persons, and the average age of onset 41 years. **Case Description:** An 83 year old male with a history of allergic rhinitis, and benign prostatic hypertrophy presented to the emergency department with a 2 month history of recurrent fever, generalized abdominal pain, weakness and dizziness. He had previously undergone a workup at an outside hospital that included a bronchoscopy, endoscopy, and several imaging studies. These investigations demonstrated the presence of coccidioidomycosis, cholelithiasis, and diverticulosis. Treatment of the fungal infection did not resolve his symptoms. Initial labs upon his presentation to our institution revealed a low hemoglobin and hematocrit of 7.7g/dl and 24.2%, MCV of 77.7fL, hematuria with 31-40 RBC in urinalysis, mild leukocytosis of 10.8×10^9 and an elevated creatinine of 2.0mg/dl. The differential diagnosis included multiple myeloma, myelodysplastic syndrome or solid organ malignancy. Workup at this stage consisted of a computed tomography (CT) of the head and sinuses which showed chronic sinusitis, a colonoscopy, renal ultrasound, serum and urine protein electrophoresis, an LDH level and bone marrow biopsy which only showed benign findings. Further evaluation demonstrated a negative ANA, P-ANCA, and MPO; however, sedimentation rate was 70mm/1h, C-reactive protein-199.2m/L, C-ANCA-1:256 and Proteinase -3 (PR-3)-7.5 units. Subsequent renal biopsy revealed pauci immune glomerulonephritis and CT of the chest showed evidence of previous pulmonary hemorrhage. The combination of positive C-ANCA, PR3, glomerulonephritis and previous pulmonary hemorrhage and chronic sinusitis led to a diagnosis of GPA. The patient immediately began treatment with intravenous steroids and rituximab. He suffered a stroke during this hospitalization. Bilateral infarcts were believed to be secondary to vasculitis. He enrolled in hospice after recurrent hemorrhagic events and expired a month later. **Discussion:** The low incidence and vague presentation of GPA can make for a difficult diagnosis. Treatment should be initiated promptly with steroids, and either cyclophosphamide or rituximab, although clinical trials have shown rituximab to be superior in patients with relapsing disease. Five-year survival with treatment is approximately 80%; without treatment 2-yr survival is 20%. Venous thromboembolic (VTE) events are much more frequent in patients with GPA. One study showed an occurrence of 1.8/100 persons in patients with GPA compared to 0.3 in the general population. Ischemic events are a rare neurologic complication of this vasculitis. **Conclusion:** This case illustrates an atypical presentation of an uncommon diagnosis. As such it is worthwhile to maintain a solid knowledge base of its presentation, diagnosis and treatment. Little is known about the neurovascular events in persons with GPA, and whether prophylaxis for VTE is beneficial is an unsettled issue.

The Forgotten Disease: Lemierre's Syndrome

Christine Oxley MD, UACOM at University Campus, PGY-2

Momtazbaksh Sassan, MD

CR, Poster Display No. 92

INTRODUCTION: Septicemia in the presence of an internal jugular venous thrombophlebitis, often preceded by oropharyngeal infection, is known as Lemierre's syndrome, after the physician who published a 1918 case series of 20 patients with this unique constellation of symptoms. With an incidence of 0.8 cases per million, it is often termed a "forgotten diagnosis" but can be highly fatal without treatment: Lemierre reported a mortality rate of 90%. Thus, it remains an important diagnosis in patients who present with septicemia in the context of an upper respiratory infection. We present a case of a young woman with this potentially fatal illness caused by an unexpected organism.

CASE DESCRIPTION: A 40-year-old female with type 2 diabetes mellitus and asthma presented to the hospital with a one-day history of pleuritic chest pain preceded by a six-week history of febrile illness with associated nausea, vomiting, cough, and rhinorrhea. She had recently completed a short course of oral prednisone for presumed asthma exacerbation. Physical exam revealed tachycardia, tachypnea and decreased breath sounds over the left lower lobe. Further testing revealed WBC count of 35,000/mm³ with a left shift. Noncontrast computed tomography of the chest revealed extensive pulmonary nodules and a left lower lobe cavity. Bronchoalveolar lavage (BAL) and blood cultures drawn on admission grew *Citrobacter koseri*. Four days later, a repeat CT of the chest revealed worsening left lower lobe pneumonia with enlarging cavitory lesions and a new loculated pleural effusion. Due to extensive disease, the patient underwent left lower lobectomy. Intraoperative tissue cultures were also positive for *Citrobacter koseri*. Several days after admission, she suffered acute-onset left-sided neck pain with tenderness to palpation, and septic thrombophlebitis was suspected. MRI of the neck revealed retropharyngeal and prevertebral edema, suggestive of a thrombus in the left internal jugular vein. Upper-extremity venous duplex ultrasound revealed an acute superficial vein thrombus in the left cephalic vein extending from the wrist to the forearm. She was treated with a 3-month course of anticoagulation and a 2-month course of cefepime.

DISCUSSION: *Citrobacter koseri* is a Gram-negative, facultative anaerobic commensal of the human digestive tract; in most cases, it is innocuous. However, two clinical groups are at risk for serious disease: neonates (manifesting as CNS disease) and immunocompromised individuals. Diabetes combined with a short course of oral prednisone placed our patient at risk. *Citrobacter koseri* can be treated with a wide variety of antimicrobial agents, including aminoglycosides, carbapenems, cephalosporins, and quinolones. Most clinical *Citrobacter koseri* infections in adults manifest as pyogenic abscesses; only one other case of necrotizing pneumonia has been described in the literature. Our case added complexity as it occurred within the context of Lemierre's syndrome, not to mention the severity and extent of the disease process.

A masquerading presentation of Acute Fibrinous Pericarditis

Mohit Pahuja MD, St. Joseph's Hospital, PGY-2

Priya Radhakrishna MD, Youngsoo Cho MD

CR, Poster Display No. 93

Introduction Acute Fibrinous pericarditis is defined as an inflammatory process of the visceral pericardium with the development of an infiltration with the fibrinous exudate. Most common causes include infectious, autoimmune disease, malignancy, post radiation or cardiac surgery and idiopathic. We present a case of acute fibrinous pericarditis presenting as a large pericardial effusion with an echo dense mass on an echocardiogram. Her CT scan showed a hyper dense mass within the right ventricle consistent with a foreign body. It is our hypothesis that the broken IVC filter fragment caused an acute fibrinous reaction and a gelatinous pericardial mass.

Case Presentation We present a case of a 65 year old female with history of DVT/PE on warfarin and with an IVC filter who presented with chest pain and worsening shortness of breath. Her echocardiogram revealed a large pericardial effusion. She was treated with aspirin and colchicine but she remained symptomatic after 3 weeks of therapy. A Repeat echocardiogram was consistent with persistent pericardial effusion and an echo dense mass along the right ventricular outflow tract was identified. CT scan of the chest with contrast showed no anatomic abnormality along the right ventricular outflow tract but revealed a stable linear hyper dense mass within the RV compatible with a foreign body. An attempted pericardiocentesis was unsuccessful: it was peculiar that despite a reportedly massive pericardial effusion only minimal fluid was removed. Due to her worsening symptoms and persistent finding of a massive pericardial effusion on repeated echocardiograms she underwent sternotomy with pericardial stripping, which revealed multiple gelatinous masses within the pericardium. The pathology of the mass showed mesothelial cells suggestive of fibrinous pericarditis. Based on the results, steroids were added to the regimen of colchicine and NSAIDs with significant improvement. The foreign body in the right ventricle is considered to be secondary to broken IVC filter. She had vaginal bleeding six months later and was diagnosed with an endometrial carcinoma. Based on the repeat echocardiogram, the broken IVC filter had probably endothelialized, hence in lieu of her abdominal surgery for an endometrial carcinoma it was decided not to retrieve the filter at this time.

Discussion Our case shows an uncommon complication of a broken IVC filter presenting as an acute fibrinous pericarditis. The most common cause of a pericardial mass is malignancy. In our review of literature, we found a case report presenting as a gelatinous pericardial mass secondary to pericardial synovial sarcoma. To the best of our knowledge, this is the first case report of this association of gelatinous pericardial mass presenting as a pericardial effusion due to fibrinous pericarditis. Further, we emphasize the importance of performing advance cardiovascular imaging with CT/MRI in cases with massive pericardial effusion with unknown etiology.

Unlikely Friends: C. diff and CMV Co-infection in an Immunocompetent Individual

Julia Park DO, Maricopa Medical Center, PGY-2

Susanna Tan MD

CR, Poster Display No. 94

Introduction: Clostridium difficile (C. diff) is a nosocomial infection associated with antibiotic use. Cytomegalovirus (CMV) infection is usually found in patients who are severely immunocompromised, such as those who are receiving immunosuppressive drugs for organ transplants, malignancies, chemotherapy regimens, inflammatory bowel disease, or HIV/AIDs. Co-infection of C. diff and CMV in immunocompromised patients is not uncommon but it is rare in patients who are immunocompetent. Case Report: Our patient was a 69-year-old female with past medical history significant for chronic obstructive pulmonary disease (COPD), hepatitis C, hypertension, and polysubstance abuse who was admitted to the hospital due to altered mental status. The patient was diagnosed with healthcare acquired pneumonia (HCAP) and COPD exacerbation and was started on broad spectrum antibiotics and a 10-day course of high dose steroids. Shortly thereafter, the patient developed profuse diarrhea and was diagnosed with C. diff infection through a positive antigen test. She was started on metronidazole and vancomycin but her diarrhea did not improve over two weeks of treatment. Suspecting a secondary cause, a colonoscopy was performed. She was found to have severe colitis throughout the colon and random biopsies performed revealed CMV inclusion bodies in the colonic mucosa. Ganciclovir was added for CMV colitis. Patient ultimately died due to end-stage COPD and sepsis. Discussion: Review of the literature showed that there are four reported cases of such co-infection in immunocompetent patients. Our case is the 5th reported case of an immunocompetent patient who was diagnosed with C. diff and CMV co-infection. Including our case, immunocompetent patients who acquired this co-infection carried a mortality rate of 40%. C. diff was the first infection identified even though CMV might theoretically act as an immunomodulator that predisposed these critically ill individuals to C. diff infection as well as other nosocomial infections. CMV is able to modulate immune response by mimicking and altering major histocompatibility complex function, leukocyte activation, and cytokine response. Patients with the co-infection were more likely to receive intensive care, mechanical ventilation, and longer hospital stays. Early detection of the co-infection could improve survival in patients through early testing such as stool serology or diagnostic colonoscopy. This case highlights the importance of considering a secondary infection such as CMV when a patient is not responding appropriately to treatment for C. diff colitis, even if the patient is not immunocompromised.

Treatment Challenges of Nonuremic Calciphylaxis: A Case Report

Nour Parsa MD, UACOM at University Campus, PGY-2

Manjinder Kaur DO, Rebin Kader DO, Dominick Sudano MD

CR, Poster Display No. 95

Introduction: Nonuremic calciphylaxis is a rare condition often requiring both medical and surgical intervention. Patients experience recurrent hospitalization due to uncontrolled pain and non-healing ulcers which can eventually lead to mortality from resultant superimposed infection and sepsis. We present the case of a 70-year-old female with nonuremic calciphylaxis admitted to Banner University Medical Center (BUMC) for further wound management.

Case: A 70-year-old woman presented to her primary care physician with complaints of painful nodules on her buttock and thigh region shortly after completing a 6 month course of carboplatin and taxane-based chemotherapy for ovarian cancer for which she had also undergone bilateral salpingo-oophorectomy and hysterectomy. She had a history of Factor V Leiden deficiency and deep vein thrombosis and was on warfarin. There was no history of renal disease. Outpatient dermatology consultation and biopsy of the lesion sites initially yielded an inconclusive diagnosis of panniculitis. She was started on prednisone but later returned to her dermatologist with progressively worsening symptoms. Subsequent excisional biopsy confirmed a diagnosis of calciphylaxis and prednisone therapy was discontinued. The patient was admitted to BUMC for further workup and management. A repeat inpatient nodule biopsy revealed necrotic tissue. Lab studies ordered included ANA, c-ANCA, p-ANCA and hepatitis panel, which were all negative. Her PTH was also normal. Her treatment course was complicated by continued necrosis of her calciphylaxis in addition to pseudomonas infection, for which she completed a course of ciprofloxacin. She subsequently underwent soft tissue debridement and was started on levofloxacin and trimethoprim-sulfamethoxazole. The patient suffered considerably with pain prompting the need for an urgent palliative care consult. She was started on intravenous sodium thiosulfate (STS), which was continued on an outpatient basis three times weekly. She was subsequently hospitalized for acute renal injury and a paradoxically worsening hyponatremia which was attributed to her STS therapy. Even though a multidisciplinary and multi-interventional approach was utilized, the patient died a few months after her calciphylaxis diagnosis.

Discussion: Nonuremic calciphylaxis is a serious disease with a 1-year mortality reported to be greater than 50 percent. Although the pathophysiology of calciphylaxis is poorly understood, multiple risk factors have been identified in literature. Our patient had normal renal function; however, she was a white female on warfarin and calcium supplements with a recent diagnosis and treatment of ovarian malignancy in addition to having had brief exposure to prednisone, all of which likely contributed to her nonuremic calciphylaxis. We present this case to raise awareness of nonuremic calciphylaxis and the treatment challenge often faced by the medical community when encountering this rare disease.

Lex Parsimoniae: Renal Infarction in a Patient With Acute Cholecystitis

Elizabeth Polk DO, Verde Valley Medical Center, PGY-2

CR, Poster Display No. 96

Renal infarction is a rare diagnosis, with the actual incidence unknown as it is an often overlooked and frequently mimics more common diagnoses. An 84 year old female with a history significant for paroxysmal atrial fibrillation, not on anticoagulation, presented with right upper quadrant abdominal pain accompanied by nausea, retching and several episodes of loose non-bloody stools. On examination the patient was hypertensive at 199/78 and exhibited mild tenderness to palpation in the right lower quadrant. The remainder of the physical exam was benign. Laboratory examination was significant for acute kidney injury, an elevated lipase, hypercalcemia and mildly elevated LFTs. An EKG demonstrated normal sinus rhythm. An abdominal ultrasound was significant for cholelithiasis. Further imaging with a CT of the abdomen and pelvis demonstrated a right renal infarction, age indeterminate. The patient was admitted for further treatment and evaluation of her renal infarct and commenced on a heparin drip. The most likely etiology was cardioembolic, arising from her paroxysmal atrial fibrillation and as her CHADS₂-VASc score was 3, anti-coagulation was begun with warfarin and daily INR monitoring. With IV fluid resuscitation the patient's acute kidney injury, hypercalcemia and dehydration resolved with no further issue. The patient was discharged in stable condition four days after admission. Two days after discharge the patient returned to the ER complaining again of right upper quadrant pain, nausea and retching. Physical exam and an ultrasound were suspicious for acute cholecystitis and the patient was re-admitted. The decision for surgical intervention was made; she was given vitamin K and FFP; Warfarin was discontinued with normalization of INR. She successfully underwent laparoscopic cholecystectomy which established an acutely infected gallbladder. The following morning she became hypotensive, confused and unresponsive with left sided facial droop and flaccid paralysis of the left extremities. During resuscitation and stabilization with blood products, neurology was urgently consulted and it was felt the patient suffered an acute MCA infarct likely due to hemorrhagic shock with poor cerebral perfusion pressure. A CT of the abdomen and pelvis revealed a stable intra-abdominal hemorrhage without further bleeding, thus a JP drain was inserted. During her ICU course her left sided deficits resolved. Though her CHADS₂-VASc score was unchanged, it was felt upon discharge all anticoagulation be held given her recent complications with re-evaluation to be done on an outpatient basis. This case emphasizes the importance of observing the Law of Parsimony in clinical judgment. As clinicians, the lure of catching a "zebra" is seductive but may place patients in avoidable endangerment. Thus, the diagnosis with the fewest assumptions should be sought even in the setting of what appears to be a rare diagnosis.

When colonic disease masquerades as cardiac disease

Sarah Richards DO, MBBS, Canyon Vista, PGY-2

CR, Poster Display No. 97

A 79 year old obese female was admitted to the hospital 3 days after being discharged from a skilled nursing facility with a chief complaint of weakness. She had been recently hospitalized for an ulcerative colitis flare, which she believed to be improving but still having multiple watery bowel movements a day. She had been at the rehab facility and was able to ambulate and transfer on her own. On admission she was no longer able to transfer from bed to chair. She had also seen her PCP recently as a hospital follow up and complained of ongoing lower extremity edema. She was given lasix with the presumptive diagnosis of heart failure. This medication gave minimal improvement. At this same appointment it was noted that her blood pressure was low and she was prescribed milrinone with minimal improvement. While hospitalized the patient continued to have multiple loose bowel movements. Laboratory studies revealed the patient to have an albumin of 1.5 on admission. Her low albumin state was thought to be likely due to uncontrolled ulcerative colitis, for which she had an in-patient colonoscopy. The colon showed multiple segments of dense inflammation which eventually was diagnosed as an ulcerative colitis flare. Patient was started on prednisone and Flagyl with marked improvement of her symptoms. Albumin slowly improved, however her lower extremities began to have spots of open weeping. TPN was started through a central vein for this. Discussion: This case demonstrates the ability of a long standing chronic disease with new complications to be confused with a new disease process entirely. Because the patient had had long standing ulcerative colitis and the lower extremity edema and hypotension were new complaints and commonly manifestations of decompensated heart failure, that's what these symptoms were attributed to. Subclinical malnutrition is difficult to detect especially in the obese population who are generally thought to have a surplus of nutritional stores. With proper diagnosis and understanding of the correct pathophysiology driving the symptoms, the patient did begin to improve.

Workup for Cushing Syndrome Reveals Ectopic ACTH Secreting Pulmonary Carcinoid

Muhammad Salim DO, University of Texas Medical Branch - Internal Medicine, PGY-2

K. Salim, M. Salim MD, Mohamad Horani MD, H. Ashraf

CR, Poster Display No. 98

History: A 62 year old Native American male with recently diagnosed hypertension and type 2 diabetes presented to Phoenix Indian Medical Center complaining of several months of generalized weakness. During the workup, his serum cortisol was found to be elevated at 115 ug/dL. Workup was initiated for possible Cushing Syndrome. A 24 hour urine cortisol was performed and was significantly elevated at 19,000 ug/day. An MRI of the head revealed no evidence of pituitary involvement. The patient was discharged for outpatient follow-up, but experienced continued weakness, weight loss, polyuria, and polydipsia. Two weeks later, the patient presented to the San Carlos ED for persistent weakness. He was found to be hypokalemic and was transferred to Chandler Regional Medical Center for further workup of his endocrine abnormalities. At Chandler Regional, his serum cortisol was found to be 149 ug/dL with a cortisol of 13,500. A dexamethasone suppression test was ordered which did not suppress the ACTH, indicating an ectopic as opposed to central source of the ACTH. A CT of the chest, abdomen and pelvis was ordered to determine the cause of his elevated cortisol. A 13 mm right lower lobe mass was found in his lung with prominent mediastinal, paratracheal, and paraaortic lymphadenopathy. The diagnosis of an ectopic ACTH producing neuroendocrine tumor was made. A lymph node biopsy revealed low grade carcinoid. The patient was treated with ketoconazole and potassium replacement and discharged pending outpatient followup with a planned octreotide test and PET scan. The patient returned to Chandler Regional 2 weeks later complaining of abdominal pain, and was found to have a perforated colon with abscess formation. Trauma surgery performed a hemicolectomy, and the patient was subsequently sent to the ICU. Background/Discussion: Ectopic Cushing syndrome occurs when hypercortisolemia is caused by a source outside the pituitary gland. It represents approximately 10% of cases of Cushing's syndrome. Ectopic sources include islet cell tumors of the pancreas, medullary carcinoma of the thyroid, tumors of the thymus gland, and carcinoid or small cell tumors of the lung. Patients tend to present with fewer of the classic Cushing's symptoms such as abdominal striae, moon facies, and a fatty hump. Initial workup exams include measuring the 24-hour urine cortisol, serum ACTH, serum cortisol, potassium, a dexamethasone suppression test, a fasting glucose, and CT/MRI imaging to find the tumor. The definitive therapy is usually surgical, removing the mass that is secreting the ACTH.

You Are What You Eat, A Rare Case of Brucellosis

Luke Seibolt MD, Banner UMC Phx, PGY-2

Melony Chakrabarty MD, Kaivan Salepour MD, Negin Blattman MD

CR, Poster Display No. 99

Introduction: Brucellosis is a bacterial zoonosis transmitted to humans from infected animals and is recognized as one of the most widespread zoonotic infections worldwide. In the United States, Brucellosis is most commonly seen in California and Texas predominately in the Hispanic population due to illegal importation of unpasteurized dairy products from Mexico. In 2010, there were 115 confirmed cases of Brucellosis in the United States with nine cases occurring in AZ. We present a case of Brucellosis in a patient with progressive failure to thrive, refractory anemia and fever of unknown origin (FUO) to highlight the importance of obtaining thorough history to guide studies and building of a differential diagnosis. **Case Report:** A 66-year-old Hispanic male presented with a six-month history of progressive weakness, weight loss and intermittent fevers. Patient admitted to consuming local Mexican food delicacies including sheep brain, sheep stomach, pig intestines and beef tongue weeks to months prior to presentation after additional social history questioning. He denied any direct exposure to livestock or recent travel. Physical exam was notable for a cachectic male with temporal wasting, convex abdomen and diffuse 4/5 muscle strength. Initial laboratory findings were notable for normocytic anemia with negative blood cultures, HIV, Coccidioidomycosis, RPR, Quantiferon, ANA and leukemia/lymphoma panel with normal lumbar puncture, transthoracic echocardiogram, bone marrow biopsy, colonoscopy and esophagogastroduodenoscopy. Brucella serologies were ordered and found to be positive as part of a fever of unknown origin evaluation. Patient was started on antimicrobial therapy with doxycycline and rifampin for twelve weeks course. A presumptive diagnosis of Brucellosis supported by positive serology and rapid response to antibiotic therapy (patient defervesced quickly). The diagnosis was also supported by a down trend in Brucella serologies with therapy. **Discussion:** Brucella is a gram-negative intracellular pathogen with typical incubation period of one to four weeks. Brucellosis may be acquired by ingestion, inhalation, mucosal or percutaneous exposure. Osteoarticular disease as well as reproductive system involvement are the most common sites of focal brucellosis. Other systemic features include undulant fever, malaise and hematologic abnormalities. Diagnosis includes culture, serology with high sensitivity and specificity or PCR with bone marrow culture being the gold standard for diagnosis. Treatment involves combination therapy of Doxycycline and Rifampin for a minimum of six to 12 weeks. In our case, the patient had a definite Brucella exposure without developing focal sites of infection. It was felt the patient presented late in disease course resulting in continued failure to thrive and refractory anemia. This case highlights the importance of being vigilant in obtaining a history and physical, including a detailed social, travel and exposure history. Although brucellosis is part of the FUO work up, it only became apparent in this patient after revisiting his social history.

A Constricting Myeloma

Regan Seipp MD, Mayo Clinic AZ, PGY-2

Craig Reeder, MD; Joseph Mikhael, MD

CR, Poster Display No. 100

Introduction: Multiple myeloma presenting with extramedullary disease (EMD) is an uncommon and poorly prognostic type of relapse after stem cell transplantation. Patients who demonstrate EMD at relapse experience a more virulent disease course and shorter survival. Cardiac manifestations of EMD are rare, making up less than 1% of such relapses. Case Description: A 61 year old female had a medical history significant for high-risk, IgA lambda multiple myeloma. Initial hematological evaluation revealed a baseline IgA level of 3,698 mg/dL, free light chains 1,336 mg/L, a hypercellular bone marrow with 20% to 30% plasma cells, and high-risk deletions of p53, 1p, and t(14;16). After four cycles of CyBORd (cyclophosphamide, bortezomib, and dexamethasone) with partial response, she underwent conditioning with high dose melphalan and autologous stem cell transplantation. Bortezomib based maintenance therapy was to be started at day 90 but 47 days post transplantation, she presented to the emergency department with dyspnea and palpitations. Chest X-ray revealed a new, large pericardial effusion. Electrocardiogram revealed low voltage QRS complexes. Echocardiogram confirmed the effusion with tamponade physiology. Pericardiocentesis drained 1.2L of hemorrhagic fluid. Fluid analysis showed a nucleated cell count of 5,375/mcL with 62% plasma cells. Cytology was consistent with plasma cell myeloma. Hematological workup exhibited normal serum protein electrophoresis, serum IgA 293 mg/dL, and M protein 0.2 g/dL. Bone marrow biopsy revealed low-level marrow involvement with residual/recurrent plasma cell myeloma and 4% lambda light chain restricted plasma cells. Bortezomib, dexamethasone, and lenalidomide were initiated. Prior to discharge, repeat echocardiogram found left ventricular apical and mid-level hypokinesis, an ejection fraction of 30%, and a small posterior pericardial effusion. As the patient had no history of coronary artery disease, these findings were most consistent with stress (Takotsubo) cardiomyopathy. With medical treatment, serial echocardiograms taken in the following months revealed complete recovery in cardiac function without recurrence of effusion. Discussion: EMD represents 3% of myeloma neoplasms and 24% of relapses. Diagnostic criteria for EMD require soft tissue biopsy showing monoclonal plasma cell histology. High-risk cytogenetics typically described with EMD include chromosome 13 deletions. However p53 deletions, as in this case, are associated with high-risk relapse. Patients who have EMD relapse compared to medullary relapse have a poor prognosis with a shorter survival. EMD arising in soft tissue not adjacent to bone yields an even poorer prognosis with a mean survival of 5 months. These relapses most commonly involve skin (22%). Although less than 1% of relapses, cardiac manifestations of EMD relapse in myeloma patients should be considered with new onset cardiac signs and symptoms.

A Baffling Case of Portal Vein Thrombosis

Halie Shah MD, UACOM at University Campus, PGY-2

Archita Desai MD, James Costello MD PhD, Charmi Patel MD, Mike Flores MD, Nehali Patel MD, Aung Bajaj MD

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Portal vein thrombosis (PVT) is a vascular disorder characterized by occlusion of the portal vein by a thrombus. It can occur from many causes. Here is a patient with acute on chronic liver disease and PVT from unclear etiology, where consequences were grim. A 69 year-old male with remote history of cholecystitis status post cholecystectomy, hyperlipidemia on lovastatin, and no history of alcohol abuse, came to the hospital with one month of abdominal pain, jaundice, and dark urine. Three weeks prior at a clinic, he was diagnosed with prostatitis and started on ciprofloxacin. Family noted worsening symptoms with antibiotic use. In the hospital, labs showed elevated alkaline phosphatase and bilirubin. MRI showed signs of chronic liver disease with mild to moderate hepatic fibrosis, and an acute, nonmalignant appearing thrombus in the portal vein extending into the superior mesenteric vein. Additionally acute liver inflammation was seen with ischemia in segment five; no biliary abnormality was noted. Etiology of the chronic liver disease was evaluated with various serologic tests, including for viral hepatitis and autoimmune disease, all of which were unrevealing. A transjugular liver biopsy showed acute inflammation and areas of necrosis. The acute injury was thought to be secondary to the PVT and/or ciprofloxacin toxicity. Since there was no area unaffected by acute changes, the full extent of chronic liver disease could not be determined. The etiology of the PVT was also unclear. While cirrhosis is the most common etiology of PVT, liver biopsy and imaging could not confirm this diagnosis. Hypercoagulability workup only showed a slightly high homocysteine level. Infectious workup with blood and ascites cultures was negative. Tumor markers including alpha fetoprotein, were negative. Heparin drip was started for treatment. However the patient decompensated, with signs of hepatic failure and increasing bilirubin. Repeat MRI revealed new delayed enhancement in the thrombus and intrahepatic biliary dilatation, raising suspicion for cholangiocarcinoma, with the site of origin likely being the segment five lesion, previously thought to be ischemia. A conference was held to discuss the patient's options. Sampling the thrombus was felt to be risky in light of significant ascites and a deconditioned state. If the PVT was from cholangiocarcinoma, with such high bilirubin, he would not qualify for treatment or transplantation. If from cirrhosis, hypercoagulability, or liver inflammation, aggressive medical management was failing, and he was too ill for transjugular intrahepatic portosystemic shunt. With such poor prognosis, he elected for hospice, and passed away shortly after. In conclusion, this is a complex case of PVT and liver failure that illustrates several points. It showcases the various causes of PVT, the types of neoplasms that can affect the portal vein, and the possible etiologies of this patient's acute on chronic liver disease.

When Salt Goes Out to Pasture

Nafis Shamsid-Deen MD, Banner UMC Phx, PGY-2

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Introduction: The large differential diagnosis of hyponatremia makes it one of the more challenging initial clinical presentations to approach. Within the laundry list of syndromes that cause severe hyponatremia, severe renal failure and inability to excrete free water must be considered. This diagnosis itself creates a diagnostic dilemma when trying to isolate the specific renal insult. This case highlights one of the less common causes of acute renal failure in a patient who had previously normal kidney function. **Case Description:** The patient was a 71 year old female who was found altered by her daughter following several days of unanswered phone calls. She was brought to the emergency department and found to have a creatinine of 10 and sodium of 110. Her initial resuscitation included an admission to the medical intensive care unit and rapid correction of her sodium with hypertonic saline followed by a more careful slow correction for the days to follow. Hemodialysis was also started once the sodium was corrected to the lower limit of the dialysate. On physical exam the patient was euvolemic. The initial workup for her acute renal failure included a serum and urine osmolality of 276 and 243 respectively. Additionally, urine protein when normalized to creatinine was found to be 3 grams, pointing to a likely glomerular process. Workup for an autoimmune mediated glomerular injury was sent including complement levels, anti-glomerular basement membrane antibodies (anti-GBM), anti-neutrophil cytoplasmic antibodies, protein electrophoresis, and immunoglobulin serum levels. Of these, the only to come back abnormal was the anti-GBM, which had an IgG titer of 20.4. Renal biopsy was performed on hospital day 12 which revealed glomeruli that were globally sclerosed with fibrocellular crescents and necrosis. Additionally, there was linear anti-GBM staining for IgG confirming the diagnosis of crescentic glomerulonephritis (GN) secondary to anti-GBM antibody disease. The patient was treated with pulse dose steroids and plasma exchange. **Discussion:** This case highlights the necessity to complete a comprehensive autoimmune workup on any patient who presents with a rapidly progressive glomerulonephritis picture. Early recognition and confirmation is critical to early introduction of immunosuppressant therapy and preservation of remaining native renal function. The key tip off here was the nephrotic range proteinuria which would separate a glomerular injury pattern from an otherwise seemingly prerenal/tubular insult. Interestingly and important to note, this patient did not present with the full clinical syndrome for the classic Goodpasture's Syndrome which includes pulmonary hemorrhage, as well as GN and the presence of anti-GBM antibodies. However, primary GN without pulmonary involvement is not uncommon, and should not preclude suspicion of the diagnosis of anti-GBM disease.

Double Trouble by Serology - St. Louis Encephalitis vs. West Nile in Maricopa County

Jack Short MD, Mayo Clinic AZ, PGY-2

Carlos Hartmann MD, Teresa Seville MD, Janis Blair MD, Aalap Narichania MD, Beeletsega Yeneneh MD

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Purpose for Study: Arboviral infections are common in AZ. With recent news of simultaneous West Nile (WNV) and St. Louis Encephalitis (SLEV) virus outbreaks in Maricopa County, clinical and laboratory differentiation of these infections presents a challenge to the clinician. **Case Description:** A 58 year-old male with a history of heart and kidney transplantation in 2012, was admitted for a five day history of worsening diarrhea. Initial workup did not reveal a cause for his symptoms, and his mentation was at baseline. There was no history of mosquito bites or other exposures. Following admission, he became progressively encephalopathic and febrile to 39.1°C, with rigors and hypertension. Initial serum and CSF serology (plasma nucleic acid test) for West Nile virus were negative. Empiric antibiotics for meningoencephalitis were started, but the patient continued to deteriorate, requiring ICU care and later intubation. With no clear etiology or explanation for his apparent meningoencephalitis, and a shortage of SLEV testing reagents, CSF was sent to the AZ state laboratory for arboviral diagnostics. He received intravenous immunoglobulin and 10 days of interferon alpha 2b for suspicion of WNV disease. Subsequent serum and CSF were positive for WNV IgM, with negative IgG. Serology obtained 21 days after the initial positive IgM revealed a positive WNV IgM and IgG. State laboratory testing on CSF fluid identified SLEV and WNV by ELISA. Plaque reduction neutralization testing (PRNT) at the CDC confirmed SLEV; WNV was negative. The patient recovered and was later discharged to the inpatient rehabilitation unit. **Discussion:** Flaviviridae are single-stranded enveloped RNA viruses that include mosquito-borne West Nile virus, St. Louis encephalitis, Japanese encephalitis virus, Yellow Fever virus, and Dengue Fever virus. Due to their structure, specifically the E glycoprotein antigen, flavivirus infections can induce virus-specific, as well as cross-reactive, immune responses. This antigenic cross-reactivity poses challenges in the serologic diagnosis of specific flavivirus infections. Cross-reactivity of SLEV and WNV using ELISA pose a further challenge when trying to differentiate between two diseases that are clinically indistinguishable from one another, but differ in therapy. Although not previously reported, since both viruses are transmitted by Culex mosquitoes, a simultaneous outbreak can occur, as in Maricopa County in the summer of 2015. A positive WNV IgM needs confirmation using PRNT to distinguish between the two infections. **Conclusion:** WNV and SLEV, both Flaviviridae, are similar in clinical presentation, and diagnosis is challenging when both viruses are co-circulating. False-positives and cross-reactivity occur with ELISA testing, due to the E glycoprotein antigen. Advanced testing from reference laboratories is necessary to differentiate these two causes of encephalitis.

The Atypical of Typical Chest Pain: Aortic Arch Thrombus

Kristina Skinner DO, UACOM at University Campus, PGY-2

Vineet Nair MD, Irbaz Riaz MD, Joseph S. Alpert MD

CR, Poster Display No. 104

The Atypical of Typical Chest Pain: Aortic Arch Thrombus Kristina Skinner DO, University of AZ College of Medicine - Internal Medicine Department Vineet Nair MD, Irbaz Riaz MD, Joseph S. Alpert MD Introduction: Spontaneous thrombus formation in the aortic arch is an extremely rare event because of high flow and high pressure in the aorta. Here we describe a patient undergoing radiotherapy for breast cancer, with multiple risk factors for atherosclerosis who presented with typical chest discomfort possibly as a result of an aortic arch thrombus. Case Presentation: A 60-year-old obese woman with a 40 pack-year smoking history, hyperlipidemia and left breast infiltrating ductal carcinoma (T1c N0 M0 stage 1A) treated with lumpectomy and radiation presented with 5/10 intermittent, substernal chest tightness and dyspnea on exertion for one-week. She also reported exertional numbness and tingling in her left upper extremity. The initial electrocardiogram and troponins were unremarkable. Computed tomography angiographic imaging showed a mass compressing the aortic arch. A regadenosine nuclear stress test was negative. Magnetic resonance angiography of the chest showed an intraluminal mass within the aortic arch. A subsequent cardiac magnetic resonance image showed a frondular mass measuring 16 x 15mm arising from the medial aspect of the aortic arch consistent with thrombus. The patient was treated with antiplatelet therapy and anticoagulation with unfractionated heparin. No surgical intervention was required in the absence of distal embolic phenomena or signs of limb ischemia. The patient was discharged with warfarin therapy, and on four months' follow-up the patient had minimal non-specific symptoms. Discussion: The presence of a thrombus in the aortic arch might have resulted in the patient's symptoms producing chest discomfort resembling that seen with an acute coronary syndrome (ACS). It is likely that the underlying cancer, radiation treatment to the chest, and risk factors for atherosclerosis provided the substrate for Virchow's triad, and hence contributed to the formation of the aortic thrombus. An intra-aortic thrombus can be potentially lethal, particularly if arterial embolism results. Since intra-aortic thrombosis can be life-threatening, it would seem reasonable to identify and manage atherosclerotic risk factors in patients about to undergo thoracic radiation therapy due to the possible risk of thrombus formation. The follow-up of such patients should be comprehensive and involve imaging tests to rule out thrombus formation and/or follow its dissolution. A search of the medical literature (2005-2015) disclosed nine patients with aortic arch thrombosis. Two patients had received radiation therapy (one thoracic and one pelvic), three patients had a history of malignancy, and five patients had a history of atherosclerotic risk factors. Although apparently unusual, aortic arch thrombosis should be considered in the differential diagnosis of patients admitted with suspected ACS in whom the latter diagnosis cannot be confirmed.

Cruisin' for a Bruisin': A Cautionary Tale of Raw Oyster Consumption on the High Seas

Gretchen Taylor MD, Mayo Clinic AZ, PGY-2

Anjuli Brighton, Vanood Khalid, Roberto Patron

CR, Poster Display No. 105

INTRODUCTION *Vibrio vulnificus* is a gram-negative halophilic bacteria known to cause fatal septicemia in patients with chronic liver disease. Cases of *V. vulnificus* infection are nationally reportable due to the seriousness of the disease, with up to 95% of patients requiring hospitalization, and a reported 50% mortality rate. It remains rare, with an incidence of approximately 0.05 per 100,000 (1). Here, we report a case of septic shock secondary to *V. vulnificus* bacteremia and necrotizing fasciitis in a patient with underlying cryptogenic cirrhosis. **CASE REPORT** A 68 year old male presented to our ED in October 2014 in vasodilatory shock with pain, erythema, and swelling of the left upper and lower extremities starting 24 hours prior. He provided a history of having returned five days earlier from a cruise to Central America, during which he ate raw seafood, including oysters. Other pertinent history included well-compensated cryptogenic cirrhosis, celiac disease, ankylosing spondylitis, and atrial fibrillation. On exam, his left lower leg anterior compartment pressure was 33 mmHg (normal 0-10 mmHg), and his left forearm volar compartment pressure was 30 mmHg, raising concern for compartment syndrome in the setting of necrotizing fasciitis. He was taken emergently to the OR for fasciotomy of the left upper and lower extremities, requiring pressor support in the ICU for the first 36 hours post-op. Blood cultures were positive for *V. vulnificus* at nine hours, and aerobic culture collected from fluid in the anterior compartment of the leg confirmed the same organism. Empiric antibiotics of vancomycin, meropenem, and clindamycin were narrowed to a 14 day course of doxycycline and ceftriaxone once identification of the causative organism was returned. The patient underwent skin grafting to his left lower extremity six weeks after the fasciotomy, and he has otherwise made a full recovery. **DISCUSSION** This case demonstrates the rapidity with which *V. vulnificus* infection can evolve into critical illness. There are a number of theories addressing the preponderance of this infection in patients with underlying liver disease, including increased gut permeability in the setting of portal hypertension and splanchnic edema, elevated serum iron levels facilitating bacterial growth, hypocomplementemia, and reduced bacteria clearance by the hepatic reticuloendothelial system (2). In our patient, his celiac disease may have also contributed to GI mucosal breakdown and increased permeability to bacteria. Because he did not have any open wounds or skin tears to act as sites of entry for tissue infection, we believe his fasciitis resulted from hematogenous seeding of the affected extremities. 1. Centers for Disease Control and Prevention. *Vibrio vulnificus*. CDC, 2013. Web. 31 Aug 2015. 2. Preheim LC and Nusair AR. "The Susceptible Host". *Clinical Infectious Disease*. Ed. David Schlossberg. New York City: Cambridge University Press, 2008. 640-41. Print.

Small Cell Cancer, an uncommon presentation

Omar Waheed DO, Canyon Vista, PGY-2

CR, Poster Display No. 106

Omar Waheed, OGME-2, Internal Medicine, Canyon Vista Medical Center, Sierra Vista, AZ. Extra-pulmonary Small Cell Carcinoma (EPSCC) is a very rare clinical presentation of Small Cell Cancer (SCC) as most SCC are pulmonary in origin. Therefore, this presentation provides a unique opportunity. The patient is a 64 year-old female who presented to the ER with a chief complaint of bilateral lower extremity pain and swelling. Past medical history is significant for a history of brain tumor diagnosed in 2013 after the patient had developed altered mental status. This was found to be SCC on histopathology with no pulmonary source identified on imaging. The patient is status post brain tumor resection in 2013 and radiation for recurrence in 2014. Notably, the patient had a recent PET/CT which showed hypermetabolic activity over the left adrenal gland with bilateral adrenal masses. She also has a history of DMII, CKD, and HTN. Social history is notable for the patient being a current smoker. On presentation the patient had LE swelling and pain for 1 week. This patient had an echocardiogram performed before admission which showed a preserved EF, and grade 1 diastolic dysfunction. Lasix had been started without improvement by her PCP. On exam the patient was found to have +2 pitting edema of bilateral lower extremities. The patient was also found to be severely hypokalemic with potassium of 2.1. During the hospital stay the patient was noted to have uncontrolled hypertension and elevated liver function tests. Given prior history of SCC, recent findings of adrenal mass on PET/CT, and concern for possible paraneoplastic syndrome, there was concern for primary vs. metastatic disease. This patient had elevated LFT's and therefore an ultrasound of the liver was also performed and showed multiple lesions with concern for metastatic disease. CT guided biopsy was performed by interventional radiology which was non-diagnostic. Oncology was consulted and patient had port placed prior to discharge with plan for chemotherapy outpatient. Regarding possible paraneoplastic syndrome, the cortisol level had returned as being elevated. However, further treatment/diagnostics were deferred as patient had ultimately chosen hospice care. This case illustrates an unusual presentation of SCC. Given the patient is a smoker it is still possible there is a pulmonary SCC. However, given this was not seen on imaging EPSCC must be considered. Interestingly, the liver is the most common site of metastatic disease with EPSCC, which was seen here. The patient also possibly had an ACTH producing paraneoplastic syndrome given uncontrolled blood pressures, uncontrolled blood sugar and severe hypokalemia. It's possible that the lower extremity swelling was also associated with worsening liver disease.

From Cruise to Confusion

Shabnam Yekta MD, UACOM at South Campus, PGY-2

Manish Shrestha, MD

CR, Poster Display No. 107

Creutzfeldt-Jakob Disease (CJD) is an extremely rare human prion disease. Prevalence is estimated at one per one million per year. Prion diseases typically have long incubation periods, however, clinical deterioration occurs rapidly. Unfortunately, there is no cure for CJD and treatment is currently supportive. Death typically occurs within one year of clinical symptoms. Patient is a 76 year old male, with past medical history of asthma, presents as a transfer from outside hospital for altered mental status. Patient is a college professor and had been in his usual state of health until six weeks prior, at which time he had returned from a Mediterranean cruise. Approximately ten days after his return, patient had an episode of acute blurry vision while driving. Patient's blurry vision progressed rapidly over a few weeks to include confusion, and memory deterioration. Patient slowly lost his ability to perform activities of daily living, and eventually became non-ambulatory with minimal communication and limited PO intake. Review of system was negative for fever, chills, neck stiffness or seizure like activities. On admission, patient is afebrile and tachycardic. Examination showed slightly distended abdomen, mild bilateral lower extremity edema. Neurological exam showed normal cranial nerves, however, patient did not follow commands. No spontaneous movements were noted. Patient did have increased tone in his bilateral upper extremities. Patient was noted to have brisk reflexes as well as myoclonus. Lab results revealed WBC of 22.4, albumin of 1.6, and calcium of 7.7. Normal vitamin B12, and TSH levels, negative syphilis screen and HIV screen. CSF findings showed total protein of 53, glucose 85, WBC 2, RBC 7000. MRI of brain revealed restricted diffusion of the gray matter of the right cerebral cortex, the left parieto-occipital cortex, the right caudate, and the left pulvinar suggestive of CJD. EEG was abnormal due to the presence of diffuse slowing and disorganization as well as right hemispheric periodic lateralized epileptiform discharges. Given clinical picture, along with MRI and EEG findings, patient was thought to have presumed CJD, likely sporadic. CSF workup for paraneoplastic syndromes, as well as protein 14-3-3 and tau protein were sent but pending results. Although definitive diagnosis is ultimately made by brain biopsy, given classic clinical features of patient's disease, patient's family deferred biopsy and ultimately elected for hospice care. Prion diseases are caused by abnormally folded proteins, which ultimately lead to neurodegeneration. The etiology of the majority of prion diseases is sporadic. Given the devastating nature of the disease, the need for development of therapeutic strategies focused on symptomatic management, as well as survival prolongation and possibly reversal of neurodegeneration is much needed.

Acute Urinary Retention Associated with Alcohol Dependence

Firas Abbas MD, Maricopa Medical Center, PGY-3

Christopher McCabe MS-III, Shaghayegh Abdollahi MD

CR, Poster Display No. 108

Introduction:Alcohol withdrawal is a relatively common diagnosis encountered in the inpatient setting. However, development of urinary retention (UR) as a complication of alcohol withdrawal is rare. **Case Report:** A 66-year-old alcoholic male was admitted to the emergency department after experiencing a ground level fall as a result of alcohol intoxication. During his 9-day stay in the hospital he required a brief stint in ICU as a result of severe alcohol withdrawal requiring a midazolam drip to control his symptoms. In the days following his release from the ICU, the patient developed UR requiring placement of a urinary catheter. A review of his chart ruled out the typical etiologies of UR – his prostate was not enlarged on physical exam, A1C was 5.7%, B12 was 381 pg/ml, CT head was normal and he had no history of spinal cord injuries or lesions. He was not administered medications known to cause UR, nor had he ever experienced urinary retention before this episode. The timing of his development of UR suggests that alcohol withdrawal may be responsible for his urinary symptoms.

Discussion: Alcohol withdrawal is a complex physiologic process underpinned by a hyper-adrenergic state secondary to long term use and abuse of alcohol. Alcohol has a potentiating effect on GABA-A neuroreceptors, and with chronic exposure to alcohol those receptors are down regulated, leaving the brain prone to a hyper-excitabile state with the sudden withdrawal of GABA-A potentiation. A literature search concerning UR and alcohol withdrawal syndrome revealed only four other case reports of urinary retention in chronic alcohol abusers. However, three of the case reports are not related to alcohol withdrawal and all four attribute the patient's urinary retention to alcoholic neuropathy. Given patient's lack of subjective historical, physical exam and laboratory findings regarding alcoholic neuropathy, it is possible that another etiology is behind this patient's acute development of UR. Micturition is controlled via parasympathetic mediated contraction of the detrusor muscle as well as sympathetic mediated relaxation of the detrusor muscle. Dysregulation of this system due to hyper-adrenergic state is known to be responsible for urinary dysfunction, which is likely the case of our patient. Chronic alcohol abuse resulting in alcoholic neuropathy, as described in the cases mentioned above, was likely a contributing factor in patient's urinary retention. **Conclusion:** This case report adds to a growing body of evidence suggesting that alcohol withdrawal may precipitate urinary retention. Whether it is a hyper-adrenergic state resulting in bladder dysfunction, a result of alcoholic neuropathy or a combination of both remains unclear. Further research into alcohol withdrawal syndrome and its effect on the urinary system may provide clearer evidence, as well as a better treatment for the condition.

Malassezia Manifesting as Mischievous Pneumonia

Stuart Andersen MD, Mayo Clinic AZ, PGY-3

Roberto Patron, MD

CR, Poster Display No. 109

Malassezia Manifesting as Mischievous Pneumonia Stuart Andersen, MD, Roberto Patron, MD Introduction: Malassezia is an opportunistic, normal fungal flora of humans and various domestic animals. Typically, this organism causes low-grade dermatoses. In rare instances, it can be an opportunistic pathogen, manifesting as invasive disease. Typically this occurs in immunocompromised individuals or neonates who have abnormal gastrointestinal systems that require total parenteral nutrition (TPN), which in turn supplies this fastidious organism the lipid rich environment it requires for survival. Case: A 33-year-old man with history of short gut syndrome, chronic idiopathic intestinal psuedo-obstruction, small intestinal bacterial overgrowth syndrome, and chronic TPN therapy presented with persistent cough and fatigue. The patient had been on TPN since sixteen months of age and had recently had placement of a new central venous catheter (CVC) with subcutaneous port access. He endorsed symptoms of cough, chest pain, shortness of breath, subjective fevers, and chills. He had been hospitalized previously for two bouts of pneumonia but had failed empiric therapy- being treated for both presumed bacterial then fungal pneumonia with levofloxacin and fluconazole respectively. Patient had extensive inpatient and outpatient evaluations, including contrast CT scan of chest and bronchoscopy, all of which were unrevealing with exception of progressive pulmonary infiltrate and mild peripheral blood eosinophilia. Ultimately, patient had a thick and thin blood smear (specimen drawn from the port) for evaluation of malaria, which demonstrated rare atypical fungal elements. This pathogen was later identified as Malassezia sympodialis. The patient's central venous catheter was removed, and following treatment with amphotericin, he experienced full recovery. Discussion: Malassezia sympodialis is a species of the yeast, Malassezia. Malassezia furfur is perhaps the best known of fourteen species, and tinea versicolor is a common manifestation of this normal flora. However in rare instances, invasive infections occur- typically in neonates or immunocompromised individuals. This organism requires a lipophilic environment to proliferate- therefore, TPN and lipids provide needed nutrition support. The diagnosis is often challenging because of the fastidious nature of this organism, requiring fungal media with lipid overlay. Culture is only positive in approximately five percent of cases. Additionally, molecular typing methods may be positive in approximately twenty-five percent of cases. Once diagnosed, appropriate antimicrobial selection may be challenging as sensitivity data is limited. Of existing in vitro data, results are mixed on which therapy is best, likely again related to this organism's fastidious nature. In vivo data suggests amphotericin may be the drug of choice in terms of antimicrobial therapy. However additional measures should be taken to promote successful clearance, including source control with removal of central venous catheter and discontinuation of lipids.

Neutropenia with Respiratory Syncytial Virus infection in Large Granular Lymphocyte (LGL) Leukemia

Ramasubramanian Baalachandran MBBS, UACOM at University Campus, PGY-3
James L. Knepler, Jr., MD

CR, Poster Display No. 110

Introduction The etiology of neutropenia in LGL leukemia is unknown, but there is some evidence for autoimmune mechanism. Viral infections have been shown to cause autoimmune diseases including autoimmune neutropenia. We report a case of T-cell LGL leukemia presenting as neutropenia with Respiratory Syncytial Virus (RSV) infection. **Case Report** A 66 year-old woman with history of rheumatoid arthritis and asthma, presented with worsening dyspnea, cough, yellow sputum and pleuritic chest pain for 2 weeks. It was associated with fever, chills and myalgia. She had undergone left lower lobectomy of lung for aspergilloma 15 years ago, which had been associated with neutropenia. Physical examination showed fever, tachycardia, tachypnea, hypoxia and bilateral wheeze on auscultation. Laboratory tests revealed leukopenia (700 cells/cu.mm), thrombocytopenia (70,000 cells/cu.mm) and normal hemoglobin (14 g/dl). Absolute neutrophil count was 90 cells/microliter. Oxygen supplementation by nasal cannula and albuterol nebulization were initiated. Nasopharyngeal swab was positive for Respiratory Syncytial virus. Neutropenia was evaluated with bone marrow biopsy, which confirmed T-cell Large Granular Lymphocyte Leukemia. Prednisone was started, resulting in clinical improvement over next 3 days. Absolute neutrophil count improved to 550 cells/microliter with steroid therapy for 2 weeks. **Discussion** LGL leukemia is an indolent hematologic disorder with chronic and transient neutropenia as a common presentation. Autoimmunity is suspected to be the cause of cytopenia in LGL leukemia(1). Molecular mimicry by viruses has been implicated as a cause of autoimmune diseases. Many antibodies isolated against viral proteins including paramyxoviridae, have shown cross-reactivity with host proteins from uninfected tissues. There are studies showing viral infections as cause of autoimmune neutropenia. Neutropenia was observed during course of viral infections in children, RSV being one of them². There are case reports of influenza and Human Herpes virus infections causing autoimmune neutropenia¹. We did not find any case report of RSV infection and neutropenia. **Conclusion** We postulate that RSV infection could be the cause of transient worsening of chronic neutropenia in this patient with LGL leukemia. Further research into role of RSV infection in inducing autoimmunity may reveal the cause of neutropenia in LGL leukemia. **References** 1. Autrel-Moignet A, Lamy T. Autoimmune neutropenia. *Presse Med.* 2014 Apr;43(4 Pt 2):e105-18. Epub 2014 Mar 27. 2. Karavanaki K, Polychronopoulou S, Giannaki M, Haliotis F et al. Transient and chronic neutropenias detected in children with different viral and bacterial infections. *Acta Paediatr.* 2006;95:565–572.

How Low Can You Go: A Reversible Cause of Pancytopenia

Rishi Bhargava MD, UACOM at South Campus, PGY-3

Archana Nair MD, Anju Nair MD, Hao Chen MD, Hitendra Patel MD

CR, Poster Display No. 111

A 49 year old woman was sent from her PCP office for a critical lab - Hemoglobin (Hb) of 1.7g/dL, which was drawn for evaluation of chronic fatigue and dyspnea. She has a seizure disorder, bradycardia with a permanent pacemaker placed and external hemorrhoids. Her Previous Hb was 10g/dL two years prior. She denied any history of bleeding at time of admission. She Other than her fatigue and dyspnea, she had no other active complaints. Her home medications included Levetiracetam and topiramate. She is unclear, but believes there may be a family history of acute myeloid leukemia in a sibling. On examination her Temp:T= 37.2 o C, HR 85/min, RR 10/min, BP 103/62 mm Hg (orthostatic negative), she appeared malnourished and pale. She has no scleral icterus or conjunctival pallor. She has a II/VI systolic murmur, non-radiating at the right upper sternal border. No hepatosplenomegaly, masses or lymphadenopathy. She did have external non-thrombosed hemorrhoids, brown stool in rectum that is guaiac negative. She had an upper endoscopy in 2013 revealed atrophic gastritis in the fundus. She had a normal CT abdomen/pelvic imaging and colonoscopy in 2013. She recently had a negative transvaginal ultrasound. Initial investigations revealed WBC 3.3/ $\times 10^9$ /L, Hb 1.7g/dL, Hct 6.5 %, Plt 131 x 103/ $\times 10^9$ /L, MCV 61fL, RDW 25 %, Ferritin 5ng/mL, B12 level: 542 pg/mL, Folic acid: 513ng/mL, Reticulocytes 1.22 %, Haptoglobin 95 mg/dL, LDH 228 IU/L Negative FOBT, HIV, and celiac disease. She had an uncomplicated hospital course. After receiving a total of 6 units of PRBC, her hemoglobin responded appropriately to 9.9mg/dL. An endoscopy was performed which revealed some non-specific gastritis. Bone marrow aspirate and peripheral smear were consistent with Fe-D. She felt better with blood transfusions and was discharged on Ferrous Sulfate 325mg PO BID. At two months her Hb and other cell lineages had normalized and her colonoscopy and EGD were negative. Our case represents an uncommon presentation of an extremely common condition. There are very few cases reported on reversible causes of pancytopenia with oral therapy and blood transfusion. We present a case of pancytopenia caused by Fe-D anemia proven by biopsy that had reversed with initial transfusion and oral iron therapy two months later. Although iron deficiency is associated with a reactive thrombocytosis, increasing severity of the iron deficiency leads to normalization and occasionally even decrease in platelet counts. After blood transfusion and PO iron therapy, our patient's pancytopenia resolved. In summary, pancytopenia caused by Fe-D is extremely rare. We recommend that clinicians consider iron deficiency anemia in patients with pancytopenia. We need to follow these patients closely as this may be a red herring for aplastic anemia given her low marrow cellularity.

Acute Cytomegalovirus Infection In An Elderly Immune-competent Patient

Aaron Brown DO, Verde Valley Medical Center, PGY-3

CR, Poster Display No. 112

Reports of acute of cytomegalovirus infections have been described mainly in immunocompromised patients with HIV/AIDS, autoimmune diseases, or in transplant patients. An acute, symptomatic CMV infection in an elderly, immune-competent patient is a novel presentation of infection. The patient is a 76 year-old former school principal with a history of type II Diabetes Mellitus, well-controlled, hypertension, and dyslipidemia. He had recently been healthy and in his usual state of health until presenting to his primary care physician with a chief complaint of new onset headache, fatigue, and arthralgias for one to two weeks. Upon obtaining history, the patient described a new-onset, insidious, progressive, posterior headache radiating to the cervical region that was not relieved with acetaminophen or Aleve. Associated with the headache, he had severe fatigue, decreased appetite, and arthralgias localized to his shoulders, hips, and knees. He had no associated fevers or chills, or neck pain and stiffness. There was no blurred vision or other visual changes, nausea or emesis, or sensitivity to light and sound. However, he did admit to some dizziness and gait-instability over the past week, but no focal weakness or confusion. On exam, the patient was afebrile, with normal vitals. Eye exam revealed no notable abnormalities. There was no neck stiffness or pain with flexion. There was no lymphadenopathy of the neck, supraclavicular, axilla, or inguinal. However, he was noted to have significant behavioral changes consisting of a tearful, labile mood. Due to the new onset headache and behavioral changes, the patient underwent a CT scan of the brain that returned normal, and a lumbar puncture was obtained that was significant only for an elevated protein level. Further blood work, including blood cultures, was remarkable only for an elevated ESR and mildly elevated liver enzymes. On further history, it was revealed that the patient's wife had undergone a renal transplant in the recent past and had presented to her nephrologists office 3 weeks prior for similar symptoms. At that time, suspicion was raised for acute Cytomegalovirus and serum IgM titers were obtained and found to be elevated. With further history, serum immunoglobulin levels and CMV titers were obtained and found to be elevated and positive for CMV IgM. The patient received supportive treatment with resolution of symptoms and return to baseline health over the next month. This case presents a novel presentation of an acute Cytomegalovirus infection in an elderly immune-competent patient. Commonly, Cytomegalovirus presents as an acute, asymptomatic infection in childhood and early adult years. It is important to remember that while rare, acute symptomatic Cytomegalovirus may present in healthy elderly adults, resembling an acute Epstein-Barr Virus infection.

Coccidioidal Meningitis with Vasculitic Stroke

Brady Bulian DO, Mayo Clinic AZ, PGY-3

CR, Poster Display No. 113

Coccidioidal Meningitis with Vasculitic Stroke BP Bulian, DO Mayo Clinic AZ, Division of Internal Medicine Case Description A 69-year-old male who winters in AZ, with a history of type 2 diabetes mellitus, presented to the hospital with symptoms that began 4 months prior, beginning with cough and chest congestion, proceeding to low-grade fevers and headache, now having evolved to include progressive gait ataxia and intermittent diplopia. He was febrile to 39 degrees centigrade, vital signs otherwise normal. Exam revealed mild meningismus with neck flexion. No focal abnormalities on neurologic assessment. He otherwise looked well. Labs were notable for a leukocytosis of 12,900 and sodium of 127. Basic labs were otherwise normal, including sedimentation rate and C-reactive protein. Coccidioides (cocci) testing revealed positive IgM by enzyme immunoassay (EIA), indeterminate IgG by EIA, negative IgM by immunodiffusion (ID), positive IgG by ID and antibody titer of 1:32 by complement fixation (CF). Lumbar puncture (LP) noted an opening pressure of 27 mmH₂O. Cerebrospinal fluid (CSF) analysis showed cell count 713 (68% lymphocytes), protein 243 mg/dL, negative IgM by ID, positive IgG by ID and antibody titer of 1:4 by CF. MR brain was unremarkable. He was diagnosed with coccidioidal meningitis and treated with fluconazole 800 mg daily indefinitely. The addition of corticosteroid therapy was considered, however deferred due to poorly controlled diabetes mellitus. He returned to the hospital three months later with continued intermittent diplopia. He was now afebrile and his white count had normalized. Exam was notable for mild exotropia, left greater than right, with no other notable abnormalities. Repeat serum cocci testing and repeat LP with CSF analysis showed improvement in nearly all parameters, but repeat MRI demonstrated new findings. MRI brain showed patchy abnormal enhancement in the basilar cisterns surrounding the pons and midbrain and in the region of the left anterior inferior frontal lobe, as well as new punctate foci of increased T2 signal in the medial right thalamus suspicious for a lacunar infarct, and in the right side of the lateral pons, both new since prior head MRI study three months earlier. This yielded an impression of basilar meningitis secondary to coccidioidomycosis complicated by small vasculitic strokes. He continued on fluconazole 800 mg daily and has been doing well in follow up. Discussion Coccidioidal meningitis is the most dreaded complication of disseminated coccidioidomycosis. It is a granulomatous infectious process that typically affects the basilar meninges. Complications include hydrocephalus, abscess, vasculitis and cerebral infarction. With vasculitis, perivascular inflammation and endarteritis may result in infarctions of the basal ganglia, thalamus and cerebral white matter. Treatment is high-dose oral azole therapy, most commonly with fluconazole 800 mg daily, used indefinitely due to high rates of relapse following discontinuation of treatment.

A case report of fulminant hepatotoxicity from PEG-asparagase, literature review and management guidelines.

Jaspreet Chahal MD, UACOM at University Campus, PGY-3

Jawad Bilal, Faiz Anwer

CR, Poster Display No. 114

Introduction: L-Asparaginase (ASNase), an enzyme derived from E.coli, is an important chemo-drug used in treatment of acute lymphoblastic leukemia (ALL). ASNase depletes levels of amino acid, L-asparagine, causing protein synthesis inhibition and subsequent cell death. Major limitations of ASNase are hypersensitivity reactions, adverse effects of protein synthesis inhibition, and frequent re-administration. Protein synthesis inhibition can result in thrombosis, pancreatitis, and hepatotoxicity. Polyethylene-glycol (PEG)-ASNase is a modified version with safer side-effect profile that is widely used in treatment of ALL. Fulminant hepatotoxicity is a less reported and defined complication of PEG-ASNase with incidence <5%. Case: 22-year-old-female with ALL presented from clinic with fever and generalized icterus. Six months ago, she was diagnosed with Philadelphia chromosome negative pre B-cell ALL with CNS involvement. Induction therapy was done with vincristine, dexamethasone, daunorubicin, PEG-ASNase, and intrathecal methotrexate (MTX) following Children's Oncology Group (COG) protocol AALL0232. Repeat bone marrow and cerebrospinal fluid studies after induction showed complete remission with no blast cells. Lab work on presentation revealed hemoglobin 5.8g/dL (12-15g/dL), platelets 43×10^3 ($150-400 \times 10^3/\mu\text{L}$), alkaline phosphatase (ALP) 406IU/L (40-150IU/L), total bilirubin (TB) 8.3mg/dL (0.2-1.2mg/dL), and direct bilirubin (DB) 7.7mg/dL. Remaining liver functions were normal. On day 2, TB peaked at 12.4mg/dL. MRI showed no intra or extra-hepatic biliary ductal dilation with normal gall-bladder and pancreas. Hepatic steatosis and fibrosis were seen without stigmata of chronic liver disease. Hemolysis work-up was normal. Viral work-up inclusive of hepatitis A, B, C, CMV, EBV, and HIV panels was negative. Etiology of hyperbilirubinemia was determined to be PEG-ASNase after ruling out mechanical obstruction and infection. Cytopenias were treated supportively with transfusions. TB levels gradually improved to baseline with cessation of hepatotoxic agents. Discussion: Severe hepatotoxicity as a complication of PEG-ASNase is rarely reported. Etiology of hepatotoxicity is postulated to be effect of protein synthesis inhibition, oxidative damage, and severe fatty infiltration as seen on our patient's imaging. Effective management of ASNase-associated toxicities is crucial but limited information is available. Current literature recommends holding PEG-ASNase when grade 3-4 hepatotoxicity develops and re-challenging with monitoring if toxicity resolves. Reversible elevations in liver enzymes and bilirubin are seen. Also, lower doses of PEG-ASNase than standardly used help avoid toxicity while still maintaining therapeutic drug levels. Plasmapheresis has been used to effectively treat fulminant hepatitis. Prevention strategies to decrease hepatotoxicity include checking liver function tests before PEG-ASNase and after administration of any drug that is cleared by liver. Concurrent use of alcohol and hepatotoxic drugs should be avoided. Hepatotoxic chemo-drugs like MTX and vincristine may be unavoidable as in current case, but concomitant use increases risk of hepatic dysfunction. PEG-ASNase is a vital component of successful treatment of ALL in both children and adults, and thus its continued safe use is important.

A Curious Case of a Rapidly Growing and Regressing Inguinal Mass: Atypical Presentation of Inguinal Squamous Cell Carcinoma

Ito Edet MD, Banner UMC Phx, PGY-3
Christopher Byers, Muniza Siddiqui, Avtar Singh

CR, Poster Display No. 115

Introduction: Metastatic carcinoma of unknown primary origin is clinically defined as a mixed group of malignancies that have been histologically confirmed to be metastatic cancer with inability to detect a primary tumor despite a thorough evaluation. Metastatic carcinoma of unknown primary origin accounts for three to five percent of patients with solid tumors and no apparent risk factors for its pathogenesis have been identified. In addition, its presentation is often varied. We present a curious case of atypical metastatic squamous cell carcinoma in the inguinal area. **Case Presentation:** The patient is a 69 year old male with past medical history significant for chronic obstructive pulmonary disease who presented with a marble-sized mass in his left groin that had been present for months with reports of intermittent enlargement and regression of size. Aside from mild discomfort associated with the mass, he denied any additional symptoms including fatigue, weight loss, or shortness of breath. A CT of the abdomen revealed a central necrotic mass in his left groin and a non-occlusive thrombus in his left external iliac vein, common femoral vein and superficial femoral vein. An excisional biopsy yielded a cystic lesion that was grossly less concerning for malignancy. However pathology confirmed moderately differentiated squamous cell carcinoma metastatic in origin. A subsequent CT scan of the chest did not reveal any pulmonary mass or lymphadenopathy and a nonspecific 5 mm pulmonary nodule was noted in the lower left lobe. PET scan revealed hyper-metabolic inguinal mass and right hepatic lobe and enlarged external iliac lymph nodes. There were no definite findings suggestive of head/neck malignancy. **Discussion:** Of the 4-15% of carcinoma of unknown primary origin cases attributed to squamous cell carcinoma, the majority involves metastasis from primary tumors in the head/neck to the cervical lymph nodes. Significantly fewer cases involve primary malignancy of the genital or anorectal area with metastasis to the inguinal lymph nodes. Our patient did not have any clinical or radiological findings suggestive of a primary lung cancer or head/neck cancer. Patients with metastatic inguinal lymph node involvement should have a thorough physical exam performed with specific focus on examination of the genitals, digital rectal examination, and anoscopy. Twenty percent of carcinomas of unknown primary origin have a favorable prognosis and this includes isolated inguinal squamous cell carcinoma. However early diagnosis is preferential to reduce the risk of further metastasis. Given its heterogeneity, carcinoma of unknown primary origin can be difficult to suspect in the initial presentation of patients. In particular considering the absence of constitutional symptoms or additional risk factors for malignancy. This case highlights the appropriate level of suspicion that is necessary for diagnosis of carcinoma of unknown primary origin and its subsequent evaluation and management.

A case of IgG4-related disease: a unique presentation of a rare entity.

Kirat Gill MD, St. Joseph's Hospital, PGY-3

Justin Reynolds, Anita Kohli, Ann Moore, Ashley Hepner, Robert Gish, Richard Manch

CR, Poster Display No. 116

IgG4-related disease is a rare, systemic fibroinflammatory condition characterized by lymphoplasmacytic infiltrates and often times elevated serum IgG4 levels. Multiple organs are implicated in the disease and although the pathogenesis is not entirely understood, genetic risk factors and autoimmune dysregulation have been associated. Pathology from biopsied lesions is varied and can range from a dense lymphoplasmacytic infiltrate to fibrosis and obliterative phlebitis with the unifying feature being IgG4-positive plasma cell infiltration. Currently, there are limited reports of IgG4-related disease in the literature. A 69 year-old female with a past medical history significant for salivary gland tumor (s/p resection and radiation) and rheumatoid arthritis (on Methotrexate), and alcohol use (2-3 glasses of wine for several years) presented to hepatology clinic for evaluation of elevated liver function tests noted on routine blood work. Alkaline phosphatase was 367 IU/L, ALT 162 IU/L and AST 67 IU/L. CA 19-9 was also elevated to 45 U/mL, however MRI of the abdomen and EUS were unremarkable. Liver biopsy showed increased portal fibrosis with extension into the lobules, lymphocytic, neutrophilic and eosinophilic portal and lobular hepatitis with bile ductular proliferation, with no specific etiology of liver disease identified. After an unrevealing extensive workup for other causes of abnormal liver tests, it was thought the abnormal tests and biopsy finding may be secondary to ethanol abuse and methotrexate. Over the subsequent year, the patient continued to have elevated liver function tests, a thirty-five pound weight loss, pruritus and jaundice. Repeat MRI of the abdomen revealed an infiltrating peri-choledochal, peripancreatic, porta hepatic and retroperitoneal soft tissue mass, narrowing the common bile duct and multiple enlarged retroperitoneal and pericardial lymph nodes. EUS showed an irregular, 2.3 x 2.3 cm, poorly defined area within the region of the head of the pancreas, dilation of the pancreatic duct at the head of the pancreas and distal common bile duct stricture. Biopsies were not performed, and cytology from fine needle aspirations revealed only benign pancreatic acini. IgG4 levels were ordered to evaluate for IgG4 related autoimmune pancreatitis/sclerosing cholangitis and were elevated to 125 mg/dL. Given the elevated IgG4, and multiple organ dysfunction, a presumed diagnosis of IgG4-related disease was made. Although glucocorticosteroids are the mainstay of therapy, the patient has not since returned to clinic for repeat imaging or evaluation for treatment. IgG4-related disease is a rare yet potentially treatable entity that can mimic primary organ disease or malignancy, yet should always remain in the differential diagnosis. Close follow up and cognizance of this disease entity is critical as a lag in treatment can have significant implications.

Intra-abdominal Coccidioidomycosis

Randa Gorges MD, UACOM at South Campus, PGY-3

TridadZengeneh, MDO, FACP

CR, Poster Display No. 117

Coccidioidomycosis is a fungal infection endemic to the Southwestern US that causes primarily a pulmonary infection. Coccidioidomycosis can cause disseminated disease and rarely involves the abdominal cavity. A 23 yoF presented with a 1-month history of back pain involving the right flank, with associated redness and point tenderness. She states that about 3 months prior she had an upper respiratory illness, and shortly afterwards developed a "bump in her back". She sought medical attention and was told it was probably related to a bed bug infestation. At that time, she denied systemic signs and symptoms of infection. Subsequently, the patient developed fever and abdominal pain that was diffuse and dull in nature. A CT abdomen / pelvic was obtained which showed an intra-abdominal abscess. She underwent surgical drainage. After the drain was removed, the patient was discharged and prescribed a 7-day course of cephalexin. After discharge, the patient suffered a wound dehiscence associated with drainage and accompanied by a constant, throbbing, moderate to severe pain near the wound site over the ensuing several weeks. ROS she was negative for fever, SOB, CP and weakness. Her PMH revealed Bipolar disorder and childhood TB, partially treated, with periodic negative chest x-ray. She was originally from Chicago, but lived in Texas for college. About 3 years ago she moved to AZ and is currently unemployed. Social History is significant for smoking marijuana and heroin abuse. The patient has one healthy dog and has never been incarcerated. Vitals were stable. On physical exam she has a 5 cm open wound on the R flank with clean base and no overt drainage. Erythema in her bicipital groove, with slight induration. Lab studies revealed a mild leukocytosis with neutrophilic predominance. KOH Prep demonstrated spherules consistent with *Coccidioides immitis/posadasii*. Cultures grew *Coccidioides immitis/posadasii*. LFTs, KFTs, HIV, Hepatitis panel, complement studies, immunoglobulins and blood cultures were all within normal limits. CT abd/pelvic: diffuse granulomatous disease such as coccidioidomycosis. MRI: Extensive loculated abscesses involve the psoas and pararenal space. MRI brain and spine was WNL. Infectious Disease service was consulted and treatment was initiated with intravenous Liposomal Amphotericin B initially while in hospital then switched to oral fluconazole 400 mg daily. Our case is unique in that it is one of few reported *Coccidioides* infections involving the iliopsoas muscle. We presume that this patient acquired coccidioidal infection through the pulmonary route followed by hematogenous spread to the iliopsoas muscle. Intra-abdominal fungal infections are increasingly important in clinical practice. Fungi can involve virtually any organ or structure in the abdomen. Clinical manifestations are diverse and nonspecific. Diagnostic confirmation is difficult and response to treatment is not always adequate. Early recognition is important to prevent complications or death. The treatment length of abdominal cocci is not well documented.

A Case of Superior Mesenteric Ischemia Complicating Infective Endocarditis

Abigail Hawke MD, UACOM at University Campus, PGY-3

Benjamin Salazar-Chatt, MD; Shawn Ong, MS-IV; Tejo Vemulapalli, MD

CR, Poster Display No. 118

Introduction: Embolic events are a fairly common complication of infective endocarditis (IE) and occur in 19-49% of all patients with IE. They remain a significant cause of morbidity and mortality, resulting in stroke, myocardial infarction, and abscess. Acute mesenteric ischemia is a rare complication, with only a few reported cases found in the literature. Case Description: A 56-year-old man with history of gout, "benign" heart murmur since childhood, and newly-diagnosed cirrhosis was admitted to the hospital with fever, fatigue, and left flank and abdominal pain. He was afebrile, tachycardic, and ill-appearing. Physical exam revealed jaundice, left flank tenderness, abdominal distention with fluid wave, and a grade 3/6 diastolic murmur over left fifth intercostal space. Laboratory evaluation was significant for a leukocytosis of 13900 cells/uL, hemoglobin 10.9 g/dL, and platelets 86,000/uL. Total bilirubin was elevated at 6.8 mg/dL. Blood cultures were obtained and he was empirically started on ceftriaxone for suspected spontaneous bacterial peritonitis (SBP). Diagnostic paracentesis was consistent with SBP, with 3850 WBCs and 83% neutrophils. The patient also underwent workup for newly-diagnosed cirrhosis, and abdominal ultrasound revealed a 2.8cm hypoechoic lesion within the right hepatic lobe, which was concerning for hepatocellular carcinoma (HCC). Abdominal MRI confirmed this finding, and also revealed wedge-shaped infarcts within the left kidney and spleen, concerning for an arterial embolic source. Two of two blood cultures returned positive for *Streptococcus salivarius*, and a transthoracic echocardiogram revealed a 1.5 x 0.8cm mobile mass on the aortic valve with moderate aortic regurgitation. A PICC line was placed and the patient was started on gentamycin in addition to ceftriaxone, and discharge planning was underway. Unfortunately, on hospital day 8, the patient developed worsening abdominal pain, distention, and confusion. Labs revealed leukocytosis of 47.1 and lactate of 6.6. Abdominal radiograph and CT revealed severe colonic distention and bowel wall pneumatosis, most likely due to mesenteric ischemia from septic emboli. At this point, comfort care measures were instituted and he died within a few hours. Conclusion: Embolic events are a common complication of infective endocarditis and associated with high morbidity and mortality. Unfortunately, prediction of an individual's risk is difficult. The risk of embolic events is higher in patients during the first 2 weeks of antibiotic therapy and with larger vegetations (greater than 1cm). Currently there is no evidence to support the use of aspirin or anticoagulation to reduce the risk of septic emboli, and these may lead to increased bleeding in certain cases. It is critical to involve Cardiothoracic Surgery for consideration of early surgical intervention in patients with large vegetations or septic emboli.

Diffuse Large B Cell Lymphoma with primary cutaneous manifestations; a case report.

Rorak Hooten MD, UACOM at University Campus, PGY-3
Jeremy Oulton MSIII, Soyoung Park, MD, Vijay Chandiramani MD

CR, Poster Display No. 119

Introduction: Diffuse large B cell lymphoma makes up approximately 28% of lymphoid malignancies in the U. S. (Morton 2006) and has median age of onset of 70 years old. Lymphoma can have a variety of presentations; however, cutaneous manifestations are less common. Case: We present a case of an 84 year old woman who had recently been hospitalized four times for various complaints including anemia, generalized weakness, and altered mentation who presented again with altered mentation, generalized weakness, fatigue, and new skin nodules involving the chest, shoulders, and face that developed over the past 2-3 weeks. Initial workup included peripheral smear, CT head, and routine labs which were unrevealing, however skin biopsy revealed DLBCL. CT and MRI staging showed cutaneous involvement with questionable lung nodules which may be related, but no other involvement. Bone marrow biopsy did not show any evidence of lymphoma and Fluorescent in Situ Hybridization was negative. Peripheral blood smear did not show any evidence of leukemia. Patient was set to undergo chemotherapy regimen when she continued to further decline from her functional baseline. Her family at that time elected for hospice care rather than chemotherapy. Discussion: DLBCL can present with various manifestations, however, primary skin manifestations usually classify as primary cutaneous Diffuse Large B cell lymphoma, leg type or primary cutaneous DLBCL, other which can be aggressive. These can be difficult to diagnose because of the subtle manifestations. Differences in DLBCL varieties may prompt different treatment strategies. Age also plays a major role in treatment strategies and recent studies suggest that standard therapy with R-CHOP may yield the best outcome (Jessica N. Williams, Ashish Rai et al. 2015). Our patient presented atypically with aggressive DLBCL with skin manifestations and likely would have benefitted most from R-CHOP therapy. Lymphoma should be included on the differential for any patient presenting with new skin nodules and systemic symptoms.

Metastatic lobular breast carcinoma presenting as small bowel obstruction

Jeffrey Hsu DO, Mountain Vista Medical Center, PGY-3

Dr. Monique Chang

CR, Poster Display No. 120

Infiltrating lobular breast cancer is the second most common type of breast cancer and accounts for 5-10% of breast cancers. The malignant cells develop in the milk producing lobules of the breast and spread into the breast tissue. Invasive lobular carcinomas tend to occur later in life compared with invasive ductal carcinomas. About 2/3 of patients diagnosed with invasive breast cancer are over 55 years old at diagnosis. In comparison, patients with invasive lobular carcinomas are typically diagnosed in their early 60s. Also, unlike infiltrating ductal carcinoma, which tends to metastasize to the lung, liver, and bone, infiltrating lobular carcinomas can also spread to unusual locations including the peritoneum, meninges, and gastrointestinal tract. Clinical symptoms may be nonspecific, and diagnosis of metastatic disease may be delayed unless clinical suspicion remains despite the length of disease-free interval. This is a case of a 71 year-old female with invasive breast cancer diagnosed in 1985 s/p right mastectomy s/p chemotherapy, no radiation or hormone therapy. Left invasive ductal and lobular carcinoma of the breast diagnosed in 8/2008 1.7 x 1.5 x 1.2 cm lymph node negative, Estrogen and progesterone +, Her 2 neu- T1c No Mo treated with lumpectomy, radiation and 5 years of anastrozole. Seven years later, she presented with a small bowel obstruction which could not be managed medically. She was taken to the operating room and underwent a small bowel resection. The final pathology report showed poorly differentiated adenocarcinoma ER+ PR- Her 2 neu- infiltrating the intestinal wall with positive surgical margins. Surveillance recommendations for these patients include mammograms of the affected breast q 6 months and opposite breast yearly. Hormone therapy using tamoxifen or an aromatase inhibitor is recommended if the breast cancer is ER or PR+. Physical examinations are done every 4-6 months for 5 years and then every 6-12 months. Clinical suspicion must remain high for metastatic disease in unusual locations in patients with infiltrating lobular carcinoma of the breast.

Rare Case Report: Sjogren Syndrome Patient with MALT Lymphoma and AL Amyloid Deposition of the Lung

Matthew Kallenberger DO, Mountain Vista Medical Center, PGY-3
Monique Chang, MD

CR, Poster Display No. 121

A 47-year-old woman with history of cystic lung disease secondary to her underlying Sjogren syndrome was diagnosed with primary pulmonary MALT lymphoma with amyloid production. Initial imaging and transbronchial biopsies/washing were suggestive of lymphocytic interstitial pneumonia. Initial Congo Red staining was negative. She had a relatively benign course until September 18, 2014 when a repeat CT showed a definitive mass in her lung. An open biopsy was recommended but patient initially declined. When biopsy was performed, the resected tumor was positive for CD19, CD20, FMC7 and kappa light chain restriction. The Leukemia lymphoma panel for the right lower lobe lung mass was positive for CD19, CD20, and kappa light chain restriction. The right middle lobe lung biopsy showed lymphocytes expressing CD20 but did not express CD5 or Cyclin D1. This time the Congo Red staining was positive for amyloid deposition. Mass spectrometry identified the amyloid as kappa light chain and gamma heavy chain. The patient's bone marrow was negative for lymphomatous involvement. The final diagnosis was extra-nodal marginal zone B-cell lymphoma of mucosa-associated lymphoid tissue with AL amyloid production. After determining patient was a better candidate for high-dose chemotherapy, she is currently status post cycle number two of RCVP therapy with a PET scan pending after third cycle.

Beer belly!? | GIST Thought I was Getting Fat – A Case of a Massive GI Stromal Tumor

Benjamin Liu DO, MPH, Canyon Vista, PGY-3

Abdalla Fadda

CR, Poster Display No. 122

Introduction: Gastrointestinal Stromal Tumors (GISTs) are notably the most common nonepithelial benign neoplasm involving the GI tract; however, they comprise less than 1% of all GI Tumors. An estimated 4000 to 6000 new GISTs are diagnosed a year, with those diagnosed having a mean age of 63 years. **Case:** This patient is a 34 year old male who presented to the Emergency Room at Tucson Medical Center with the initial complaint of syncopal event while at home. During his initial evaluation, he was found to have bilateral pulmonary emboli via CT Angiogram of the chest and noted right heart strain on bedside echocardiogram. Incidentally, the patient was also found to have a large abdominal mass. A CT scan with IV contrast of his abdomen was performed and a mass approximately 28.6 x 16.9 cm in transverse dimension was found. He was then intubated and underwent bilateral EKOS catheter placement and Inferior Vena Cava Filter placement for management of the bilateral PE. An ultrasound guided biopsy of the large abdominal mass was performed 9 days following initial presentation to the hospital. Pathology reports noted the tumor being consistent with a gastrointestinal stromal tumor. The GIST had histologic/cytologic features of partially necrotic spindle cell neoplasm, and noted to be positive for CD117, CD34, and vimentin with focal positivity for muscle specific actin and BCL-2. Hematology/Oncology was consulted and the patient was started on a course of Imatinib 400mg orally one week after the biopsy and pathology results. 17 days following initiation of chemotherapy, surgical oncology was able to fully resect the tumor. Final pathology of the tumor revealed a mass of 35cm in diameter noted to be an extensively necrotic Gastrointestinal Stromal Tumor, high risk category. The patient is now in rehabilitation after his 49 day hospitalization. **Discussion:** A combination of positive CD117, CD34, and vimentin expression strongly suggests GIST. Prognostically, this patient was considered high risk for metastasis due to the sheer size of the tumor; however, Ki-67 proliferation rate was noted to be less than 5%, but this may be misleading as the sample did reveal significant ischemic necrosis. With this in mind, he was started on Imatinib, but he only received a 17 day treatment prior to surgery due to complications arising from the massive tumor. It is unknown if the GIST was Imatinib-resistant as the patient underwent full surgical removal of the tumor. This case demonstrates the importance of surgical intervention with tumors this large and that prolonging a course of chemotherapy may be unnecessary.

An Atypical Cause of Mal-absorptive Diarrhea in Patients With Inflammatory Bowel Disease

Bradley Minter MD, UACOM at University Campus, PGY-3

Joao Paulo Ferreira

CR, Poster Display No. 123

A 51 year old female with prior diagnosis of ulcerative colitis presents with chronic diarrhea associated with twenty pounds of unintentional weight loss over two months. She had been started on oral steroid treatment as well as her maintenance adalimumab and mesalamine to attempt to control her presumed ulcerative colitis flare. Two weeks prior to presentation to emergency department she developed symptoms of ten or more episodes of bloody diarrhea daily, abdominal cramping and nausea. This exacerbation was atypical for her. Physical exam revealed a thin middle aged orthostatic female with diffuse abdominal pain without peritoneal signs. Laboratory workup revealed elevated inflammatory markers, hypoalbuminemia, and a microcytic anemia. Her stool was cultured and found to be negative for clostridium difficile, ova, and parasites. She was hydrated with normal saline and started on intravenous steroids for a presumed ulcerative colitis flare with poor absorption. Clinically she had no improvement in symptoms after three days of treatment with high dose intravenous steroids. She continued to report persistent crampy abdominal pain, nausea, bloody diarrhea, intolerance of diet, and continued weight loss. At that time, stool cultures became positive for Aeromonas Hydrophila and she was started on treatment with a seven day course of ciprofloxacin. Over the following days she noticed great improvement in the frequency and volume of her diarrhea and she was able to tolerate oral medications. She was successfully transitioned to oral prednisone and discharged home with an early follow up with gastroenterology.

The pharmacologic time bomb

Archana Nair MBBS, UACOM at South Campus, PGY-3

Roshni Shah

CR, Poster Display No. 124

Introduction: Paragangliomas are rare (2-8 per million) extra-adrenal neuroendocrine tumors of the autonomic ganglia. Like pheochromocytomas, they are known as the great masqueraders as they mimic other pathologies with their wide spread clinical presentation and often pose a diagnostic challenge. Case Presentation: 55-year-old male with past medical history of hypertension and non-ischemic cardiomyopathy presented with chest pain that was aching, retrosternal, with no radiation. Pain was sudden in onset and lasted about one hour. No aggravating or relieving factors were noticed. As patient was maintaining a detailed blood pressure log, he reported noticing a pattern of elevated blood pressure and headaches after episodes of micturition that were occasionally accompanied with nausea, palpitations and sweating. He was on five anti-hypertensive agents at the time of presentation. Past history was significant for several hospital admissions for accelerated hypertension. Family history did not reveal any malignancy or premature heart disease. He denied any tobacco, alcohol or illicit drug use. Physical examination revealed a heart rate of 106/min and elevated blood pressure of 230/110 mm Hg. He was alert and in no apparent distress. Remainder of exam was normal. Routine complete metabolic panel and complete blood count were normal. Electrocardiogram did not reveal any ischemic changes. Cardiac enzymes were also normal. After stabilizing the patient for accelerated hypertension, work up of atypical hypertension was considered given his numerous admissions for the same symptoms. Given the typical history of systemic paroxysms of headaches, palpitations, sweating along with accelerated hypertension, a neuroendocrine tumor was considered after excluding all other causes of atypical hypertension. A computer tomography of the abdomen surprisingly revealed normal adrenals excluding the possibility of a pheochromocytoma. However, a 5.7cm x 4.3cm lesion was noticed in the anterolateral wall of the bladder. Meta-iodobenzylguanidine scan also revealed increased uptake in the bladder lesion. Transurethral sampling of the tumor revealed high-grade urothelial dysplasia with neuroendocrine cells. To support our diagnosis urine catecholamines were elevated suggesting a bladder paraganglioma. Our patient received resection of the lesion with prior optimization of blood pressure with alpha and beta blockade. Following surgery his paroxysmal symptoms resolved and hypertension was controlled with a single agent. Conclusion: Neuroendocrine tumors must be on the differential in patients with refractory hypertension. This case highlights the rarity of bladder paragangliomas that account for less than 0.05 % of all bladder tumors. It is often misdiagnosed as a urothelial cancer, treatment of which is very different. If undiagnosed these tumors can cause catastrophic hypertensive and adrenergic crisis during manipulation in surgery.

May-Thurner Syndrome: Pulmonary Embolism While On Rivaroxiban

Leonardo Oliva DO, Canyon Vista, PGY-3

Kia Ghiassi

CR, Poster Display No. 125

May-Thurner syndrome is characterized by anatomical compression of the left iliac vein by the right iliac artery against the lumbar spine, a variant found in over 20% of the population. This results in hemodynamic disturbances that most importantly lead to development and persistence of left sided DVT, which may lead to PE if not treated medically and surgically. Common approach to this problem is ruling out coagulopathies, mechanical correction of hemodynamic disturbance, by stenting or bypass, and anticoagulation. This is a relatively common anatomical variant that is amenable to the above therapies, however, recurrence of DVT, and, or, development of PE, after mechanical correction and systemic anticoagulation therapy is uncommon. Case: A 39-year-old female presented to the emergency department for left leg swelling. She was found to have a ileocaval thrombus and then transferred to UMC for further treatment. There she was diagnosed with May-Thurner syndrome. Her treatment included embolectomy after IVC filter was placed which was removed after the embolectomy was performed. A stent was placed in the left iliac vein. She was discharged from UMC on Xarelto. Two days after discharge from UMC she returns to the emergency department with dyspnea and palpitations. CT angiogram of the chest revealed a left upper lobe pulmonary embolism. Xarelto was discontinued and a Heparin drip was started. While at UMC she was screened for coagulopathies. She did have an elevated IgG level for anti-cardiolipin, which is suggestive for anti-phospholipid syndrome if repeat testing 12 weeks is positive. She also did have an elevated DRVVT level, which, if positive again at 12 weeks would be suggestive for SLE. These results are currently still pending. Discussion: May-Thurner syndrome is a relatively common anatomical disorder ranging from 18-49% in people with left sided DVT. The resulting thromboses from hemodynamic disturbance are ameliorated by stenting or bypass of the left iliac vein, which resolve these hemodynamic disturbances, however, re-thromboses after this therapy and while on systemic anticoagulation are rare and not frequently documented. This could represent a failure of anticoagulation, in-stent re-thrombosis, or simply that pulmonary embolism was concurrent to, or present prior to diagnosis of DVT and May-Thurner syndrome, given that coagulopathies are ruled out after retesting in 12 weeks.

Persistent Left Sided Superior Vena Cava

Jeffery Olsen DO, Canyon Vista, PGY-3

CR, Poster Display No. 126

Persistent Left Sided Superior Vena Cava Dr. Jeff Olsen , D.O. – OGME3 Dr. Abdall Fadda, MD Canyon Vista Medical Center Cardiovascular anomalies in themselves are fairly common, however, some of these formations are more rare than others. Persistent left superior vena cava is one such anomaly with a general prevalence of approximately 0.5%. They are associated with other cardiac anomalies such as atrial septal defects. In many cases persistent left superior vena cava are identified on incidental imaging. No treatment is necessary as the persistent left superior vena cava typically cause no symptoms. Case: A 62 year old female with a history of gastroesophageal reflux disease and helicobacter pylori infections presented to the hospital with multiple episodes of tarry stools over the last two days. Upon presentation to the emergency department the patient was found awake, alert, and oriented. The patient admitted to lightheadedness and had experienced an episode of syncope earlier in the day. The patient also complained of dysphagia and generalized abdominal pain. Initial physical exam showed an afebrile, female, with a blood pressure of 87/50 and a heart rate of 94 beats per minute. Patient had normal cardiac, abdominal, and pulmonary examinations. Initial laboratory values revealed a WBC of 38.5, Hemoglobin of 5, Hematocrit of 16, Platelets 262, BUN 53, Creatinine of 1.6, and a Lactic Acid of 4.1. The patient was given intravenous fluids and was scheduled for transfusion of packed red blood cells. A central venous catheter was ordered to assist resuscitation of the patients' hypovolemic shock. Ultrasound revealed abnormal anatomy on the right neck, however, the anatomy on the patients left neck appeared normal. The central venous catheter was placed without difficulty and a post placement chest xray was ordered. Upon review of the chest xray the central line was noted to take an odd course. Discussion: Persistent left sided superior vena cava is a rare congenital malformation of the venous system. Although not a life threatening condition, potential secondary concerns may arise. These concerns are specifically related to future cardio-vascular interventions such as cardiac catheterizations and pacemaker / defibrillator placements. No specific treatment is indicated or necessary. However, once detected additional cardiac evaluation should be performed to evaluate structural integrity of the cardio-vascular system.

The unusual association of prothrombotic risk factors, iron deficiency anemia and a headache.

Salma Patel MD, MPH, Mayo Clinic AZ, PGY-3

Patel, Imran, DMD, Halfdanarson, Thorvardur, MD, Shamoun, Fadi, MD.

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Introduction: Cerebral vein thrombosis has an incidence of about 5 cases per million in the western world. It is responsible for 0.5% of all strokes. Risk factors include acute illness, iron deficiency, dehydration, prothrombotic conditions (e.g. Protein C, S, or antithrombin deficiency, factor V Leiden mutation, antiphospholipid syndrome, prothrombin mutation, malignancy, nephrotic syndrome, paroxysmal nocturnal hemoglobinuria, hyperhomocysteinemia), oral contraceptives, pregnancy, and head injury. Patients can present with isolated intracranial hypertension syndrome (headache, vomiting, papilledema and visual problems), focal syndromes (focal deficits, seizures) and encephalopathy (mental status changes, stupor or coma). Case: A 36 year old male pilot presented from his health care provider's office complaining of headache, sore throat, shortness of breath, tactile fevers and chills for 2 days after an intramuscular iron dextran administration. He was healthy and without any chronic conditions other than the iron deficiency anemia diagnosed three months ago at his health care provider's office. He had recently undergone an upper endoscopy and colonoscopy in the last few weeks which were negative except for a few diverticulae and internal hemorrhoids. Multiple labs performed elsewhere were notable for an abnormal CBC and the presence of a "high risk" prothrombin gene mutation. Complete blood count was remarkable for a hemoglobin of 6 gm/dL and platelets 112K/ul. Peripheral smear revealed dohle bodies, toxic reactive neutrophils and hypochromic microcytic anemia. B12 and folate levels were normal. He was severely iron deficient (Iron 9mcg/dl, TIBC 419mcg/dl, Iron % sat 2 and ferritin 21ng/ml). We diagnosed him with iron deficiency anemia and mild thrombocytopenia and planned to discharge him home the next day after an iron infusion. The night prior to discharge, patient woke up with weakness of his right arm and leg, and exam further revealed slow right-side heel-to-shin and finger-to-nose tests. Head computed tomography scan was normal. However, while undergoing the scan, the patient sustained a tonic clonic seizure, was unresponsive and apneic. He was intubated. Magnetic resonance imaging (MRI)/ MR venography of the head revealed a sagittal vein thrombosis. Levetiracetam and intravenous heparin were administered, and he was extubated the next day without difficulty. Pro-thrombotic evaluation revealed heterozygosity for the prothrombin gene mutation G20210A. He was discharged on rivaroxaban and iron. He followed up with gastroenterology and hematology here recently with improvement in symptoms. He plans to return to work soon. Discussion: Clinicians must have a high index of suspicion for cerebral vein thrombosis in a young person with headache. CT scan may be negative and many require a MRI/MR venography to make the diagnosis. A search for prothrombotic conditions is warranted to optimize management.

Trapped in a hole

Sarah Patel MD, UACOM at South Campus, PGY-3
Muhammad Husnain MD., Faraz Jaffer MD., and Don Pepito MD.

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Cavitary lesions are gas filled space within a zone of pulmonary consolidation, mass or nodule produced by expulsion of matter in processes including: necrosis, malignancy, or cystic dilatation. Likelihood that a given process will cavitate depends on host factors and underlying pathogenic process; certain processes form cavities more commonly than other. We describe a cavitary lesion in an immunocompromised host causing a trapped lung. 57 year-old male with a past medical history of rheumatoid arthritis (on prednisone), pulmonary embolus (PE) 7 months ago who was admitted for shortness of breath and paroxysmal nocturnal dyspnea for three days. Patient denied having any chest pain, fever, chills, and productive cough, chills, rigors, or weight loss. In the emergency room, vital signs were: T 37 °C, HR 100 beats/min, BP 158/96mmHg, RR18 breaths/min and oxygen saturation 93%. Physical exam demonstrated respiratory distress; sinus tachycardia with normal S1, S2, absence of murmur, rub or gallop, decreased breath sounds on right side and right-sided dullness to percussion. ABG, CBC and CMP were within normal limits. CT chest was performed given patient's history of PE, which showed: large loculated right pleural effusion with near-complete collapse of the right lung and tension physiology with necrotic focus within right lower lobe atelectasis thusly causing "trapped lung". This was compared to a previous CT chest, which showed small right-sided pleural effusion adjacent a thin-walled right lower lobe cavitary lesion likely due to cavitary infarct versus infection. Differential remained vast at this time with concern for etiologies causing cavitation therefore thoracentesis was performed which showed hemothorax. A chest tube was placed draining 4.5 liters. The following were tested and were negative: acid fast bacilli, mycobacterium tuberculosis, respiratory culture, HIV, cocci, fungitell, aspergillus, blood cultures and pleural fluid. No malignancy was present on the pleural fluid. Biopsy was unable to be performed given inflammation surrounding the cavitation. The likely diagnosis is trapped lung due to cavitary infarct in a patient with Rheumatoid Arthritis. Sometimes diagnosis is simple; other times it remains difficult to unfold. It is important to evaluate the causes of cavitary infarctions, as it can present in up to 32% of patients with PE. Lesions are usually in the periphery and can develop in immunocompromised hosts. Aseptic pulmonary embolism may be an under-appreciated cause of cavitary lesions in these hosts. Cavities associated with venous thromboembolism may be observed 2 to 63 days after the embolic event, in this case 200 days. Trapped lung can be the cause of chronic, benign, unilateral pleural effusion. It is characterized by inability of the lung to expand due to a restricting fibrous visceral pleural peel. This is what occurred in our patient due to the cavitary infarct associated with his previous PE.

A RARE CASE OF GASTRIC CANCER PRESENTING AS HEARING LOSS

Osama Qasim Agha MD, St. Joseph's Hospital, PGY-3

Midhun Malla M.B.B.S, M.D, Jue Wang M.D

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INTRODUCTION Leptomeningeal carcinomatosis (LMC) is a devastating neurologic complication of malignancy. It usually presents with nausea, vomiting, headache and dizziness. We report a rare presentation of internal auditory canal metastasis from LMC in a patient with undiagnosed gastric cancer. **CASE REPORT:** A 50-year-old female with a history of cervical cancer presented to an outside clinic complaining of left ear fullness, bilateral hearing loss, dizziness and imbalance. Her symptoms were initially thought to be due to Acoustic neuroma. Magnetic Resonance Imaging (MRI) of the brain showed a sub centimeter enhancing mass of the cerebellar vermis along with enhancement of bilateral auditory canals. Given her cervical cancer history, a CT scan of the abdomen and pelvis was ordered, which showed a right adnexal mass, suspicious for an ovarian neoplasm. The patient was referred to our hospital where she underwent surgical resection of her pelvic mass. Surgical pathology revealed a 13.5 cm poorly differentiated adenocarcinoma with associated scattered signet ring cells, favorable with metastatic gastric adenocarcinoma (GAC). During surgery, another mass was noted on the posterior wall of the stomach. She subsequently underwent an esophagogastroduodenoscopy, which revealed two areas of prominent gastric folds and ulceration. Biopsy results of the ulcerated mucosa were consistent with invasive gastric adenocarcinoma in a background of goblet cell metaplasia. The immunohistochemical staining for *H. pylori* was positive. A multi-disciplinary team involving a medical oncologist, neurosurgeon and a radiation oncologist was formed. CSF analysis was positive for cancer cells, confirming her diagnosis with LMC. Intrathecal chemotherapy with liposomal Cytarabine and oral chemotherapy with capecitabine were initiated after whole brain radiation and Ommaya reservoir placement. Unfortunately, her course was complicated by chemical meningitis and hydrocephalus requiring shunt placement and discontinuation of chemotherapy. This was followed by recurrent seizures and encephalopathy, which were attributed to the progression of LMC. Patient deceased almost nine months after her initial presentation, after patients' family withdrew care. **Discussion:** Gastric cancer-induced LMC is a rare diagnosis with a prevalence of only 0.14%-0.24%. Multifocal involvement of the meninges in LMC accounts for a great amount of variability in clinical presentation, thus making early diagnosis extremely challenging. LMC as an initial manifestation of asymptomatic gastric cancer is exceedingly rare with only a few reported cases. Our case is unique due to the atypical presentation of bilateral internal auditory canal (IAC) metastases from LMC in a patient with undiagnosed gastric cancer. Hence, it is essential to consider LMC as a potential differential diagnosis in patient with gastric adenocarcinoma presenting with neurological manifestations and obtain CSF studies for timely diagnosis. Early involvement of a multi-disciplinary team helps to diagnose accurately and to initiate appropriate cancer directed therapy.

Abnormally Normal Heart Sounds

Tyler Rencher DO, Verde Valley Medical Center, PGY-3

CR, Poster Display No. 130

Modern mechanical aortic valves are extremely reliable. Structural failure is essentially unheard of, and, with anticoagulation, valve thrombosis is rare though it remains a possibility which requires prompt diagnosis and treatment. A 76-year-old female, with a history of aortic valve replacement 10 years ago with a St. Jude mechanical valve, presented to the emergency department with one week of worsening shortness of breath and chest discomfort. The patient initially refused to seek medical care, but her significant other transported her to the emergency department when she continued to worsen. Upon arrival, the patient was pale, diaphoretic, and lethargic. 30 minutes later she stated she had chest pain and then became unresponsive. She was found to be hypoxic and tachypneic, and was intubated for airway protection. Her significant other provided some limited history with no clear evidence of orthopnea, edema, cough, or fever. The patient had been compliant with warfarin therapy. EKG showed normal sinus rhythm with lateral lead ST segment depression. Chest x-ray appeared normal. Laboratory results were significant for troponin T level of 0.45 ng/mL and ProBNP level of 27,962 pg/mL. INR was 1.37. One month prior the INR was 2.65, and had consistently been in the target range of 2.0-3.0. Repeat EKG two hours later revealed interval development of atrial flutter, and worsened ST depression in leads V1 through V6. On exam, the lungs were clear to auscultation. Heart sounds were tachycardic and regular. S1 and S2 sounds were seemingly normal with no murmur. However, no mechanical click was heard, as would be expected in this patient. Given the absent mechanical valve sounds and the subtherapeutic INR, thrombosis of the mechanical aortic valve was highly suspected. The patient was taken to the cardiac catheterization lab where fluoroscopy confirmed there was no motion of the mechanical valve leaflets. The Cardiologist gently attempted to free the leaflets with a coronary catheter without success. During this time the patient became hemodynamically unstable, requiring pressors. Surgical candidacy for emergent valve replacement was discussed, but because air transport would be required to reach adequate surgical facilities, and because the patient was already in extremis, all involved agreed the patient was not a surgical candidate. With consent from the patient's family, a final attempt was made to free the valve using an angioplasty balloon. Unfortunately, this was also unsuccessful and the patient expired shortly thereafter. Though a rare entity, mechanical aortic valve thrombosis is associated with high mortality. It is almost always associated with subtherapeutic anticoagulation. Symptoms are variable but typically include dyspnea. Signs of heart failure may be present if the thrombosis is obstructive. Sudden death is rare: symptoms usually worsen over a few days, allowing time for treatment if promptly diagnosed.

Severe Autoimmune Hemolytic Anemia Caused by Acute Epstein-Barr Virus Infection

Carlos Rios MD, UACOM at University Campus, PGY-3

Manjinder Kaur DO, Aneela Majeed MD

CR, Poster Display No. 131

Introduction Epstein-Barr Virus (EBV) typically causes asymptomatic infection and is known to infect 95% of population worldwide. It is uncommon for EBV to cause severe, life-threatening anemia. Case Report A 27-year-old woman with no significant medical history presents with complaints of jaundice for six days associated with daily fever, swollen neck for two days, and without abdominal pain, nausea, emesis, diarrhea, sick contact or recent travel. She reported having been sexually active with two different male partners recently. On examination, she was febrile (39.3 degree Celsius) and tachycardic. She appeared pale, had conjunctival icterus, a mildly erythematous oropharynx without exudates, and a swollen right submandibular gland without cervical lymphadenopathy. Her lungs were clear to auscultation, and abdomen was soft, non-tender, and without hepatosplenomegaly. On laboratory testing, the patient had hemoglobin 6.5g/dL (MCV97.6fL), LDH 857IU/L, haptoglobin <8mg/dL, AST 79IU/L, ALT: 225IU/L, alkaline phosphatase 470 IU/L, and total bilirubin 2.5mg/dL (direct bilirubin 1.1mg/dL). On further testing for hemolytic anemia, she was found to have a moderately strong cold autoantibody as well as a weak warm antibody. Infectious workup revealed positive heterophile antibodies. EBV by PCR quantitative testing was 995IU/ml with EBV viral capsid IgM 9.70IV (>1.09IV is considered positive) and IgG 2.37IV (>1.09IV is considered positive). All other viral and microbiologic studies were negative. Computed tomography of the abdomen showed splenomegaly (14 cm) as well as bilateral, morphologically benign axillary lymphadenopathy. A bone marrow biopsy showed hypercellular marrow with absolute erythroid hyperplasia without any evidence of malignancy. She was transfused one unit of pRBCs without incident. Three days later, at the time of discharge, she was afebrile, her hemoglobin was stable at 8.4g/dL, and her LDH, liver enzymes, and total bilirubin were all trending toward normal values. Discussion Cold agglutinin disease is rare, with an incidence of one case per million people per year. Commonly caused by anti-I or anti-i antibodies against red blood cells created during infection or neoplasm, cold agglutinins regularly occur during the course of Mycoplasma pneumoniae infection and infectious mononucleosis. Less commonly, it is associated with cytomegalovirus, Legionella, Citrobacter, influenza, and varicella. It is uncommon for cold agglutinins to cause severe enough anemia to require transfusion. In our patient, the anemia might have been exacerbated after patient received a cold fluid infusion at presentation. Prompt diagnosis was required to prevent further worsening of anemia.

Undifferentiated metastasized squamous cell carcinoma with suspected tuberculous osteomyelitis bone lesions

Elle Ross DO, PhD, MS, Canyon Vista, PGY-3

George Wilson

CR, Poster Display No. 132

This case presents a 56-year-old male with a past medical history significant for a 1 PPD smoking history for over 35 years and otherwise is unremarkable. He presented to the Emergency Department with a two-day history of right thigh pain. At the time of presentation, a CT scan without contrast of the right femur was completed and revealed a large lesion showing extensive bone and soft tissue invasion. Prior to stabilization of the right femur, a diagnosis needed to be made. A subsequent CT of the lung was completed and showed a cavitary lesion with apparent metastasis in the left scapula, liver and bone. A biopsy of the liver showed necrotic tissue without clear evidence of cancer. The possible ramifications of tuberculosis in the bone, masking as a soft tissue sarcoma, made a biopsy of the right femur mass difficult. A biopsy of the scapula mass was unsuccessful however the patient subsequently broke his right femur during transferring and was then able to be taken for a simultaneous right femur fixation with marginal biopsy. Ultimately, the pathology showed a diagnosis of poorly differentiated carcinoma favoring squamous cell carcinoma, unknown primary. We hypothesized that the initial event was lung versus skin invasion followed by hematological spread. This case illustrates the importance of a directed workup without delaying diagnostic tests and radiological findings. Interconnection between each etiology, bone metastasis and osteomyelitis tuberculosis, with this case is uncomplicated to establish, but the course and clinical characteristics of our case is not as consistent with those reported in the literature. Over the past decade, an increasing number of cases report unique clinical and radiological presentations of common diseases. This case displays the dichotomy of radiologic findings and two etiologies, squamous cell carcinoma and tuberculosis. In a patient with radiologic findings consistent with several possible diagnoses, a multifactorial approach should be considered to determine underlying etiologies for the cause of the underlying metastasis and predict treatments, which may need to be employed for cancer etiologies as well as infectious disease etiologies.

Intracranial Germinoma - A rare cause of Panhypopituitarism

Juan Adrian Sandoval Gonzalez MD, UACOM at South Campus, PGY-3

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Juan Adrian Sandoval Gonzalez M.D., Benjamin Salazar-Chatt M.D., Bujji Ainapurapu M.D. Title: Intracranial Germinoma - A rare cause of Panhypopituitarism. Introduction: Intracranial germ cell tumors are a rare occurrence in the U.S., affecting 0.5-3% of children with brain tumors at a median age of 10-12 years of age. Outcome in adult patients is not well known due to extremely rare occurrences. Case: 24 year old Hispanic man reported 6 months of slowly progressive drowsiness, headache, persistent thirst, intermittent vomiting, fatigue, bilateral progressive peripheral visual deficits, impotence, dry skin, body/facial hair loss, 45lb weight loss over 8-10 months, and new right lower extremity numbness/weakness of 1-2 weeks duration; more pronounced when ambulating. Physical exam was notable for bitemporal hemianopia, bitemporal wedge pallor and bow tie atrophy of optic nerves and right foot drop with sensory deficit along L4-S1 distribution distally. Laboratory findings were notable for Na 160, Hb 12.9, FSH & LH <0.01, Cortisol 1.8, prolactin 49.9, GH 0.06, insulin like growth factor 1 0.06, Testosterone 7.0, TSH 2.8, and FT4 0.5. Lumbar puncture showed opening pressure 11cm H₂O, colorless, WBC 48, Lymphocytes 98, protein 122, glucose 62. Gram stain negative, culture negative, cytology – atypical cells, flow cytometry negative, AFP negative, bHCG 21, serum bHCG and AFP were also negative. MRI Brain showed three well-defined intensely enhancing lesions, the first within the suprasellar cistern measuring 26 x 20 x 22 mm in size which was involving the optic chiasm, hypothalamic region and extending into the 3rd ventricle and anterior commissure/medial putamens bilaterally. The second mass was encasing the pineal gland, measuring 13 x 15 x 10mm. A 3rd enhancing mass is seen within the Meckel's cave measuring 17 x 15 x 9 mm extending into the right prepontine cistern. MRI lumbosacral plexus showed at least 3 foci of nodularity within the cauda equina nerve roots at L2 and L3 vertebral body level, which were highly suggestive of drop metastases. Hyponatremia deemed secondary partial central DI & reset osmostat. Patient eventually started on DDAVP with adequate response. Panhypopituitarism required levothyroxine and hydrocortisone replacement, hyperprolactinemia due to mass effect on hypothalamus causing decreased dopamine production. Neurosurgery did not recommend biopsy, confident with diagnosis based on CSF, serum labs and imaging. Patient was enrolled in clinical trial with chemotherapy and radiation. Conclusion: Intracranial Germinomas can present with panhypopituitarism and focal neurological deficits secondary to drop metastases. Although the majority of germinomas are sensitive to chemotherapy, a chemotherapy alone approach has been associated with an unacceptable rate of relapse. Craniospinal irradiation is indicated for patients with multifocal germinomas or metastatic tumors, as identified by MRI and/or CSF cytology or those tumors who do not demonstrate either a complete response or partial response to chemotherapy.

A Community-Acquired Methicillin-Resistant Staphylococcus Aureus Prostate Abscess in a 47 Year-Old Diabetic Male

Yvette Saquilayan DO, St. Joseph's Hospital, PGY-3

CR, Poster Display No. 134

Community-acquired MRSA infections occur in individuals who become exposed outside of the healthcare setting. MRSA infections remain a common entity but prostate abscesses are uncommon due to the use of broad-spectrum antibiotics in patients presenting with urinary tract symptoms. Prostate abscesses are most commonly caused by *Escherichia coli* (*E. coli*) followed by *Neisseria gonorrhoeae*. There are only 7 published case reports on MRSA prostate abscesses. The cases predominantly involved an immunocompromised state, including uncontrolled diabetes, hepatitis C, human immunodeficiency virus, and intravenous (IV) drug use. The mechanism of MRSA prostate abscesses remains unclear but theories include hematogenous spread from the skin and bacterial translocation from the perineal skin to the urinary tract. Due to the sparsity of literature of this disease process, there are no established guidelines regarding diagnosis and treatment. The patient is a 47 year-old male with uncontrolled diabetes mellitus type I who presented with urinary hesitancy for 1 week. He reported a poor urinary stream and chills but denied dysuria, hematuria, and fevers. He denied a history of urinary tract infections (UTIs), nephrolithiasis, and prostate issues. He was uninsured and had not received any healthcare in years. On presentation, he was tachycardic with a white blood cell (WBC) count of 18.8. He endorsed back pain but did not have any costovertebral angle tenderness. Urinalysis was positive for WBCs and blood so he was started on empiric IV antibiotics for a UTI. However, urine culture was negative as were studies for *N. gonorrhoeae* and *Chlamydia trachomatis*. Blood cultures unexpectedly grew MRSA so he was started on IV vancomycin while the source was investigated. Due to his back pain, magnetic resonance imaging of his spine was performed to evaluate for signs of infection but was negative. The patient had persistent bacteremia but transesophageal echocardiogram was negative for endocarditis. Computed tomography of his abdomen/pelvis revealed a 6.1x4.7 cm multiloculated peripherally enhancing mass within the prostate. Urology completed ultrasound-guided drainage of the prostate abscess. Fluid cultures were positive for MRSA along with extended spectrum beta-lactamase *E. coli*. Since he was uninsured, a cost effective treatment was formulated and he was discharged with daptomycin 6 mg/kg IV daily for 4 weeks to treat MRSA and ertapenem 1 gm IV daily for 2 weeks to treat *E. coli*. He was instructed to follow up with an infectious disease specialist but he cancelled his appointment and was lost to follow up. This patient had an interesting pathology after presenting with a common complaint. Unfortunately, it was not understood how he developed the prostate abscess. Determining treatment was particularly challenging due to his uninsured state and the lack of treatment guidelines. More case reports are needed to help establish a standard of care for treatment.

Toxic Shock Syndrome related to Intrauterine Device (IUD).

Jennifer Segar MD, UACOM at University Campus, PGY-3

Jennifer Aranas MD, Adam Berlinberg MD, Jaren Trost MD, Tirdad Zangeneh DO, Dominick Sudano MD

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Toxic shock syndrome is an acute, toxin-mediated febrile illness that rapidly leads to multiorgan system failure with serious morbidity and mortality caused by *Staphylococcus aureus* and *Streptococcus pyogenes* (GAS). Toxic shock syndrome can mimic many common diseases and was most commonly associated with tampon use but has declined since highly-absorbent tampons and polyacrylate rayon-containing products are no longer in use. However, non-menstrual causes, including the use of IUDs continue to be reported. A 24-year-old woman with well-controlled asthma initially presented to the Emergency Department (ED) with back pain and a rash that began on her face and spread to her extremities encompassing sole and palms, vaginal discharge, and fever. Pelvic exam revealed brown mucus discharge; gonorrhea and chlamydia nucleic acid amplification testing was negative, culture was not done. Labs were significant for elevated liver function tests and total bilirubin. The patient was discharged with anti-histamine medications and advised to follow up with PCP for IUD removal. IUD was removed 2 days later and she felt markedly improved; however, culture of the IUD was not obtained. The patient was then seen by PCP for productive cough, fever, shortness of breath, wheezing and was prescribed azithromycin. The patient returned to the ED five days later with complaints of fever, worsening back pain, abdominal pain, nausea, and vomiting. She was admitted to the ICU for sepsis shock and was initiated on broad-spectrum antibiotics. Labs were remarkable for worsening elevation of transaminases and hyperbilirubinemia. Imaging was consistent with hepatitis and pyelonephritis, despite an unremarkable urinalysis. Extensive autoimmune and infectious workup for various etiologies was non-diagnostic. Ultimately, our patient was diagnosed with toxic shock syndrome related to her IUD based on the Centers for Disease Control and Prevention (CDC) criteria and her quick response to early broad-spectrum antibiotics. Her rash continued to desquamate, but clinically improved with regards to her liver enzymes and bilirubin. Prior to discharge antibiotics were discontinued and follow up with Hepatology and PCP were scheduled. This case is an example of non-menstrual TSS due to an IUD. Patient met the CDC criteria for toxic shock syndrome including fever, diffuse macular erythroderma with subsequent desquamation in 1 week, and systolic hypotension along with organ dysfunction (vaginal and conjunctival hyperemia, renal, and hepatic disease) in the absence of negative serologies for Rocky Mountain spotted fever, leptospirosis, or measles. Unfortunately, cultures of the vaginal discharge were not obtained to distinguish *Staphylococcus aureus* from *Streptococcus pyogenes* (GAS) TSS. Based on the clinical presentation *Staphylococcus aureus* was more likely cause. Although toxic shock syndrome is rare, it is associated with serious morbidity and mortality if not recognized promptly. This diagnosis should be considered in patients with unexplained fever and rash who present with sepsis.

Atypical presentation of microangiopathy 12 years after a diagnosis of breast cancer

Sierra Simmons MD, Mayo Clinic AZ, PGY-3

Dr. Ayan Sen, Dr. Jill Adamski

CR, Poster Display No. 136

Introduction: Cancer-associated microangiopathic carcinomatosis secondary to breast cancer is a rare phenomenon with a limited number of case reports published on the topic. While early recognition is critical to facilitate positive outcomes, diagnosis alone may not be enough to prevent mortality, given the limited and evolving treatment options available. Case description: A 40 year old female diagnosed with stage 3 breast cancer 12 years previously had been treated at the time with lumpectomy, radiation, and lymph node dissection followed by trastuzumab, letrozole, and a GnRH analog then tamoxifen before undergoing a mastectomy two years later for progressive disease. After the mastectomy, she remained disease-free based on imaging studies for nearly 10 years and was recently discharged from the Oncology clinic. Two months prior to her recent presentation, she developed progressive dyspnea, worse with exertion, and fatigue. A computed tomography angiogram of the chest was negative for pulmonary embolus, a ventilation perfusion scan showed a low-to-intermediate probability for pulmonary embolus, and an echocardiogram showed pulmonary hypertension with a right ventricular systolic pressure of 65 and a left ventricular ejection fraction between 60 and 65%. She was found to have a low platelet count ($91 \times 10^9/L$), low haptoglobin ($<8 \text{ mg/dL}$), an elevated LDH (428 U/L), and few schistocytes on peripheral smear and was diagnosed with hemolytic anemia. After intravenous immunoglobulin and prednisone, the hemolysis resolved for a brief period of time. Meanwhile, her dyspnea progressed and her pulmonary hypertension persisted. Two weeks later on further work-up, she was found to have recurrent thrombocytopenia, 3 to 5 schistocytes per high power field, and a rising LDH. She was suspected to have thrombocytopenic thrombotic purpura (TTP) and was started urgently on plasmapheresis before developing cardiopulmonary arrest secondary to acute pulmonary edema that ultimately led to her expiration. On autopsy, she was found to have microangiopathic carcinomatosis associated with advanced thromboembolic-type pulmonary hypertensive arteriopathy. Discussion: Cancer-associated microangiopathic hemolytic anemia due to microangiopathic carcinomatosis is difficult to diagnosis definitively while ruling out other potential causes of thrombotic microangiopathies such as TTP, infection, and disseminated intravascular coagulation. There is limited evidence regarding why and how this disease process occurs. Physicians should have a high index of suspicion for this complication in a patient with acutely worsening pulmonary hypertension, a history of cancer, and signs of an acute hemolytic anemia. If recognized, discussion of the prognosis with the patient is critical as the outcome may be fatal.

An Abnormal Metastases of Gastric Adenocarcinoma

Ragu Sivarajan DO, Canyon Vista, PGY-3

CR, Poster Display No. 137

Case Patient is a 55 year old male who was initially evaluated by his gastroenterologist with an EGD after he experienced nausea, vomiting and weight loss. On EGD he was found to have an ulcerated mass which was biopsied and pathology revealed a gastric adenocarcinoma with signet ring features. Further staging work up was done at that time including CT scan of the abdomen, chest, and pelvis which showed evidence of metastatic disease to the liver. The patient presented again, several weeks after initial work up for the gastric cancer, for evaluation of a hydrocele and mass on his right testicle. Initially it was thought that the hydrocele was due to epididymitis and not caused by metastatic disease from his recently diagnosed gastric cancer. Further investigation and biopsy of scrotal tissue revealed that tissue from the epididymis was consistent with metastatic disease from the patient's gastric carcinoma. Discussion The testicles are a rare site for metastatic gastric carcinoma and are usually found incidentally on autopsy. The most common sites from which metastatic disease spreads to the region is the prostate. Some case reports of testicular metastasis from other sites have referred to them as the male analogue to ovarian metastatic disease known as Krukenberg tumor. One difference between metastatic tumors to the ovaries and metastatic disease to the testicles is the frequency with which they occur. In women the frequency of Krukenberg tumors is a little over 20% of ovarian cancers while metastatic disease of the testicles is a much smaller portion of overall testicular disease, around 0.02% to 2.5% of testicular cancers. The differences in the frequency of this type of metastatic disease between genders may be explained by anatomical differences between the two genders. Two possible theories that have been put forward as to why there is such a disparity between the frequency of this type of disease between the two genders. One theory is that in men there is obliteration of the abdominal inguinal ring which in turn prevents direct extension of disease from the rest of the body. The second theory holds that due to lower temperature of the testicles compared to the ovaries it is a less hospitable place for the growth of metastatic disease. The importance of a cases like these is that while rare, they do occur. In one case report a man developed a metastatic testicular disease after undergoing radical gastrectomy for gastric adenocarcinoma. This illustrates that clinicians should pay attention to urologic concerns in men with a history of cancer as it could reflect metastatic disease.

Detecting Coronary Artery Aneurysms with Cardiac CT: A further benefit for Non-invasive Cardiac Imaging

Michael Sultan MD, Banner UMC Phx, PGY-3

Dr. Umaima Fatima

CR, Poster Display No. 138

This is a case of 63-year-old gentleman with significant cardiac pathology that has fortunately been discovered through the use of non-invasive cardiac imaging. An incidental finding of a coronary aneurysm was seen on a CT thorax for lung cancer screening. He was ultimately referred for a cardiac CT for further morphological evaluation of this finding. His cardiac CT was significant for a left circumflex artery aneurysm that measured 32X28mm along with a right coronary artery aneurysm measuring 19X17mm. These vessels had thrombosis at the periphery but had blood flow to the distal OM branches. Careful review of this patient's past medical history was negative for Kawasaki disease, vasculitides, or previous coronary angiograms. Etiology of this presentation largely seemed idiopathic at the time of evaluation. Coronary artery aneurysm has been defined as a coronary artery exceeding 50% of the reference vessel diameter. CAAs are termed giant if their diameter exceeds the reference vessel by >4x or if the artery is over 8>mm in diameter. Although less than 5% of coronary angiographic series show CAA, the most common etiology is usually obstructive coronary artery disease followed by previously untreated vasculitides. Additionally, cardiac CT has also been shown to be far more beneficial for diagnostic purposes compared to invasive coronary angiogram. Cardiac CT has been shown to be superior regarding differentiation of true aneurysms, pseudoaneurysms, and complex plaques. Serial monitoring of giant coronary aneurysms has been routinely performed using cardiac CT as well. This patient's cardiac CT was diagnostic for 2 giant coronary aneurysms. The patient was ultimately sent for a left heart angiogram evaluation with further recommendations to be evaluated anticoagulation. Although this is a rare presentation, this is a classic example of the benefit of using cardiac CT for morphological evaluation of coronary structures. Although this patient had no symptoms in relation to his CT findings, his incidental findings will need further evaluated and treated. As cardiac CT continues to grow as a prominent cardiac screening utility, many of these asymptomatic patients will likely benefit from having these incidental findings discovered and treated.

An Unusual Presentation of Coccidioidomycosis: A Case Report of Skin and Intra-Abdominal Infection

Jonathan Sun DO, Canyon Vista, PGY-3

Luis Medina, MD

CR, Poster Display No. 139

Background: Coccidioidomycosis is an invasive fungal infection endemic to the Southwestern United States and northern Mexico. The lung is the most common site of coccidioidomycosis, with extrapulmonary sites of infection being described rarely. To date, Intra-Abdominal coccidioidomycosis is extremely rare, with less than 10 cases reported in the literature. The purpose of this case is to report a patient presenting with intra-abdominal and cutaneous manifestations of coccidioidomycosis with no respiratory symptoms. Case report: A 23 year old African American female who was seen at the outpatient facility for a skin lesion on her back, and was told it was a bed bug bite and was managed with observation. She returns a few weeks later with increasing pain and redness, she was seen at Canyon Vista Medical Center (CVMC) at the end of September, and was found to have a right flank abscess, undergoing surgical drainage, and completing 7 days of cephalexin as an outpatient. In the interim, she is seen in the surgery clinic and was noted at that time that the wound had not completely healed and her pain persisted. She was admitted at CVMC in early November for further evaluation. Her CT imaging of the abdomen showed retroperitoneal abscesses that were larger in size than on the previous examination with associated intra-abdominal and cutaneous tracking. Her symptoms showed no improvement despite broad-spectrum antibiotic treatment with Vancomycin and Piperacillin/Tazobactam. Given the index of suspicion of fungal infection was high her 1, 3 D Beta glucan was found to be over 400. Her Coccidioides serologies showed positive for Immunoglobulin G with complement fixation titers within 1:128. Her abscess cultures from late September grew Coccidioides Immitis. Percutaneous drainage of the abdominal fluid collections was attempted, but was unsuccessful. She was treated with 2 weeks of Amphotericin B followed by oral Fluconazole. The patient responded to the antifungal treatment, as evidenced by regression of her retroperitoneal abscesses by CT upon completion of treatment. Discussion: Coccidioides spp. spread beyond the lungs in approximately 0.5% of all infections in the general population. Extrapulmonary dissemination is not associated often with pulmonary complications. Many patients with disseminated coccidioidal infection have entirely normal chest radiographs. The unusual case of the retroperitoneal abscesses presented here adds to the list of uncommon presentation of disseminated coccidioidomycosis. A high index of suspicion in such patients with appropriately directed laboratory investigations and consideration of early biopsy might unravel the diagnosis facilitating early antifungal treatment with the potential to minimize morbidity and mortality associated with disseminated coccidioidomycosis. Surgeons and physicians managing patients in areas in which coccidioidomycosis is endemic should be aware of this rare entity.

COINCIDENTAL OR CONSEQUENTIAL: DISSEMINATED NOCARDIOSIS IN A PATIENT WITH UNTREATED CHRONIC HEPATITIS C INFECTION

Susanna Tan MD, Maricopa Medical Center, PGY-3

Shiloh Danley, NP, PhD. Christelle Kassis, MD.

CR, Poster Display No. 140

Introduction: Nocardiosis is an uncommon infection caused by the gram-positive branching rods *Nocardia*, commonly found in soil, decaying matter, and aquatic environments. Although *Nocardia* is abundant worldwide, only select species are pathogenic. Majority of patients with nocardiosis are immunocompromised, hence prudent investigation is required when an immunocompetent patient is diagnosed with this infection. We detail the case of a reportedly immunocompetent man who presented with disseminated nocardiosis, in which further work-up led to the diagnosis of chronic Hepatitis C with CD4 lymphopenia, and diffuse large B-cell lymphoma (DLBCL). Case Report: A 62 year old male presented with scattered skin lesions, dyspnea, and weight loss for the past seven months. He denied risk factors for immunosuppression. He had mild neutrophil-predominant leukocytosis and incidental lymphopenia on presentation. Imaging revealed a lung mass, mediastinal lymphadenopathy, multiple pulmonary nodules, liver nodules, and frontal lobe lesions. Cultures from the skin and lung lesions revealed *Nocardia nova* complex. Flow cytometry on peripheral blood and bone marrow revealed low CD4/CD8 ratio, without evidence of malignancy. HIV, HTLV I & II, CMV, and EBV infection were ruled out, but chronic Hepatitis C infection was diagnosed. The patient's only reported risk factor was a history of blood transfusion. He was treated with antibiotics accordingly, and discharged after imaging showed improvement of lesions. Two months later, he was admitted because of neck pain and found to have abnormal enhancement of the C2 vertebral body. The patient was eventually diagnosed with Stage IV DLBCL confirmed by biopsy of the lesion and staging PET scan showing involvement of the cervical spine, liver, and lymph nodes above and below the diaphragm, and is currently receiving chemotherapy. Discussion: Nocardiosis in the immunocompetent patient is rare, but has been documented in literature. This reportedly immunocompetent patient was treated for disseminated nocardiosis, and investigation for underlying causes for immunocompromised state was undertaken. Incidental lymphopenia was discovered, and finally brought attention to the underlying chronic Hepatitis C infection. To our knowledge, this is the first reported case of disseminated nocardiosis in a patient with untreated Hepatitis C infection. This case highlights the imperative of the provider to not only question the mechanism of how a patient becomes ill, but also why it happens. It is through this exercise in inquiry that we discovered that this patient's infection was not just an unfortunate coincidence, but rather a consequence of underlying disease.

Tuberculous Meningitis in a Person Visiting from the United Kingdom

Leah Weber DO, Verde Valley Medical Center, PGY-3

CR, Poster Display No. 141

Though the incidence of tuberculosis has declined in the United States, it remains one of the most common infectious diseases in the world. In 2013, 65% of all US cases of TB were in patients not born in the US. This is important to remember because the key to treating tuberculous meningitis (TB meningitis) is early diagnosis and treatment. The World Health Organization (WHO) recommends using MTB PCR as initial testing for TB meningitis with sensitivity of 81% and specificity of 98%. However, what happens when this test is negative? Our patient is a 38 year-old male originally from India who is currently visiting the U.S. from England. He presented due to worsening mental status and fever. He had initially started feeling poorly ten days prior to presentation with headache and fever up to 102F. After three days, he presented to his PCP due to worsening headache, fatigue, and increasing photosensitivity. Due to upcoming travel to U.S., a prescription for amoxicillin was given. As he was feeling better, he decided to continue with the planned trip. While driving to the Grand Canyon, his wife noticed a significant change in his mental status, which she described as him being "sluggish" and then he started to foam at the mouth. Emergency services were quickly notified and he was brought to the hospital for further evaluation. In the ED, he was noted to be febrile with alternating somnolence and agitated delirium. A lumbar puncture was performed which demonstrated 58 WBC's (82% lymphocytes), 16 RBC's, a glucose of 32 (serum glucose 117), and a protein of 209. He was started on Acyclovir, Ampicillin, Vancomycin, and ceftriaxone. CSF culture, HSV PCR of CSF, MTB PCR and AFB smear CSF were all negative, and due to rapid clinical improvement noted, all anti-infective agents were stopped. However, patient continued to have persistent fevers. A quantiferon gold assay was checked and found to be positive. Patient then developed diplopia, decreased vision in the left eye, and hyponatremia. Repeat CT of the head demonstrated communicating hydrocephalus. Repeat lumbar puncture was performed and acid-fast bacilli were noted on special stain. (WHAT SPECIAL STAIN??) Patient was then started on appropriate treatment for TB meningitis as well as steroid therapy. He was then able to return to the UK for continued care. The diagnosis of TB meningitis can often be a difficult. Though the MTB PCR appears to be an adequate test based on sensitivity and specificity, it was unfortunately negative in this case. However, our index of suspicion remained high and the correct diagnosis was eventually achieved and the patient was started on appropriate therapy.

A case of Invasive Aspergillosis causing a False Positive Histoplasma Urinary Antigen

Bianca Zangeneh MD, UACOM at University Campus, PGY-3

Urcis MD, Rafael T.; Zangeneh DO, Tirdad

CR, Poster Display No. 142

Invasive fungal infections can present a diagnostic challenge, and many are diagnosed via serology prior to available culture results. This can provide for a diagnostic challenge in the immune-compromised where a delay in diagnosis can lead to considerable morbidity and mortality. Further confounding things is the fact that the cross reactivity of serological markers decreases their specificity for the correct diagnosis. We present the case of a 37 year old Senegalese female with past medical history of Uterine Fibroids and Aplastic anemia on immunosuppression with Cyclosporine, Prednisone and Anti-Thymocyte Antiglobulin; who developed a fatal case of angio-invasive Aspergillosis. She had been on chemo-prophylactic antibiotics with Trimethoprim-Sulfamethoxazole, Fluconazole, and Acyclovir. Her case is unique in that at the time of this submission, she is the only known case of invasive Aspergillosis with positive serology for 1,3 Beta Glucan, Galactomannan, and Histoplasma Urinary Antigen. Unfortunately this patient's disease progressed despite maximal therapy with Voriconazole, Micafungin, and Liposomal Amphotericin B.

A man who was a living autopsy!

Shubha Kollampare MBBS, UACOM at University Campus, PGY-4

Jawad Bilal, Edwin Aquino, Eric Gall, Jeffrey Lisse

CR, Poster Display No. 143

Adult onset Still's disease (AOSD) is a rare inflammatory disorder of unknown etiology with an estimated annual incidence of 0.16 cases per 100,000 people. It presents as myriad of nonspecific symptoms and remains a diagnosis of exclusion. This case highlights the awareness needed among physicians to recognize this clinical entity. A 29 year old Caucasian male presented with unrelenting high grade fever for 5 days associated with polyarthralgias and diffuse erythematous rash on his chest. He denied headache, dyspnea, cough, night sweats, weight loss, dysuria, oral ulcers, malar rash or back pain. On presentation, temperature was 100.9 °F, blood pressure 108/78 mmHg, pulse 105/min, respirations 16/min. The remainder of the physical exam was benign. Past medical history included multiple admissions in the last two years for similar complaints. Infectious work up including blood cultures, urinalysis, HIV, hepatitis C serologies, coccidioidomycosis, antistreptolysin-O antibodies, lumbar puncture and imaging (brain, total spine, joints) was inconclusive. Results of peripheral smear, JAK 2 mutation, bone marrow biopsy and FISH flow cytometry were normal—ruling out hematologic malignancy. Investigations for rheumatologic disease revealed positive HLA B27, elevated ESR (111 mm/hr) and CRP (19.7 mg/dL) with normal complement levels, antinuclear and antineutrophil cytoplasmic antibodies. Marked leukocytosis (35,000/uL) and elevated ferritin levels (7529 ng/ml) were noted. The triad of symptoms including intermittent fever, evanescent rash and polyarthralgias along with elevated ferritin supported the diagnosis of AOSD. He had failed multiple therapies in the past including hydroxychloroquine, methotrexate, and etanercept. High dose steroids and anakinra were started which improved his symptoms significantly. He was discharged with steroid taper and anakinra. First described by George Still in 1896, AOSD presents as two distinct clinical phenotypes, a systemic form, characterized by elevated inflammatory markers with systemic symptoms and a chronic form—presenting predominantly as polyarthritis. In this case, clinical features were an amalgamation of both phenotypes representing the heterogeneity of symptoms classically associated with AOSD. Diagnosis of AOSD is primarily clinical thereby necessitating the exclusion of wide range of mimicking disorders. Several diagnostic criteria are proposed given the lack of a specific diagnostic test, Yamaguchi's criteria is found to be the most sensitive (93.5%). Our patient met at least six of Yamaguchi's criteria. Guidelines for management are based on small studies and case series. Conventional treatments include NSAIDs, steroids and methotrexate. Biologics have shown greater efficacy in steroid and methotrexate refractory disease as seen in our patient. Anti-IL-1 therapy is the mainstay of therapy in such cases. Diagnosis of AOSD remains complex as infectious, hematologic, immunologic and malignant diseases must first be ruled out. A high degree of clinical suspicion along with utilization of available sets of diagnostic criteria will avoid diagnostic and therapeutic delays.

Students Helping AZ Register Everyone (SHARE): Improving Insurance Education and Access

Eric Lander , UofA College of Medicine - Tucson, MS-II

Jaymus Lee, Alyssa Padilla, Dan Derksen

PS&QI, Poster Display No. 144

While health professional students learn the basic and clinical sciences of health extensively, they currently receive minimal education about the Affordable Care Act (ACA), insurance Marketplace, and overall healthcare system. All the while, AZ's uninsured rate beats the national average. SHARE seeks to improve health professional students' knowledge of health insurance options and the ACA to better assist Maricopa and Pima Counties with Marketplace enrollment and health insurance literacy. Students become Certified Application Counselors (CAC) that assist consumers with enrollment and answer consumers' questions. In Collaboration with the Center for Rural Health (CRH) leadership, SHARE integrates: CRH, College of Medicine students, Western Region Public Health Training Center, Regional Center for Border Health, Inc., and the Pima ACA Coalition to implement this program. Learning objectives: 1. Discuss CAC training as a means to increase health professional students' knowledge about health coverage. 2. Discuss students' assistance efforts in insurance enrollment and ability to answer consumers' questions. 3. Discuss the benefits of placing students in populations that require more enrollment assistance to potentially reduce health disparities through increasing enrollment and giving consumers confidence in navigating healthcare.gov. 4. Discuss SHARE as a novel solution in closing the insurance literacy and health policy education gap.

Work-life balance of women physicians

Jamie Bering MS, Creighton COM, MS-IV

PS&QI, Poster Display No. 145

Introduction As the number of practicing female physicians continues to rise each year, female attitudes regarding careers in medicine have become a rising topic of interest. In 2010, approximately 30.4% of active physicians in the United States were female while 46.1% of the residents and fellows that year were female. Given the traditional role of women in the family unit and professional workplace, we want to assess if and what types of personal life decisions women physicians postpone in pursuit of career success. **Methods** An electronic survey was created and distributed via an email link to the survey website, Survey Monkey. The survey link was distributed to female physician faculty and staff of local area health systems as well through various women physician organizations. Responses were maintained as anonymous with no identifying factors collected. The primary endpoint was whether or not a personal decision had been deferred in pursuit of a medical career. Secondary endpoints looked at deferred career decisions, the types of decisions deferred, and whether there was any correlation with other variables including age, relationship status, number of children, and specialty type. **Results** Preliminary data from 110 surveys shows that personal decision deferments were endorsed by 62.73% of respondents. Of these, 76.81% reported waiting to have children and 39.13% reported waiting to get married. The majority of the women who reported deferments were aged 41-50 years (46.38%) while the majority of women who denied deferments fell in the 31-40 age range (34.15%) closely followed by women in the 41-50 year age range (29.27%). The relationship status of respondents was comparable between groups. Pediatric specialties accounted for 31.7% of the women in the non-deferment group, while the career types in the deferment group were more variable. Of note, however, is that the deferment group included more physicians in internal medicine and surgical specialties compared with the non-deferment group. Women in the non-deferment group had an average 2.24 children, while those in the deferment group had an average of 1.87 children. Finally, while 97.56% of women in the non-deferment group would choose medicine again as a career, only 77.14% of women in the deferment group would do so. **Conclusion** This preliminary data suggests that many women physicians postpone important life decisions in pursuit of their medical career. While it does not appear that there were differences in relationship status between groups, the data indicates there may be an association with decision deferment and career specialty as well as career satisfaction. Overall, interesting correlations surrounding the work-life balance of women physicians may exist, and once our data is complete we expect to present more definitive conclusions with more variable comparisons

Launching three-pronged approach to hypertension control for veterans at the Phoenix VA Healthcare System

Mateja Lekic MD, Banner UMC Phx, PGY-1

Madhav Chopra, Michael Rowley, Salam Mohammed, Bisi Alli, J. Moeller, S. Rehman, C. Burke

PS&QI, Poster Display No. 146

Introduction: Hypertension (HTN) is the most common condition treated by primary care physicians. If not detected and treated early, HTN poses a substantial risk to a patient's well-being and mortality. Uncontrolled HTN can lead to myocardial infarction, stroke, renal failure, and death. There are more than 25,000 veterans diagnosed with HTN at the Phoenix Veterans Administration (VA) Hospital. Out of these patients at the VA who are being treated for HTN, only 40-60% are adequately treated per JNC guidelines. Our goal is to increase blood pressure control of our patients within the Academic Patient-Aligned Care Team (PACT) Ambulatory Clinic to 78% by February 2016. **Methods:** Our VA-wide data has proven consistent with chart review of a small sample of our clinic patient panel. Further causal analysis has identified that a non-standardized approach to HTN control is a common underlying problem, also corroborated by our clinic teams. In order to address this concern, we are implementing a standardized process to treating patients with HTN. The approach consists of (1) encouraging and enabling patients to self-monitor blood pressure (BP) at home, (2) creating a clinical decision support tool for telephone appointments dedicated to HTN, and (3) organizing monthly Shared Medical Appointments (SMA). Studies have shown that patients engaging in BP self-monitoring have lower average BP and improved control (Uhlrig 2013). VA providers have the ability to order BP cuffs for patient for monitoring and reporting. In our academic PACT clinic, we have designed a detailed template to standardize the process and incorporate the latest clinical data and guidelines. This can help providers better prioritize and optimize disease management during visits, monitor trends, and use a reference for follow up telephone appointments. In addition, the SMA enables further optimization by allowing dedicated time to address blood pressure management and associated barriers through an interprofessional team, including the primary care physician, pharmacist, psychologist, social worker, and dietician. Discussions will include disease education, identification of barriers to BP management, optimization of anti-hypertensive medications, as well as benefits of diet and lifestyle modification. We believe this will provide an interactive environment for patients with a common diagnosis and foster support, and education for better control their own BP. **Results:** We will follow and trend differences in BP control using these aforementioned small tests of change (i.e. PDSA cycles); data pending. **Conclusion:** We hope that this three-pronged approach will significantly improve blood pressure control of the patients in our Academic PACT Ambulatory Clinic. We will then spread successful interventions to other providers in the primary care clinics at the Phoenix VA Healthcare System as well as our sister institution at Banner University of AZ Medical Center-Phoenix campus.

Impact of Resident Education in Systems Based Practice to Improve Patient Care at BUMC-S

Faraz Jaffer MD, UACOM at South Campus, PGY-2

Sarah Patel, MD. Bethany Bruzzi, MD. Bujji Ainapurapu, MD. Anil Potharaju, MD.

PS&QI, Poster Display No. 147

In this dynamic climate of vast changes in healthcare, it is imperative for young physicians to efficiently utilize our limited resources in delivering excellent patient care. With this goal in mind, Banner University Medical Center-South instituted a series of changes with resident participation to improve our operational efficacy without jeopardizing the quality of care. These changes were instituted beginning April 2015. Get It Right, Right Away, an initiative focused on highlighting appropriate work up in Emergency Department to ensure accurate triaging of patients at time of admission through resident education sessions that incorporated a curriculum of appropriate work up and medical documentation; with compilation of a summary document that is integrated into our Electronic Medical Record for easy reference. To allow early identification of care needs, knowledge of system limitations and community resources thus enabling teams to address disposition whether to higher level of care or to appropriate facility within community to improve patient care and system flow. Expansion of Care Team into a body that incorporated house staff in identifying patients at high risk of readmission and adverse outcomes, and delegated tasks across a multi-disciplinary team which included nursing-case management daily meets to efficiently care for such patient needs and hasten patient progression. Reorganization of Care Team Rounds with resident teams first addressing needs of critical patient and subsequently attending to care of discharge ready patients with goal of initiating discharge processes before 10am. Early initiation allowed for efficient mobilization of discharge services, which included confirmation of post-discharge care and safe, timely discharge of patient. Results to date demonstrated reduction in Median ED admit time from 137 minutes (October 2014) to 81 minutes (August 2015), risk adjusted length of stay index dropped from 0.82 (Prior to April 2015) to 0.79 over follow up months, discharge of "observation" status patients between 2 and 18 hours of admission, increased from 27.5% to 34.7%, while re-admission rates remain relatively constant. Conclusion In this era of increasing demands and limited resources, we need to reemphasize the importance of including Systems based education into residency training. Incorporation of residents in institution advancement promotes intellectual activities that help identify current barriers in patient care, with processes that can lead to measurable changes in delivery of high quality health care.

Implementing an Inpatient Chain of Survival at an Academic Medical Center

Kai Rou Tey MBBS, UACOM at South Campus, PGY-2

Bhupinder Natt MD, Kristin R Pedersen, RN, Melissa K Meinel, Gordon E Carr, MD

PS&QI, Poster Display No. 148

Introduction: Publication of ‘To Err Is Human’ by the Institute of Medicine in 2000 has brought attention to the number of preventable deaths resulting from errors in the United States healthcare system. Patients often have signs of physiological deterioration for several hours before “unexpected” cardiopulmonary arrest occurs. In certain situations, even when recognition of deterioration is prompt, intervention may be delayed due to multiple barriers. We have initiated a quality improvement project in the form of an “inpatient chain of survival” as an effort to reduce the incidence of out of Intensive Care Unit (ICU) cardiopulmonary arrest. Methods: This quality improvement project was performed on a high-acuity telemetry/stepdown unit at Banner University Medical Center – Tucson, a 479 bed academic medical center in Tucson, AZ. During 2014, there were 12 episodes of cardiopulmonary arrest (CPA) on this 30-bed unit. In order to improve patient safety, we developed an “inpatient chain of survival.” The links in this chain are education of staff regarding the major patterns of pre-arrest physiology; more rigorous monitoring and risk stratification; a structured response to deteriorating patients; and mandatory audit and review of all episodes of CPA as potentially preventable adverse events. Major interventions included recurring staff education and coaching related to detecting pre-arrest patterns; afternoon nurse safety rounds led by experienced charge nurses; mandatory calling criteria for the rapid response team (RRT); development of an order set for RRT responses; and multidisciplinary review of all 2014 CPA events. Education and chart reviews began in late 2014 and early 2015, and the nurse safety rounds, mandatory RRT calling, and order sets were implemented on June 1, 2015. Results: We noticed that prior to 50% of the 12 CPA events in 2014, signs of deterioration, including oxygen desaturation and change in mental status were present. 67% of the events happened during the day shift (0700-1900). From June 1st 2015 to date (September 10th 2015), no CPA events have occurred on the unit. The first phase of this quality improvement project will be continued for 6 months, complete analysis of RRT calls and outcomes will be presented at the meeting. Conclusion: The encouraging initial result of the chain of survival demonstrates that a structured protocol is effective in a reduction in ‘unexpected’ cardiopulmonary arrests. But most importantly, the change in culture through increased awareness of patient safety and interdisciplinary collaboration are the main contributors to the success of this protocol.

DECREASING COLONOSCOPY APPOINTMENT “NO-SHOW” RATES AT THE PHOENIX VA MEDICAL CENTER

Hussein Abidali DO, Banner UMC Phx, PGY-3

Moustapha Abidali DO, S. Ruiz, R. Muhammad, H. Abbaszadegan, R. Gerkin, M. Young

PS&QI, Poster Display No. 149

Introduction: As reported by the Centers for Disease Control (CDC) in November 2013, only 65% of Americans are up-to-date on colorectal cancer screening. The CDC has announced a goal of “80% by 2018.” One of the barriers that physicians run across in achieving this level of screening compliance is the high proportion of “no-show” rates for colonoscopy appointments. At the Phoenix Veterans Affairs Medical Center, patient absenteeism for outpatient colonoscopy has created excessively long waiting periods for appointments, thus reducing the productivity and access to healthcare. The purpose of this study was to improve “no-show” rates for colonoscopy appointments at the Phoenix VA gastrointestinal clinic. **Methods:** A survey was developed and implemented on 50 “no-show” patients after their missed appointment. The eight-question survey addressed clarity of bowel preparation instructions, whether completion of reminder phone calls was made, and any further reasons as to why the appointment was missed. A revised edition of bowel preparation instructions was constructed and implanted using checklist format, step-wise instructions, and educational material such as frequently asked questions and guide on medication management. **Results:** The Baseline “no-show” rate of 16.9% (n=350). The baseline study questionnaire (n=50) revealed the majority (55%) of “no-show” rates were attributed to non-modifiable risk factors such as: current illness, death in the family, and inability to be excused from work. The most frequent cause of “no-shows” due to a modifiable risk factor (27%) was the inability of the patient to secure transportation services to and from the colonoscopy. Additionally, 18% of “no-shows” were linked to the misunderstanding or improper completion of the colonoscopy instructions. The evaluation of the newly revised and implemented edition of bowel preparation instructions showed a post-intervention “no-show” rate of 6% (n=100). Another 7% of patients cancelled their procedure prior to their appointment time. **Conclusion:** A recent study identified as one of the predictors of poor colonoscopy adherence government-sponsored insurance coverage such as through a VA hospital. At the Phoenix VA, bowel preparation instructions were completely revised after this process was identified as a potential barrier to completion of scheduled colonoscopies. The post-intervention evaluation showed a decrease in “no-show” rates from the pre-intervention baseline of 16.9% to 6%. Based on our results, a follow-up survey is being prepared to evaluate patient perceptions of the new instructions.

RISK FACTORS ASSOCIATED WITH SEVERE HYPOGLYCEMIA IN HOSPITALIZED PATIENTS AT BANNER UNIVERSITY MEDICAL CENTER – PHOENIX

Mark del Rosario MD, Banner UMC Phx, PGY-3

Edward Maharam, Cheryl O'Malley, Vijayaratna Chockalingam

PS&QI, Poster Display No. 150

RISK FACTORS ASSOCIATED WITH SEVERE HYPOGLYCEMIA IN HOSPITALIZED PATIENTS AT BANNER UNIVERSITY MEDICAL CENTER – PHOENIX MJ del Rosario, ER Maharam, C O'Malley, V Chockalingam

Introduction: Hypoglycemia is a common (25%) occurrence in patients admitted to the hospital who have diabetes. Hypoglycemia is associated adverse outcomes, including increased healthcare cost, morbidity and mortality. A direct cost of \$68 and total cost of \$2638 per case of hypoglycemia in the hospital has been demonstrated in recent cost-analyses. With mortality and cost-benefit, there is incentive in identifying and ultimately decreasing events. Our facility in particular, Banner University Medical Center – Phoenix (BUMC-P), ranks among the bottom quartile of hospitals according to recent reports released by Society of Hospital Medicine. Improving this rate could convey both benefits in medical outcomes as well as decreased costs for our facility. Previous studies have identified various risk factors associated with hypoglycemic events including age, renal impairment, large daily insulin dosing and type of insulin regimen, but the population at BUMC-P is unique and warrants independent study. Identifying and educating clinicians regarding these risks factors may assist in decreasing our facility hypoglycemia rate to or below the national average.

Methods: Our group is conducting a small retrospective review of inpatient hypoglycemic cases (defined as blood sugar < 70). Cases of hypoglycemia are flagged and are being evaluated by physicians specializing in internal medicine and endocrinology. Reviewers indexed suspected risk factors including: age, degree of hypoglycemia, weight, body mass index, presence of diabetes diagnosis including type, liver disease, sepsis, renal impairment, prior hypoglycemic events, intravenous fluids, glycemic control regimen and dosing, diet, whether insulin dosing was changed in the day preceding and how, notes, and an assessment of cause (clinician judgment). Our control group consisted of age, sex-matched hospitalized patients with diabetes that did not experience a hypoglycemic event.

Results: Final statistical analysis (using multivariate statistical analysis including chi-square testing) is pending at this time. Preliminary review of data reveals a number of possible causal factors including inappropriate prescribing patterns of hypoglycemic agents. Preliminary analysis indicates a higher proportion of hypoglycemic events occurred during the hours of 02:01 and 08:00. This is suggestive of inappropriate physician prescribing habits and over reliance of long-acting insulin. Certain demographic risk are likely to play a role as well.

Future Directions: This data will be available at upcoming local ACP Meeting. Strategic interventions will be designed based upon our data with the ultimate goal of educating clinicians and caregivers about those risk factors associated with hypoglycemia, impacting prescribing practice and in so doing reduce hypoglycemic events at our facility.

Lag Between Publication and Implementation: Journal Club to Bedside Examining Practicing Physician Behaviors in Prescribing Azithromycin: A Quality Improvement Study

Libu Varughese , St. Joseph's Hospital, PGY-3

Midhun Malla MD, Byron Reichert MS4, Huong Nguyen MS4, Natalie Como MS4, Gerard Hoatam MS4, Tam Chu

PS&QI, Poster Display No. 151

Background: Azithromycin (Z-pak) is one of the most commonly prescribed antibiotics in the outpatient setting. A recent study in 2012 showed a small increase in cardiovascular deaths with Z-pak use. As part of our antibiotic stewardship and patient safety initiative, we examined the physician Z-pak prescribing patterns and whether there was assessment of cardiac risk prior to prescribing the medication after publication of this study. We initiated a multi-pronged quality improvement study that assessed the dissemination of the evidence in clinical practice. Methods: Data was extracted from the Ambulatory database from the adult primary care clinics from May 2011 to August 2014. We compared the Z-pak physician prescription behavior patterns and assessment of cardiac risk by ordering electrocardiograms (EKGs). We used 2012 as a milestone year (based on study publication). We analyzed whether there was an increase in the number of EKGs ordered to assess if physicians checked a baseline QT interval prior to prescription especially in patients who were on arrhythmogenic medications or had a diagnosis of QT prolongation. As a secondary outcome, we compared the percentage of Z-pak prescriptions with that of other antibiotics like Amoxicillin, Levofloxacin, and Ciprofloxacin. Results: A total of 7415 antibiotics were prescribed during the study period (2011-2014). Of these, 34% were Z-Pak, 22% Ciprofloxacin, 35% Amoxicillin and 9% Levofloxacin. Of the 2499 Z-Pak prescriptions, 381 patients were identified as having potential risk for cardiac events (arrhythmogenic medications, or documented long QT). Only 77 (3.08%) had an EKG performed in the previous 30 days. Of note, none of the 4 patients with a history of QT prolongation had an EKG ordered. We also looked at whether there was an increase in cardiac risk assessment after the publication of the NEJM study in 2012, as a marker of increased awareness for the need to assess Qt interval. The percentage of EKGs increased from a baseline of 1.92% to 3.64 and 4.19 within the first and second year respectively, after the study was published. Conclusions At the conclusion of the first part of our QI project, we have identified a significant need for development of processes to enhance patient safety. While the number of EKGs performed has doubled since May 2011, there is still a significant number of at risk patients (documented QT prolongation or on arrhythmogenic medications) who did not receive the risk assessment. This lag between publication of the article and lack of clinical translation is consistent with the published literature. This is concerning given the point of care alerts displaying recommending caution with prescription in most EHR. Our study raises questions on optimal safety processes in regards to the prescription behavior that can endanger patients.

Thirty day intractable pain readmission reduction via improved pain control on discharge

Brian Wojeck MD, Mayo Clinic AZ, PGY-3

Pham, M; Bulian, B; Ertz-Archambault, N; Narichania, A; Hines, B; Garrett, A; Salma, P

PS&QI, Poster Display No. 152

Purpose Inadequate pain control can lead to hospital readmissions. With the goal of reducing re-admissions, we developed an optimized pain control program and housed it in a mobile application for our internal medicine residents at Mayo Clinic AZ. The purpose of this application was to quickly and efficiently calculate, convert, and titrate Morphine Equivalent Daily Dosing (MEDD) to ultimately improve outpatient pain control management. Methods From June 1, 2013 through July 31, 2014, we measured the readmissions on the internal medicine teach service, and used this historical cohort as a pre-intervention control. We then developed and distributed the Pain Calc mobile application (app) for opioid calculations to residents on the internal medicine teach service (intervention group), in November 2014 – June 2015. We retrospectively identified readmissions in the intervention and control groups to identify pain as a primary or secondary diagnosis, and compared pain readmission rates in both groups. During the intervention period, monthly anonymous surveys were distributed to resident physicians to assess use and usefulness of the mobile app, and to determine attitudes regarding pain management. Results During their respective study periods, 319 and 299 readmissions occurred in the intervention and control groups respectively. Of these, 42 and 56 were identified as having pain as a primary or secondary diagnosis, respectively. In the intervention group, 10 cases (3.1%) potentially could have been avoided as re-admissions with an improved pain control plan at the time of discharge. In the control group, 13 readmissions (4.3%) were potentially avoidable for the same reason. The difference in readmission rates was not statistically significant. Resident surveys on the regular usage of the app demonstrated that 3% of residents used the app 10 times per month, 23.5% used the app 7-9 times per month, 47% used it 4-6 times per month, 17.7% 1-3 times monthly, and 8.8% did not use it at all. Resident surveys also indicated competence in developing pain management plans. 53% reported confidence in opioid calculations or conversions. 33% endorsed having efficiency and comfort with opioid conversions and pain management skills, and 38% reported that they were excellent in developing and implementing pain management discharge plans. Conclusion Intractable pain is a major cause of re-admission in the hospital setting, particularly in populations with significant co-morbidities such as cancer. We launched this quality improvement project with the goal to decrease pain-related re-admissions and to improve the efficiency and accuracy of performing opioid-related calculations. The app was utilized regularly by our residents presumably because the application improved physician efficiency. Although the primary outcome measure was not significantly different in this small sample, the intervention was useful for our resident physicians on the internal medicine service.

THE APPLICATION OF CLINICAL INFORMATICS IN THE ANALYSIS OF IDENTIFYING CONTRIBUTERS TO PROLONGED LENGTH OF STAY AT THE PHOENIX VA HEALTH CARE SYSTEM EMERGENCY DEPARTMENT IN PATIENTS WITH ATYPICAL CHES

Semah Zavareh DO, Banner UMC Phx, PGY-3

Shakaib Rehman, Khaleel Hussaini, Hamed Abbaszadegan

PS&QI, Poster Display No. 153

THE APPLICATION OF CLINICAL INFORMATICS IN THE ANALYSIS OF IDENTIFYING CONTRIBUTERS TO PROLONGED LENGTH OF STAY AT THE PHOENIX VA HEALTH CARE SYSTEM EMERGENCY DEPARTMENT IN PATIENTS WITH ATYPICAL CHEST PAIN Emergency room overcrowding is a growing national problem. There are many adverse impacts as a result of this problem; one of these hazardous outcomes is delays in timely interventions, particularly in the case of atypical chest pain. Emergency Department Integration Software (EDIS) is a computer application utilized to track flow within the emergency department. This study tracked the EDIS data to identify trends in patients presenting to the emergency room with the diagnosis of atypical chest pain. We aimed to identify areas of greatest delay within the emergency department. This was achieved through a retrospective analysis of data collected from 01-01-2014 through 12-31-2014 including workload, admission delays greater than 6 hours, door-to-doctor time and patients leaving without being seen (LWOS) in patients with the ICD 9 code of atypical chest pain. The data was analyzed by one-way ANOVA and two-sample T-Test. Results indicate that the overall length of stay (defined as total elapsed time from patient receiving EDIS identifier to time when EDIS identifier was closed) was 140.6 minutes. The average time for administrative decision, defined as time elapsed between patient entered into EDIS and request for inpatient bed, and included determining presence of a life-threatening condition, the decision to obtain and the results of any diagnostic studies, communication between ED physicians, ED consults, and bed availability, was determined to be 138.2 minutes. The average administration delay, defined as the elapsed time between patient's time out and first admission assignment, was 76.8 minutes. These results indicate that the most significant impact on delay are administrative decisions which is an umbrella for the processes involved, but not limited to, diagnostics, clinical decision making and physician-to-physician communication. A closer look into the specific relationships, current procedures and resources utilized during this time will identify areas for further improvement.

Performance Status is Associated with Liver Function Tests and Serum Tumor Markers in Patients with Intrahepatic Cholangiocarcinoma

Joseph Frankl , UofA College of Medicine - Tucson, MS-II

Michael P. Sakata, Seung H. Hur, Hitendra Patel, Charles Hennemeyer

RES, Poster Display No. 154

Purpose: To assess the association of Eastern Cooperative Oncology Group performance status (ECOG PS) with liver function tests and serum tumor markers in patients with intrahepatic cholangiocarcinoma (ICC). **Methods:** A total of 27 cases of ICC were identified in a review of electronic medical records at a single institution. ECOG PS and alkaline phosphatase (ALP), AST, ALT, albumin, bilirubin, CEA, carcinoembryonic antigen (CA19-9), and carbohydrate antigen 19-9 (CA19-9) values were obtained at all possible time points between the date of ICC diagnosis and death or last visit. No patients showed complete remission. Associations between ECOG PS and laboratory values were assessed using mixed models accounting for repeated measurements when necessary. After Bonferroni correction, a p value less than 0.00625 was considered significant. Parameter estimates and standard errors are reported where necessary. Demographics are reported with means and standard deviations. Analyses were performed using SAS 9.3 and SAS Enterprise Guide 5.1 (Cary, NC). **Results:** Cases in 15 men and 12 women were reviewed. Tissue or radiographic diagnosis was made at a mean age of 63.8±17.3 years, and patients were then followed for 11.7±19.3 months. There were 14 deaths after a mean of 9.2±13.2 months. ECOG PS was associated with ALP (p=0.0003). There was a stepwise decrease in ALP as ECOG PS dropped from 2 to 1, to 0 (ALP = 353±106, 171±101, 87±105 U/L). There was a more moderate association between ECOG PS and AST (p=0.003). Estimates for ECOG PS 2-0 were 70±21, 44±20, 39±21 U/L. ECOG PS was associated with bilirubin (p=0.001) such that the decline from ECOG PS 2-0 was 1.9±0.8, 0.9±0.7, 0.8±0.7 mg/dL. However, there was no association of ECOG PS with ALT and albumin. Among the serum tumor markers, only CA19-9 was associated with ECOG PS (p=0.002). The decline from ECOG PS 2-0 was 151±264, 68±238, 14±243 U/mL. **Conclusions:** ECOG PS is often used to describe ICC patient's level of functioning. Additionally, it has been found to be a good prognostic indicator in this population. We found that ECOG PS, a subjective measurement, is associated with ALP, AST, bilirubin, and CA19-9. The association with ALP was the strongest, which likely reflects worsening bile duct pathology and possible biliary obstruction in patients with higher ECOG PS. Association with AST indicates that ECOG PS may increase with progressive liver damage in patients with ICC. Finally, a greater tumor burden may elevate CA19-9 in some patients as well as cause biliary and liver damage that impair functioning. Our results collectively provide further evidence that ECOG PS reflects anatomical ICC progression.

Ursodeoxycholic acid inhibits deoxycholic acid-induced mitogenic activation and apoptosis thru the suppression of calcium related signaling in colorectal cancer

Dave Reyes BS, UofA College of Medicine - Tucson, MS-II

Jesse Trujillo B.S., Sara Centuori Ph.D., and Jesse Martinez Ph.D.

RES, Poster Display No. 155

"Ursodeoxycholic acid inhibits deoxycholic acid-induced mitogenic activation and apoptosis thru the suppression of calcium related signaling in colorectal cancer" Dave Reyes, B.S.(1), Jesse Trujillo, B.S.(2), Sara Centuori, Ph.D.(3), Jesse Martinez, Ph.D.(2,3,4) (1) University of AZ College of Medicine, (2) University of AZ Cancer Biology Graduate Interdisciplinary Program, (3) University of AZ Cancer Center, (4) University of AZ Department of Cellular and Molecular Medicine

Intro: Colorectal cancer is the 3rd most common and 2nd leading cause of death from cancer in the United States. A contributing factor to an increased risk for colon cancer is a diet that is high in fat, which causes an increase in secondary bile acid concentrations such as the tumor promoter deoxycholic acid (DCA). Although the primary role of bile acids is to aid in fat digestion, they can also act as regulatory signaling molecules. In fact, DCA can activate pathways that are important in colorectal cancer progress, specifically the mitogen-activated protein kinase (MAPK) pathway. In addition to DCA's ability to promote mitogenic signaling, it can also accelerate a negative selective pressure thru apoptosis, perpetuating a growth advantage in colonic epithelium. Furthermore, research has shown that both this induction of apoptosis as well as the activation of mitogenic signaling is regulated thru calcium. In contrast to DCA, the bile acid ursodeoxycholic acid (UDCA) is a chemopreventive agent that was shown to inhibit the signaling activities of DCA. However, the mechanism by which UDCA suppresses these biological endpoints is not understood.

Hypothesis: UDCA inhibits DCA-induced mitogenic activation and apoptosis through the suppression of calcium related signaling. **Specific aims:** 1) Examine if UDCA blocks DCA-induced intracellular calcium. 2) Investigate if UDCA suppresses the calcium related signaling molecule calcium/calmodulin-dependent protein kinase II (CAMK II). **Methods:** HT-29 human colorectal adenocarcinoma cells were cultured for 24 hours then serum starved overnight and pretreated with 250 uM UDCA. Cells were then treated with or without the calcium inhibitor BAPTA/AM followed by treatment with DCA or ionomycin. Cell lysates were harvested and western blot was performed to examine the presence of phosphorylated CAMK II or ERK 1/2. Apoptosis was determined using the annexin V/PI assay. Flow cytometry was performed using the BD FACSCanto II. **Results:** UDCA does not block DCA-induced calcium influx but does suppress CAMK II phosphorylation. **Conclusion/Discussion:** UDCA may be able to block mitogenic signaling as well as inhibit apoptosis by impeding calcium related signaling by DCA. Therefore, these studies have elucidated one possible mechanism of UDCA's chemopreventive actions. Consequently, future directions include screening patients with high levels of DCA and examining them for overactivation of CAMK II as a better way of identifying those patients that would respond well to UDCA chemoprevention.

Novel Patient-Centered Diabetes Education Program – A study to assess the feasibility, design, implement, and impact on patients.

Amy Davis , UofA College of Medicine - Phoenix, MS-III

Khalil Hussaini, PhD; Shakaib U. Rehman, MD

RES, Poster Display No. 156

Novel Patient-Centered Diabetes Education Program – A study to assess the feasibility, design, implement, and impact on patients. Amy D. Davis, MS3; Khalil Hussaini, PhD; Shakaib U. Rehman, MD **PURPOSE:** Type 2 diabetes (T2D) is a growing public health concern for Americans due to the increasing prevalence of the disease. This is a pilot study modelled after Esden and Nichols work on diabetes education program. The purpose was to assess the feasibility to further develop, design, implement, and assess the impact of this novel program. **DESIGN:** A single-group pre-test and post-test design was utilized.

SETTING: Phoenix VA Health Care System. **PARTICIPANTS:** Program participants in the age-range 18-75 years with a Type 2 diabetes (T2D) diagnosis. **INTERVENTION:** A novel patient-centered group diabetes education program developed by the medical student based on the Esden and Nichols model.

PREDETERMINED OUTCOMES: Diabetes knowledge and patient perceived self-efficacy prior to and after the program was assessed.

MEASUREMENTS: The Michigan Diabetes Research and Training Center's (MDRTC) Brief Diabetes Knowledge Test (BDKT), Diabetes Empowerment Scale (DES) and a patient satisfaction survey. **RESULTS:** Eight patients from the Phoenix VA Health Care System were recruited. Average age of the participant was 67.5 years (+/-7.6), and majority of the participants were males (n = 7; 87.5%) with some college or school. Slightly over 60 percent of the participants were overweight with an average height of 68.5" (+/- 2.20") and an average weight of 192.7 lbs (+/- 31.78 lbs). There was very good pre-test reliability for the three DES subscales: "managing the psychosocial aspects of diabetes" ($\beta_{945} = 0.93$), "assessing dissatisfaction and readiness to change" ($\beta_{945} = 0.83$), "setting and achieving goals" ($\beta_{945} = 0.88$). Only three individuals completed pre and post tests for BDKT, DES and patient satisfaction survey. Preliminary results suggests that there was a large effect (d = 3.75) for BDKT before (M = 15.67; SD = 2.08) and after intervention (M = 20.33; SD = 0.58) of the patient-centered diabetes program.

CONCLUSIONS: A patient-centered group diabetes educational program can be implemented in clinical settings to improve patients' knowledge. Table. Pre and post intervention results ACP website would not accept formatted tables.

Exploring Students Perceptions of Medical Case-Based Competitions as a Modality for Developing Clinical Reasoning Skills in Pre-Clinical Graduate Education.

Michael Hafertepe , Creighton COM, MS-III

Nicholas Peters, Gabrielle Welch, Nina Fredericks, John Kelly, Blake Titterington, Mike Lehrer

RES, Poster Display No. 157

Background: Interdisciplinary case-based competitions, as a means to improve clinical reasoning, are relatively new in medical education. Additionally, there is a paucity of research regarding student's perceptions of their clinical reasoning skills, after such medical case based competition. Objective: The intention of this study was to (1) elucidate students' self-perception of clinical reasoning skills post competition, (2) investigate the students' perception of medical based competition as a means to improve clinical reasoning skills (3) assess students' perceived ability to adapt skills learned during the clinical competition for clinical practice settings. Methods: Following the medical case-based Clinical Reasoning Competition, at Creighton University, surveys were electronically distributed to seventy participating students. Student perceptions were measured using the Self-Assessment of Clinical Reflection and Reasoning (SACRR). Forty participants completed the survey. In addition to the SACRR, participants responded to three custom short answer questions to assess students' perception about education through a case based competition. Additionally, students' thoughts on the role of interdisciplinary education in developing clinical reasoning skills were addressed. Results: Forty responses to the SACRR were collected using a five point Likert scale. A 57% response rate was recorded. The mean response was 3.95 with a SD of .28. A score of 1 indicates the subject strongly disagree with the statement, whereas a score of 5 indicates the subject strongly agrees with the statement. Analysis of the short answer responses indicated that all respondents found educational value in the clinical case competition. Seventy-one percent of respondents reported this experience changed how they approach a clinical case, and seventy percent of respondents reported the clinical competition made them feel more prepared for a clinical setting. Conclusions: Students that participated in the interdisciplinary case based clinical reasoning competition perceive increased clinical reasoning skills, as well as an increased perceived preparedness for a clinical environment. Future research should further evaluate how students' approach to clinical reasoning changed after the competition, as many participants indicated a change had occurred.

Celiac Disease Incidence has Increased Among the Hispanic Population in Phoenix, AZ between 2004-2013

Lauren Massimo (Querin) MS, UofA College of Medicine - Phoenix, MS-III
Keng-Yu Chuang, MD

RES, Poster Display No. 158

Introduction: Celiac disease is an autoimmune gastrointestinal disorder that has been well studied amongst the non-Hispanic white population. The data specifically describing the disease within the U.S. Hispanic population is limited. Available studies that do report prevalence and incidence within the Hispanic population reveal discrepancies. The purpose of this study is to estimate the incidence of celiac disease and to define common presenting symptoms in Hispanics in Phoenix, AZ. **Methods:** Data was collected via a retrospective chart review from Maricopa Integrated Health System (MIHS) between 2004-2013. MIHS is one of the hospitals in Phoenix that sees the most Hispanic patients. The study population is both adult and pediatric patients that had received the ICD-9 code 579.0 (celiac disease). The total number of non-repeat patients seen at MIHS each year between 2004-2013 was also determined and broken down by race for incidence calculations. **Results:** During the 10-year period from 2004-2013, 29 total patients were diagnosed with celiac disease at MIHS. The yearly overall incidence increased from 1 in 44,011 patients in 2004 to 1 in 27,948 patients in 2013. Of the 29 diagnosed patients, 34% were Hispanic, 52% Caucasian, 7% Asian and 7% African American. The yearly incidence in Hispanic patients also increased from 0 in 2004 to 1 in 58,302 in 2007 to 1 in 25,826 in 2013 (figures 1a and 1b). Although diagnosis was greater in females of both races, Hispanic patients were diagnosed at younger age than Caucasians (22 y/o vs. 31 y/o, respectively). The most common diagnostic approach was serological testing (anti-TTG IgA or anti-endomysial antibody) combined with duodenal biopsy. The 3 most common gastrointestinal (GI) related presenting symptoms in Caucasians were diarrhea, abdominal pain and nausea/vomiting, while those of Hispanics were constipation, bloating/abdominal distention and diarrhea (figure 2a). At the time of diagnosis, at least one third of both Caucasian and Hispanic patients had presented with another autoimmune disorder (figure 2b). Additionally, other common associated conditions were neurological symptoms and iron-deficiency anemia. **Conclusion:** Data from this study suggests that celiac disease in Hispanic population is more common in Phoenix, AZ than the overall population in the U.S. as described in the literature. This data also suggests that Hispanic patients might have different presenting symptoms compared to Caucasians. The reason behind the increase in celiac disease incidence in Hispanics is not clear at this point; it could be due to increased physician awareness and diagnosis. Our study suggests that further research and awareness of celiac disease in the Hispanic population may be necessary to optimize diagnosis and treatment of the condition.

Pterygium Excision with a Conjunctival Autograft and Subconjunctival Amniotic Membrane as a Prophylactic Anti-Recurrence Agent

Alexander Shusko , Creighton COM, MS-III

Dr. John Hovanesian

RES, Poster Display No. 159

Purpose To determine the outcome of pterygium excision with a conjunctival autograft when the adjunctive use of a subconjunctival graft of amniotic membrane is employed to reduce fibrosis and recurrence after surgery. **Design** This is a retrospective, non-comparative study of one-hundred eyes of eighty-three patients that underwent pterygium excision with a conjunctival autograft and prophylactic placement of a subconjunctival amniotic membrane graft. **Methods** Setting: South Orange County Outpatient Surgery Center (San Clemente, California) between June 6, 2006 and October 23, 2013 by a single surgeon (JAH) Patient Population: 84 patients (67 patients with pterygium in one eye, 17 patients with pterygium in two eyes) Procedure: Pterygium excision with a conjunctival autograft and prophylactic placement of a subconjunctival amniotic membrane graft **Outcome Measure:** At least six months postoperatively for pterygium recurrence greater than 1 mm onto the corneal limbus was considered a recurrence **Results** In this study, there was one case of pterygium recurrence for a recurrence rate of $1.0\% \pm 1.95\%$ ($n=100$, $p=0.05$). Pterygium excision with a conjunctival autograft alone has a recurrence rate of 5%. No other significant complications or adverse events occurred. **Conclusions** Pterygium excision with a conjunctival autograft and prophylactic placement of a subconjunctival amniotic membrane graft has a low recurrence rate with minimal added surgical time and minimal added risk to the patient and has merit as a surgical technique, especially for patients at high risk of recurrence.

Prospective detection of chemoradiation resistance in patients with locally advanced esophageal adenocarcinoma.

Jennifer Veaco , UofA College of Medicine - Phoenix, MS-III

See Abstract box, unable to fit list of authors in this box

RES, Poster Display No. 160

Authors: 1. Jennifer M. Veaco BS 2. Paolo Cotzia MD 3. Adam C. Berger MD 4. Daniel Rosen MD 5. Weiwei Shan PhD 6. Natalie Lassen PhD 7. Clare Johnson RN 8. Kristen M. Oelschlager RN 9. Derek Maetzold BS 10. Sunil S. Badve MD 11. Juan Palazzo MD 12. Robert W. Cook PhD 13. Kenneth Kesler MD 14. Romil Saxena MD 15. John F. Stone PhD

Abstract: Background: Approximately 25% of patients with locoregional esophageal adenocarcinoma (EC) are resistant (marked by minimal tumor regression; Tumor Regression Grade 3) to preoperative chemoradiation, including 5FU-based and CROSS regimens. We have previously validated an immunohistochemistry (IHC) test that accurately identifies patients as responders (TRG 0-2) or non-responders (TRG 3) to neoadjuvant chemoradiation. The current study was designed to identify gene expression profile (GEP) signatures able to predict response to preoperative treatment.

Methods: Formalin-fixed, paraffin-embedded (FFPE) tumor tissue from 24 diagnostic biopsies (14 responders, 10 non-responders) was collected. RNA was isolated, and RT-PCR performed to assess the expression of 96 candidate genes chosen from in silicoanalysis. Genetic signatures incorporating genes with significant expression differences in pathologically determined responders versus non-responders were identified, and linear and non-linear predictive modeling methods were used to assess the accuracy of the signatures for predicting treatment response. Cross validation was performed to attain corrected accuracy values.

Results: Ten-, 18-, and 24-gene signatures were identified with significantly different gene expression levels in responders compared to non-responders ($p < 0.05$). Functional groups represented by the signatures included DNA damage repair, extracellular matrix remodeling, and 5FU metabolism. Partial Least Squares (PLS) prediction of treatment response was compared to pathologic TRG determined by blinded pathologic reading, and resulted in an area under the curve (AUC) of 0.99 and overall accuracy of 100% for the 24-gene signature. Corrected AUC of 0.99 and accuracy of 95% resulted from five-fold cross validation with 20 iterations. Heatmap analysis of the 24-gene signature separated the EC cases into two distinct clusters, the first with 93% responders and the second with 90% non-responders.

Conclusions: The current study identifies novel gene signatures able to accurately predict EC patient response to preoperative treatment. The GEP may allow non-responders to avoid unnecessary toxicities associated with chemoradiation therapy.

A Quality and Process Evaluation of El Rio Community Health Center's Diabetes Exercise and Education Program (DEEP)

Rasiq Zackria , ATSU-SOMA, MS-III

Arka Chaudhury, Jeanette Lovato, Julie Smithwick, Jacob Sup, Chris Dixon, Ray Wagner, Joy Lewis

RES, Poster Display No. 161

Research Objectives and Purpose: Diabetic patients are a huge population at our clinics. The Diabetes Education and Exercise Program is a new physician referral program offered at El Rio's Congress Clinic. Our study aimed to evaluate the effectiveness of the program in regards to improvements in markers of the participants' health and fitness, as well as assess participant adherence to, impressions of, and suggestions for improvement of the program.

Study Design/Methods: Our assessment of the effectiveness of the DEEP was to evaluate measures and goals identified by the program directors, including: evaluation of hemoglobin A1c (HbA1c) levels at the start of the course and upon course completion, analysis of changes in participant's trends in pre-/post-exercise blood glucose levels across the span of the course, and pre-/post-fitness levels through specific measures of upper/lower body strength, and cardiovascular capacity. Our participants included pre-diabetic or diabetic patients referred by their physician. We surveyed participants to obtain self-reported attendance to classes, barriers to attendance, general impression of the classes and instructors, and suggestions for improvement.

Principal Findings and Quantitative/Qualitative Results: 27 participants qualified for our survey and we received 13 responses. Our assessment of the program revealed that collection of the relevant data by the trainers at each class was inconsistent and that testable measures of fitness improvement were not being implemented. The participant responses in our survey revealed a range of reasons for a low attendance rate and varied levels of satisfaction with the program. In addition, there were over 400 referrals made to the program and only 27 individuals attended one or more classes, suggesting barriers to enrolling new participants.

Conclusions/Impact on Health Centers: Overall, this program warrants further study to investigate its efficacy, however the perceived patient benefits of the program are encouraging for improving the diabetic health of patients in El Rio and potentially at Community Health Centers across the nation. Our findings will hopefully help identify some barriers to success experienced by the DEEP with the first couple of classes. Access to free diabetes management education and exercise programs for low-income patients has the potential to impact the growing diabetes population by addressing important social determinants of health and we encourage El Rio and the DEEP to continue its work in this area.

Limitations: We encountered limitations during our research including small sample size and lack of consistent data collection by program coordinators. It was discovered that the low enrollment numbers could be attributed to a lack of resources in the referral department at El Rio CHC. Due to lack of data collection, we were unable to make any statistically significant conclusions on the quality evaluation of the DEEP.

Efficacy of Alternate Day Statins for Lipid Reduction: a systematic review and meta-analysis

Sheena Galhotra , UofA College of Medicine - Tucson, MS-IV

Muhammad Shahzeb Khan, Irbaz Bin Riaz, Jennifer Martin, Tam H. Truong, Asad Patanwala, Marion Slack

RES, Poster Display No. 162

Background: Statins have proven to be beneficial in reducing cardiovascular morbidity and mortality. The data indicates that statins are underutilized due to cost considerations and unpleasant side effects. To overcome this problem, alternate day regimens of statins were proposed. The primary objective of this meta-analysis was to determine if alternate day dosing is as effective as daily dosing in blood lipid levels. **Methodology:** Literature search was conducted using Medline, Embase, Cochrane Central Register of Controlled Clinical Trials, and Cochrane Database of Systematic Review (CDSR). Randomized controlled trials that measured reduction in blood levels in adult patients with hyperlipidemia via alternate day statin strategy use were included. The primary outcome was reduction in serum LDL concentration while the secondary outcomes were triglyceride (TG) and total cholesterol (TC) reduction. Meta-analysis was done using random effects model utilizing DerSimonian and Laird method. Quality assessment was done using Cochrane Collaboration's tool. Heterogeneity was assessed using Q-statistic and quantified with $\beta_{1030;2}$. Publication bias was assessed with a funnel plot. **Results:** A total of 315 studies were screened and 16 studies were included in the final analysis. Group 1 was designated as "Dose Independent group" meaning that the daily dose and the alternate day dose was the same, and thus the total weekly dosing was half in the alternate day group. Group 2 was the "Dose Equivalent group" implying that the alternate day dose was more than the daily dose, such that the total weekly dose was the same. The comparison of daily to alternate day regimens in Group 1 showed greater LDL reduction (β_{956} ; reduction=7.44; CI 0.99 to 13.88; $p=0.02$; $I^2=59\%$) and TC (β_{956} ; reduction=6.85; CI 0.15 to 13.55; $p=0.05$; $I^2=63\%$) with daily use, and equivalent TG (β_{956} ; reduction=0.42; CI -7.71 to 8.55; $p=0.02$; $I^2=0\%$) reduction in both regimens. Group 2 showed no difference between the regimens in LDL reduction (β_{956} ; reduction=-4.25; CI -23.32 to 14.83; $p=0.66$; $I^2=90.2\%$) and TC reduction (β_{956} ; reduction=-2.32; CI -20.113 to 15.47; $p=0.8$; $I^2=85.6\%$). **Conclusion:** Our results show that the daily regimen is marginally favorable over alternate day dose if the statin is unchanged (the total weekly dosing is halved in the alternate day group). If the alternate day dose is increased so that the total weekly dose of the statin is the same as the daily regimen, the LDL and TC reductions are comparable. Hence alternative day statin therapy may be a reasonable treatment option in patients with side effects and compliance issues. Our analysis is limited by the high heterogeneity, missing data points and lack of individual patient data.

Diagnosis and management of hyperhidrosis in the primary care setting

Michael Lehrer BS, Creighton COM, MS-IV

Lacey Pflibsen, Jamie Bering, Jeffrey Curtis

RES, Poster Display No. 163

Background: Hyperhidrosis is an under-recognized and under-diagnosed condition affecting an estimated 2.9% of the US population. Hyperhidrosis has a significant impact on quality of life, yet studies have shown that less than 40% of affected individuals are ever diagnosed and treated. Furthermore, there are several effective treatment options for hyperhidrosis. Based on these observations it is important to understand how hyperhidrosis is diagnosed and treated in the primary care setting as this is the most common interaction patients have with the healthcare system.

Methods: A 2-item screening questionnaire based on current diagnostic criteria was randomly disseminated to patients following their scheduled visit to Dignity Health Medical Group outpatient clinics. Patients indicating that they have excessive or abnormal sweating on the screening questionnaire were then given an 11-item follow-up questionnaire to further assess their sweating. Patients were considered to have hyperhidrosis if they fulfilled at least two of six diagnostic criteria set forth by the 2004 AAD Working Group of Primary Focal Hyperhidrosis. Additionally, patients were asked if they had discussed sweating during the visit.

Results: Preliminary data from 45 patients indicated that 20% of patients experience excessive or abnormal sweating, and overall 4.4% met diagnostic criteria for hyperhidrosis. Of those who met diagnostic criteria 50% have spoken to a physician about their sweating and 50% have received treatment. The most common locations of excessive sweating were the axillae and face. Furthermore, of those patients who describe excessive sweating 55.6% have been diagnosed with generalized anxiety disorder. Only 15.6% of all respondents indicated that they had discussed sweating during their visit.

Discussion: There are only 2 published studies on the prevalence of hyperhidrosis in the literature, and only one large-scale study in the US population. Our preliminary data with regards to prevalence and rate of diagnosis are consistent with those reported in the large 2004 study. Furthermore, one of the main conclusions from the 2004 AAD Working Group consensus statement is that all providers should discuss sweating with their patients, and questions about abnormal sweating should be included on a review of systems. Our preliminary data indicate that this is not routinely occurring and thus a 2-item screening questionnaire may prove to be a valuable diagnostic tool. When our data collection is complete we expect to present a larger dataset with more definitive conclusions and recommendations.

The Characteristics of Physicians Elected and Serving in State Legislatures and the United States Congress

Matthew Petterson , UofA College of Medicine - Phoenix, MS-IV

Daniel Derksen MD

RES, Poster Display No. 164

Introduction

Physician participation in United States governance has a long and honorable history, dating back to the first Continental Congress. At a time of unprecedented change in our nation's health system, the need for physician leadership to guide health policy intervention has never been greater. However, there is a little data about physicians involved in shaping health policy in state or federal legislative branches. This study examined the characteristics of U.S. physician-legislators.

Methods

Using legislative rosters fixed on March 13, 2014, publically-available biographic and demographic information was reviewed for U.S. physician-legislators and compared to U.S. physicians in general using data from the Association of American Medical Colleges 2012 Physician Specialty Data Book. Results Physician-legislators held 95 (1.2%) of a possible 7,907 seats in the 51 U.S. legislatures. Ten (10.5%) physician-legislators were female, and 85 (89.5%) were male. Twenty-three (31.1%) were age 54 years or younger, and 51 (68.9%) were 55 years or older. Twenty-nine (30.5%) were elected as Democrats, 66 (69.5%) were Republican, and none were Independents. Eighty-three (86.3%) physician-legislators were allopathic physicians, three (3.2%) were international medical graduate physicians, and nine (9.5%) were osteopathic physicians. Comparing primary care or non-primary care medical specialties using Institute of Medicine definitions demonstrated that 44 were primary care physician-legislators (46.3%) and 51 (53.7%) non-primary care. Family Medicine had 31 (32.6%) physician legislators, Internal Medicine nine (9.5%). Taken as independent conditions and not mutually-exclusive categories, 35 (44.3%) physician-legislators were elected in their states of birth, 45 (48.9%) in their states of collegiate education, 39 (41.1%) in their states of undergraduate medical education, and 37 (40.2%) in their states of graduate medical education.

Conclusions

At a time of rapid transformation in the U.S. health care system, only a handful of physician-legislators inform health policy legislation. On average, both physician-legislators and U.S. physicians are male, graduates of allopathic medical schools, and Republican. Physician-legislators tend to be age 55 years or older; the majority of U.S. physicians are age 54 years or younger. While primary care physicians comprise just 38.0% of U.S. physicians, they constitute almost half (46.3%) of physician-legislators. Of the 44 primary care physician-legislators, most are Family Medicine or Internal Medicine, who make up 42 of the 95 (42.1%) total U.S. physician-legislators.

The Role Of Inflammatory Markers: WBC, CRP, ESR, And Neutrophil-to-Lymphocyte Ratio (NLR) In The Diagnosis And Management Of Diabetic Foot Infections

Michelle Salloum , UofA College of Medicine - Tucson, MS-IV

Eric Ong, Summaya Farran, David Armstrong, Summer Gardner, David Nix, Mayar Al Mohajer

RES, Poster Display No. 165

Background: Diabetic foot infections (DFI) are frequently associated with increased morbidity, hospitalization, and amputations. To assess the severity of inflammation associated with DFI, we often measure the values of specific inflammatory markers like white blood count (WBC), C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), and neutrophil-to-lymphocyte ratio (NLR). It is well established that these markers are good indicators of inflammation, but it remains unclear if they can aid the clinician in the diagnosis and management of DFI, and ensure a more rational use of antibiotics.

Methods: Our objective was to assess the utility of specific inflammatory markers (WBC, CRP, ESR and NLR) in discriminating between various stages of DFI. We performed a retrospective chart review of 380 adult patients admitted to Banner-University Medical Centers in Tucson AZ, between January 2013 and December 2013 for diabetic foot complications. The primary outcomes were a healed diabetic foot, a non-infected foot ulcer, an infected diabetic foot only involving soft tissue, and a diabetic foot infection involving bone (osteomyelitis).

Results: There was no relationship between clinical diagnosis and CRP ($P = 0.27$), between clinical diagnosis and ESR ($P = 0.15$) or between clinical diagnosis and NLR at follow up ($P = 0.15$). However, there was significant relationship between clinical diagnosis and WBC at follow up ($P = 0.045$).

Conclusion: Our study calls into question the utility of measuring and trending CRP, ESR, and NLR in patients with DFI. Instead, a cheaper and more accessible marker, WBC, is more useful in assessing the severity of the diabetic foot at follow up.

Role of Infectious Disease Consultation in Patients with Enterococcus Bacteremia

Pryce Gaynor MD, MPH, UACOM at University Campus, PGY-2

David Nix, PharmD1, Kathryn Matthias, PharmD1, Tsz Tsui, Pharm D1 and Mayar Al Mohajer, MD FACP

RES, Poster Display No. 166

Background: Enterococcus bacteremia is an increasingly common infection in hospitalized patients associated with significant morbidity and mortality. However, many patients are not treated appropriately due to administration of the wrong drug or treated for too short a duration. We aimed to assess the effect of infectious diseases consultation on appropriate use of antibiotics in this population.

Methods: We included hospitalized patients with Enterococcus species isolated from blood between November 2013 and December 2014 at a tertiary care academic medical center. This study was approved by the institutional review board. We excluded patients if organisms were isolated from an autopsy sample. Patients were grouped as no infectious diseases consultation, infectious diseases consultation within 72 hours of index blood culture, or infectious diseases consultation after 72 hours of index blood cultures. Time to appropriate therapy was defined as the time to any therapy appropriate for bacteremia, to which the index organism was reported as susceptible. Appropriate therapy duration was based on diagnosis and patient clinical characteristics. Appropriate antibiotic use included only patients who had both appropriate duration and drug selection. The primary outcome measure was inappropriate antibiotic use and was compared by group using a multiple logistic regression model. Data were analyzed using STATA version 13.0.

Results: A total of 65 patients were included. 34 of them were male (52.3%). Mean age was 49.2 years (SD 26.7). In 29% of the patients, positive blood cultures for enterococcus were obtained in the emergency department, compared to 31% in the ICU setting and 40% in non-ICU settings. Average duration till initiation of antibiotics was 19.9 hours (SD 35.8). The majority of the isolates were *E. faecalis* (50.8%), followed by *E. faecium* (46.1%) and *E. gallinarium* (3.1%). Infectious disease consultation was obtained in 34 patients (52.3%). Appropriate antibiotic use was more common in patients who had infectious disease consultation (32/34, 94.1%) compared to those who had not (19/31, 61.3%, $P=0.001$).

Conclusion: Infectious disease consultation is associated with improved appropriateness of antibiotic use in patients with enterococcus bacteremia.

Severe Alcohol Withdrawal Syndrome: Does Gender Matter?

Angelena Lopez MD, Maricopa Medical Center, PGY-2

Eric Lott MD, Maryam Emami MD, Richard Carlson MD, PhD, MACP

RES, Poster Display No. 167

Severe Alcohol Withdrawal Syndrome: Does Gender Matter? Angelena Lopez MD1, Eric Lott MD1, Maryam Emami, MD1, Richard Carlson MD, PhD, MACP1,2,3 Maricopa Med Ctr1, U of AZ College of Med2, Mayo Clinic College of Med3

Introduction: Severe or complicated Alcohol Withdrawal Syndrome (AWS) has been well characterized for males, but little data exists regarding demographics, course and complications of females. We reviewed patients with AWS to assess gender differences. **Methods:** All adult admissions were reviewed with primary or secondary diagnoses of AWS from 2010 through 2014, and compared results for females to a matched cohort of males from 2005-2010.

Results: There were 1500 admissions; 1404 males and 96 females. From the historical cohort mean age of males was 45.8 y (range 23-73) vs 45.6y for females (range 21-67, p=ns). Males had a 9.4d length of stay (LOS) vs 5.7d (2-24 range) for females (p<0.05). ICU admission was required for 31.2% of males vs 16.6% for females (p<0.05). Respiratory failure with mechanical ventilation (MV) developed in 52.9% males vs 43% of females (p=ns). Pneumonia developed in 50.6% males vs 31% females (p<0.05). For ward patients length of stay (LOS) was similar; 5.7d for males and 5.4d for females (p=ns). Comorbid conditions were similar, including: alcoholic or viral hepatitis, seizures, sepsis, and pancreatitis. There were no female deaths vs 1% in males. Sedation therapy was similar; for ward patients lower doses of scheduled benzodiazepines (BZD) were utilized for females, although ICU patients received similar regimens of BZD plus adjunctive therapy with propofol or dexmedetomidine.

Conclusion: Although socio-economic and cultural differences may account for gender differences in alcohol abuse, females have fewer hospital and ICU admissions and less severe or complicated AWS. The rate of ICU admission was less, with lower prevalence of pneumonia and MV. Similar comorbid conditions were seen. Female ward patients had similar LOS but lower benzodiazepine requirements. Females appear to have less severe AWS and fewer instances of severe or complicated AWS than males.

Comparison of Adenosine and Regadenoson for Measurement of Fractional Flow Reserve: Systematic Review and Meta-analysis

Iwan Nyotowidjojo MD, UACOM at University Campus, PGY-2

Iwan Nyotowidjojo MD, Justin Z Lee MD, Seongseok Yun MD, Kwan Lee MD, Tam Truong MD

RES, Poster Display No. 168

Background: Fractional flow reserve (FFR) is useful in defining the physiological significance of intermediate stenosis, and requires measurement of pressure proximal to and distal to the stenosis in conditions of maximal hyperemia. Intracoronary or intravenous (IV) adenosine is the standard clinical agent for induction of hyperemia. Regadenoson, an adenosine analogue, is approved for use as a hyperemic agent for myocardial perfusion imaging, but not FFR. Regadenoson has several theoretical advantages over adenosine in ease of administration, patient comfort and safety. This meta-analysis aims to evaluate the efficacy and safety of regadenoson, in comparison with adenosine, in assessing FFR.

Methods: A systematic literature search of 210 potentially relevant citations from PubMed, EMBASE, Web of Science and the Cochrane Central Register of Controlled Trials yielded 5 prospective studies containing comparison data of FFR measurement with IV Regadenoson and IV Adenosine.

Results: Five studies were included in the analysis, with a total of 351 patients undergoing elective coronary angiography. The mean correlation coefficient between FFR values induced by IV adenosine and IV regadenoson was 0.97 ± 0.03 . The overall mean FFR of IV adenosine and IV regadenoson were both similar at 0.80 ± 0.04 . Time to FFR nadir was shorter for regadenoson compared to adenosine with 43.2 ± 13.7 and 78.2 ± 13.7 seconds ($p=0.01$), respectively. Regadenoson, compared to adenosine, had numerically lower rate of flushing (8.2% vs 18.8%), nausea (3.8% vs 9.2%), headache (5.9% vs 8.2%), and transient heart block (0.6% vs 2.5%).

Conclusion: Our composite data suggests that IV regadenoson produces similar pressure-derived FFR compared to IV adenosine. IV regadenoson also achieves more rapid hyperemia, and has a favorable side-effect profile compared to IV adenosine. Our findings suggest that IV regadenoson is a viable alternative to IV adenosine for FFR measurement in the catheterization laboratory.

Label-free multi-photon microscopy as a diagnostic imaging modality for pancreatic cancer

Thu Pham MD, UACOM at University Campus, PGY-2

Babak Amirsolaimani, MS; Khanh Khieu, PhD; Bhaskar Banerjee, MD

RES, Poster Display No. 169

Introduction: Pancreatic cancer is a common cancer with a very poor outcome. Surgery is the only potentially curative treatment, where a frozen section biopsy is used to determine if all tumor has been removed, which is highly inaccurate. Tumor tissue is often found at the margin when after a formal histological evaluation is done several days after surgery, when it is too late to re-do the operation. There is a need to evaluate for the presence of cancer at the surgical margin at the time of the operation. Multi-photon microscopy (MPM) has emerged as a novel optical tool for imaging tissue architecture and cellular morphology without stains. The purpose of this study is to assess the ability of MPM to differentiate normal from cancerous pancreas in unstained samples.

Methods: Multi-photon microscopy system was built by the Department of Optical Sciences at the University of AZ. The excitation source is a hand-held femtosecond fiber laser. The system collects both second harmonic generation (SHG) signal and third harmonic generation (THG) signal. Home-built laser scanning software based on C sharp was used to acquire images, control image acquisition, and adjust the xyz translation stage. Pancreas samples were obtained from MIA PaCa-2 mice and preserved in 10% formalin, processed and embedded in paraffin. Samples were sectioned at 5 μm using a microtome. Prior to MPM imaging, the samples were de-paraffinized and re-hydrated through a series of alcohol and water washes. A coverslip was placed over the sample and imaged with MPM, followed by H&E staining and MPM imaging.

Results: Normal pancreatic tissues from 5 mice were analyzed and compared with cancerous pancreatic tissues from 2 mice in this pilot study. MPM image of the normal pancreas revealed regular tissue architecture and cell morphology, including typical organization of pancreatic acinus and pancreatic duct, collagen fibers, the interlobular duct, islets of Langerhans, and blood vessels. These observations of cellular architecture were comparable with the corresponding H&E stained image. MPM image of pancreatic neoplasm revealed cancerous cells to have irregular size, shape, and small nuclei compared with normal pancreatic cells. Fibrous stroma surrounding malignant glands and vessels were observed in cancerous pancreatic tissue. These features were consistent with the corresponding H&E stained results.

Conclusions: Histological results obtained using MPM in unstained normal and cancerous pancreatic tissues were consistent to H&E stained images. MPM can differentiate cancerous from normal tissue on without dyes or stains and has the potential for use in-vivo at the point of care.

Disparities In Pulmonary Arterial Hypertension: Effects Of Hispanic Ethnicity On Susceptibility To Right Ventricular Dysfunction

Parinita Dherange MD, UACOM at South Campus, PGY-3

Parinita Dherange; Vineet Nair; Irbaz Bin Riaz; Anand Shewale; Morgan E Whitaker; Vivek Yarlagadda; Channada Chinthammit; Kenneth S Knox; Zain Khalpey; Prakash Suryanarayana; Lilian M Hansen; Joe GN Garcia; Franz Rischard; Jason X.-J. Yuan; Ankit A Desai

RES, Poster Display No. 170

Introduction: Despite a negative cardiovascular risk profile and a higher prevalence of lower socioeconomic status, Hispanics have decreased pulmonary arterial hypertension (PAH)-related and all-cause mortality among major ethnicities (“Hispanic paradox”).

Hypothesis: We hypothesized that Hispanics may have improved right ventricle (RV) response and outcomes to increased pulmonary afterload compared to non-Hispanics.

Methods: Cardiac magnetic resonance imaging (cMRI), right heart catheterization (RHC), and six minute walk distance (6MWD) were prospectively performed within a period of 3 months in referred PAH patients. Effects of ethnicity were assessed using univariate and multivariate regression models after adjusting for age, gender, and PAH-specific medication (STATA 13.0). Regression co-efficient is denoted as β .

Results: A total of 8 Hispanics (3 males, 5 females) with mean age of 59.75 ± 11.88 years and 24 non-Hispanics (9 males, 15 females) with mean age 58 ± 14.26 years were enrolled. Hispanics demonstrated trends toward greater prevalence of late gadolinium enhancement (LGE) (83.3% versus 77.3%, $p=0.31$) and higher total pulmonary vascular resistance (TPVR) (10.39% versus 8.66%, $p=0.16$) compared to non-Hispanics. In Hispanics, increases in TPVR were associated with both a greater decrease in RV Ejection Fraction (RVEF) measured in % ($\beta=-4.00 \pm 0.99$, $p=0.03$), and a greater decrease in cardiac index (CI) measured in $L/min/m^2$ ($\beta=-0.27 \pm 0.06$, $p=0.02$) compared to non-Hispanics ($\beta=-0.05 \pm 0.87$, $p=0.95$ and $\beta=-0.16 \pm 0.06$, $p=0.02$, respectively). Hispanics were associated with an increased RV remodeling identified by RV end diastolic volume index (RVEDVi) measured in L/m^2 ($\beta=4.85 \pm 4.35$, $p=0.35$ versus $\beta=3.52 \pm 4.02$, $p=0.4$) and also RV end systolic volume index (RVESVi) measured in L/m^2 ($\beta=6.64 \pm 4.09$; $p=0.2$ versus $\beta=2.60 \pm 3.78$; $p=0.5$) with an increase in TPVR when compared to non-Hispanics.

Conclusions: Contrary to the hypothesis, Hispanics were associated increased pathological RV remodeling (RVEDVi, RVESVi) and significantly decreased RV systolic function (RVEF, CO) with rising pulmonary afterload compared to non-Hispanics. This susceptibility may be explained, in part, by increased prevalence of RV fibrosis (LGE) in Hispanics. The disparities in RV responses highlight the need to further investigate the “Hispanic paradox”.

Cytogenetic evolution and its effect on survival of patients with myeloid neoplasms that relapse after allogeneic hematopoietic cell transplantation.

Natalie Ertz-Archambault, MD MD, Mayo Clinic AZ, PGY-3

Kosiorek, Heidi MS; Khera, Nandita MD, MPH; Kelemen, Katalin MD, PhD.

RES, Poster Display No. 171

Background: Survival of patients with myeloid neoplasms that relapse after allogeneic hematopoietic cell transplantation (HCT) is poor. It is generally presumed that acquisition of increasing cytogenetic complexity may contribute to poor outcomes in myeloid neoplasms, but cytogenetic changes that accompany these relapses following an allogeneic HCT are not well characterized. The role of cytotoxic chemotherapy in promoting mutagenic events has been proposed, however, the specific correlation between types of chemotherapy with cytogenetic evolution has not been studied.

Specific Aims: 1. Characterize cytogenetic (CG) changes in patients with myeloid neoplasms who relapsed after an allogeneic HCT. 2. Evaluate the effect of CG evolution on survival after relapse. 3. Evaluate if there exists correlation with induction and conditioning chemotherapy received with CG evolution.

Methods: A retrospective case cohort analysis of patients with myeloid malignancies who relapsed after allogeneic HCT in a single institution. Cytogenetic (CG) data at diagnosis and relapse were compared with special emphasis on gain in abnormalities resulting in increasing cytogenetic complexity, known as cytogenetic evolution (CGE). Demographics, disease risk, transplant-related characteristics, induction, and conditioning chemotherapy were compared between patients who developed CG evolution and those who did not. Overall survival expressed in Kaplan-Meier curve, compared by log-rank test between the two groups.

Results: A total of 506 patients underwent allogeneic HCT transplant for a myeloid malignancy at Mayo Clinic AZ between 2006-2014, 92 patients relapsed post-HCT. Out of 92 cases, 49 met inclusion criteria. Out of 49 cases, 25 experienced CGE and 24 demonstrated unchanged CG at relapse. Age was similar between groups (mean=49.4). Male to female ratio was equal in the CGE cohort (48% vs 52%), and a slight female predominance was observed in the non-CGE cohort (67% vs 33%). High risk disease at baseline was more common in CGE than non-CGE, 64.0 versus 45.8 respectively. Both cohorts had comparable exposures to salvage therapy, myeloablative, and reduced intensity conditioning regimens. Median OS after relapse was 1.35 months (95% CI: 0.69-2.76) in CGE cohort versus 5.65 (95% CI: 2.14-8.48) in the unchanged cohort, $p < 0.001$.

Conclusions: Cytogenetic evolution, defined as gains in cytogenetic abnormalities resulting in increasing CG complexity, is common at relapse of myeloid malignancies after allogeneic HCT. In this population, CG evolution is associated with a significantly shorter survival compared to patients without CG evolution. High-risk disease at baseline was more commonly observed in patients with CGE than those without CGE at relapse. There was no association with myeloablative versus reduced intensity conditioning regimen or lines of salvage therapy received between cohorts. The clear association of cytogenetic evolution and shorter survival suggests that new markers would be useful to identify patients with the highest cytogenetic instability at transplant, to enable more individualized therapy in this patient group.

UPHILL BOTH WAYS: QUALITY OF LIFE IN TREATED AND NON-TREATED VALLEY FEVER

Ashley Garrett MD, Mayo Clinic AZ, PGY-3

Yu-Hui H. Chang, PhD and Janis E. Blair, MD

RES, Poster Display No. 172

BACKGROUND Primary pulmonary coccidioidomycosis is characterized by a prolonged duration of respiratory symptoms, fever, arthralgias and fatigue. We prospectively administered the fatigue severity scale (FSS) and short form 36 (SF-36) questionnaires to patients with primary pulmonary coccidioidomycosis to quantify the effect of the disease on quality of life.

HYPOTHESIS Patients with primary pulmonary coccidioidomycosis will have severe and prolonged fatigue throughout the course of the illness.

SPECIFIC AIMS To prospectively measure and describe the impact of primary pulmonary coccidioidomycosis on quality of life and the degree of fatigue experienced by affected patients (treated or untreated) during the first 24-weeks of illness.

METHODS Patients with confirmed or probable primary pulmonary coccidioidomycosis were enrolled in a prospective observational 24-week study. The study did not specify whether or not antifungal treatment was to be provided, and such decisions were left to the treating clinician. Patients were asked to complete the FSS and SF-36 questionnaires at 4 week intervals throughout the duration of the study.

RESULTS Thirty-six patients met inclusion criteria and agreed to participate in the study. Twenty patients received antifungal treatment, and 16 did not receive antifungal treatment. At the study onset, the FSS scores were notably higher than each of these disease states in both the treatment and non-treatment groups. A gradual trend of improvement in the FSS scores were seen over the 24-week period, and scores in each group fell below the level of "severe fatigue" (<4) at weeks 12 and 16 in the non-treatment and treatment groups respectively. By week 24, the mean FSS score was at the level of the general population in the non-treatment group. The SF-36 component and profile scores were lower (more symptoms) in the treatment group at most all time points compared to the non-treatment group. The majority of patients reached a level of physical functioning similar to the general population (50) at week 12.

DISCUSSION Fatigue in primary pulmonary coccidiomycosis is severe, and remains so for 12 to 16 weeks in both treatment and nontreatment groups. The fatigue is more severe than other diseases such as SLE and MS and gradually improves but remains above the level of normal healthy adults in treated patients at 24 weeks. Health-related quality of life was markedly affected in physical and social domains as well as vitality and improved to normal over a duration of 12 to 16 weeks.

CONCLUSION Pulmonary coccidioidomycosis causes severe fatigue and significantly affects patients' physical abilities. Fatigue was higher and quality of life was more affected in the treatment than non-treatment group. The course of fatigue is prolonged with a gradual improvement in quality of life measures over the 24-week period, regardless of antifungal administration.

Rapidity of Coccidioidomycosis Diagnosis and Its Effect on Healthcare Utilization

Sweta Narasimhan MD, Banner UMC Phx, PGY-3

Goodsell, Crawford, Fields, Yazdchi, Bollmann, Galgiani, Mendez, Bradley

RES, Poster Display No. 173

Two-thirds of all reported United States cases of Coccidioidomycosis (Valley Fever, VF) occur in AZ. Of these, 80% are in Maricopa County. Despite AZ Department of Health Services (ADHS) recommendations to test all community acquired pneumonia patients, only a small percentage are actually tested. Delays in diagnosis of VF could lead to unnecessary healthcare utilization, inappropriate and potentially harmful therapies, and poorer patient outcomes.

OBJECTIVES: To investigate clinical decision-making and healthcare utilization surrounding the diagnosis of VF in order to identify informatic signatures of VF onset and to assess the effect of duration of illness prior to diagnosis. **METHODS:** 495 Banner Health patients coded for VF (ICD-9 114.*) between January 1 and December 31, 2014 were identified in NextGen outpatient Electronic Record. Following a set of ten training charts to familiarize reviewers with the data collection form and assure concordant inter-rater reliability, fifty patients were randomly- selected to be reviewed. Individuals were reviewed independently by 2 teams of 2 reviewers each for: i) date of onset of symptoms prior to VF diagnosis, ii) clinical syndromes, attributed antecedent diagnoses, and activity of disease, iii) disposition, and iv) healthcare utilization including laboratory, imaging data, consultations, and therapies. Patients were excluded from the study if they were under the age of 18, or diagnosed prior to 2014. Inter-rater reliability was assessed by the data team for concordance, and a senior investigator reviewed trends in diagnosis and surrogate markers.

RESULTS: Of the fifty randomly selected patients, 37 met inclusion criteria for the study. The average number of days from onset of symptoms to diagnosis was 147, with a range from 1096 days to one day. The median number of days to diagnosis was 39. The majority of diagnosis was based on serology. Despite the wide range of clinical documentation, the reviewers agreed on the type of initial presentation of VF 88% of the time. The most common type of initial presentation was acute respiratory illness (58% of patients), with the remainder presenting with a pulmonary nodule or cavitory lesion, skin findings such as rash or erythema nodosum, or dissemination. The most common surrogate markers were cough in 59.5%, fever in 46%, fatigue in 40.5%, chest pain/discomfort in 29.7%, and pulmonary nodule or cavitory lesion in 29.7%. Eight percent of patients were hospitalized after diagnosis. Other healthcare utilization will be reported separately.

CONCLUSION: Initial findings of this study outline the average length in days to diagnosis of VF, as well as the wide range of time to diagnosis. Clinical decision making surrounding the diagnosis of VF is variable. Informatic signatures identified in this initial phase will be used in the next phase of this study for further analysis of the value of earlier VF diagnoses.

Left atrial appendage exclusion in patients with atrial fibrillation is associated with a decreased risk of stroke

Aalap Narichania MD, Mayo Clinic AZ, PGY-3

Victor Abrich, M.D., William T. Love, M.D., Dan Sorajja, M.D.

RES, Poster Display No. 174

Purpose: Using a retrospective cohort analysis, we tested the hypothesis that patients with atrial fibrillation have a decreased 1-year stroke risk following surgical left atrial appendage (LAA) exclusion.

Methods: This was a retrospective cohort study assessing patients from Mayo Clinic AZ and Mayo Clinic Rochester with atrial fibrillation who had undergone coronary artery bypass graft surgery and/or mitral valve surgery between 2001 and 2014. Patients were screened electronically using ICD-9 codes for a diagnosis of atrial fibrillation. The first 500 patients that met the inclusion criteria were selected for analysis. The primary outcome was a composite of stroke or TIA within 1 year of surgery. Patients were divided into two groups: those who had undergone LAA exclusion at the time of cardiac surgery, and those who had not undergone LAA exclusion. The Chi-Square test was used to calculate p-values for differences between the two groups including demographics, co-morbidities, anticoagulant use, and surgical procedures. A two-tailed student's t-test was used to calculate the p-value for difference in mean CHA₂DS₂VASc scores, mean bypass time, and mean cross-clamp time. A Cox proportional hazards regression modeling approach was used to derive the hazard ratio (HR), corresponding 95% confidence interval (CI), and p-value for the association between LAA exclusion and time to event (stroke/TIA or 1-year follow-up) as a multivariate analysis. All p-values were considered to be statistically significant at $p < 0.05$. This study was approved by the Mayo Clinic Institutional Review Board (IRB). **Results:** Several baseline differences were detected between the two groups. Among patients who underwent LAA exclusion, there was a greater percentage of females, and a lower prevalence of hypertension, diabetes mellitus, systolic dysfunction, and vascular disease compared to patients who did not undergo LAA exclusion. A greater percentage of patients in the former group were on anticoagulation and their mean CHA₂DS₂VASc score was lower (3.1 vs 3.6, p-value of 0.0008). There was a statistically significant difference in the primary outcome of stroke and TIA within 1-year, with fewer events occurring in the LAA exclusion group. These differences were observed in both the univariate analysis and multivariate analysis. The multivariate hazard ratio was 0.33 in the LAA exclusion group (0.12-0.81 confidence interval, p-value of 0.0145).

Conclusions: In our retrospective cohort analysis there was a significantly decreased incidence of stroke or transient ischemic attack in patients with atrial fibrillation who had undergone LAA exclusion. Despite significant differences in baseline characteristics this result persisted with multivariate analysis, controlling for the use of anticoagulation and CHA₂DS₂VASc score. Despite the fact that LAA exclusion has been common practice for years, limited evidence is available regarding its efficacy. This data suggests that LAA exclusion may reduce the long-term risk of stroke in patients with atrial fibrillation.

A New Risk Factor to Consider in Patients with Severe Aortic Stenosis: Severe Pulmonary Hypertension Predicts Higher All Cause Mortality

Sridhar Reddy MD, UACOM at South Campus, PGY-3

Sarika Ballari, MBBS; Jagdesh Kandala MD, MPH; Ranjith Shetty MD; Kapil Lotun MD

RES, Poster Display No. 175

Introduction The estimated prevalence of pulmonary hypertension (PH) in patients with severe aortic stenosis (AS) is 65%. Most studies to date assessed PH severity using noninvasive measurements of pulmonary artery systolic pressure, which correlates only modestly with invasive measurements. Using the gold standard of right heart catheterization, we looked to differentiate patients with baseline PH into mild, moderate and severe and assess the impact these varying severities have on clinical outcomes after transcatheter aortic valve replacement (TAVR).

Methods We performed a retrospective analysis of patients from 2012-2014 who underwent TAVR at our institution and were then followed for 1 year in an ambulatory clinic setting. Prior to the procedure, patients underwent right heart catheterization in order to assess pulmonary artery systolic pressures (PAPs) and were differentiated into mild, moderate and severe PH. Primary end-point was clinical outcomes measured as all cause death at hospital discharge and at one year. Secondary end-point was hospital length of stay. $P < 0.05$ was considered statistically significant.

Results A total of 73 patients were found to have PH. Mild PH was present in 19(26%), moderate PH in 45(61.6%), and severe PH was present in 9(12%). Among these, a total of 6(8.2%) died at 30-day follow up. At 30-day follow up, all-cause mortality was 0 in the mild PH group, 3 (6.6% in moderate pulmonary hypertension, and 3(33.3%, $p=0.009$) in severe PH. After mean follow up duration of 6.2 ± 5.6 months, a higher mortality rate of 66.6%($n=6$) was noted in severe PH group when compared to 15.5%($n=7$) in the moderate PH group, and 15.7%($n=3$) in mild PH ($p=0.002$). Kaplan-Meier survival analysis demonstrated worse event free survival in patients with severe pulmonary hypertension. In a multivariate Cox proportional hazards model, severe pulmonary hypertension was an independent predictor of all cause mortality with a hazard ratio of 3.4($p=0.035$).

Conclusions Severe PH is an independent predictor of all cause mortality in patients undergoing TAVR. This study suggests that the stratification of PH according to severity is useful for risk stratification of patients with severe AS being considered for TAVR. This can have important implications for treatment decisions amongst physicians and patients.

The Significance of bacteriuria in patients with ESRD on Hemodialysis

Ibrahim Taweel MD, UACOM at University Campus, PGY-3

Alexis Duarte, David E. Nix PharmD, Mayar Al Mohajer MD

RES, Poster Display No. 176

The Significance of bacteriuria in patients with ESRD on Hemodialysis.

Importance Studies have shown high prevalence of bacteriuria in patients on hemodialysis (25-30%). Bacteriuria is believed to be a potential reservoir for infections leading to cystitis, pyelonephritis and perinephric abscesses. However, it is unclear whether treatment of asymptomatic bacteriuria is associated with lower rates of urinary tract infections or readmission rate.

Objective "To assess the significance of symptomatic and asymptomatic bacteriuria in patients with ESRD on hemodialysis by analyzing factors associated with recurrence of bacteriuria and hospital readmission within 6 months of bacteriuria" Design, Setting, and Participants Retrospective chart review with no control group of 41 adult patients with ESRD on hemodialysis with bacteriuria during the hospital stay or within seven days of admission at Banner-University medical centers- Tucson (Main Campus and South Campus) between January 2008 and December 2012.

Main outcomes The primary outcome was bacteriuria recurrence and hospital readmission with 6 months of bacteriuria. Exploratory secondary outcome was the use of antibiotics for symptomatic vs asymptomatic patients. Results The mean age of patients was 62 years old, 14/41 were males (34.1 %) and 17/41 were Hispanic (40.0%). The most common cause of ESRD was DM (63.4 %). The majority of patients (85.4%) had a monomicrobial bacteriuria (most commonly caused by Lactose fermenting gram negative rods) [39%] Fluoroquinolones were the most common class of antibiotic used 16/25 (39%). 9/41 patients (22%) had urinary symptoms. All of them received antibiotic therapy. 6/32 asymptomatic patients (50%) received antibiotics. In the univariate analysis, antibiotic prescription was associated with microbiologic response ($P=0.03$) but this was not demonstrated in the multiple regression model. Pyuria was the only factor that was associated with readmission ($p=0.009$) in the multiple regression model. However this is likely related to longer duration of follow up in patients with pyuria than patients without pyuria (77.7 vs 23, $P=0.038$)

Conclusions 50% of patients with ESRD on hemodialysis with asymptomatic bacteriuria received antibiotic therapy. Antibiotic use was not associated with lower rates of readmission or recurrence of bacteriuria, so avoiding antibiotics in asymptomatic patients should be considered

A Comparison of Clinical Outcomes before and after the Implementation of a Universal Decolonization Protocol in a Combined Twenty-Bed Medical and Surgical Intensive Care Unit

Krystal Renszel DO, Banner UMC Phx, PGY-4

Sarah Waybright, Thomas Deeren, Lindsay Kittler, Hamed Abbaszadegan, Negin Blattman

RES, Poster Display No. 177

Introduction: An estimated 722,000 patients contracted a healthcare associated infection (HAI) in United States hospitals in 2011. Contributing to these numbers has been the emergence of multi-drug resistant organisms (MDROs). Identification of patients who are colonized with MDROs and employing infection prevention measures is now standard practice. Universal decolonization has gained popularity, wherein patients are decolonized regardless of colonization status with the primary outcome of decreasing clinically significant HAIs. Our study aims to compare clinical outcomes from the time periods before and after the implementation of a universal decolonization protocol in a 20-bed medical/surgical intensive care unit and support ongoing universal decolonization practices.

Methods: A retrospective, observational chart review was performed on all patients with full admission to the Phoenix Veteran Affairs Healthcare system medical/surgical intensive care unit from March 1 2014-September 30 2014 (protocol group) and compared with a control group from the same time frame in 2013. Full admission was defined as ICU length of stay > 24 hours and not admitted to ICU for observation. MRSA colonization status was determined upon admission, transfer, and discharge if applicable. All patients were decolonized with nasal mupirocin for 5 days and chlorhexidine baths for the duration of ICU admission. The primary outcome evaluated was ICU attributable positive blood cultures. Secondary outcomes include ICU-attributable catheter associated urinary tract infection (CAUTI), central line associated bloodstream infection (CLABSI), other positive cultures, and MRSA colonization rates of Phoenix VA patients upon admission to the ICU and upon transfer to the medical ward and/or discharge from the facility. Standard descriptive statistics were used to compare group demographics. Outcomes were compared between groups using odds ratios with a 95% level of confidence.

Results: Of 1438 patient charts reviewed, 713 patients met inclusion criteria: 343 in the protocol group and 370 in the control group. Demographics were evenly matched between the two groups. ICU attributable positive blood cultures occurred in 5 of 343 patients in the protocol group compared to 15 of 370 patients in the control group (OR 0.35, 95% CI: 0.13 to 0.97). CLABSI was found in 4 of 143 patients in the protocol group compared to 13 of 141 in the control group (OR 0.28, 95% CI: 0.09-0.89). CAUTI and other positive cultures yielded no significant difference between groups. Protocol adherence was only 49%.

Conclusions: A universal decolonization protocol may decrease the incidence of ICU-attributable positive blood cultures and CLABSI. Limitations to this study include its retrospective nature, low protocol adherence, and low prevalence of MRSA colonization in our patient population. Based upon our results, with improved protocol adherence, universal decolonization measures would be expected to yield further reductions in ICU attributable infections.