Community

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undergoing EGD with Biopsy

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Honduras

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Shideh Chinichian MS
Michael Caire MD
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Mitesh Bhalala MD
Jenna McAllister MD
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Calf Pain

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Protocol Liver Transplant
Group 3

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J Michele Sundar MD
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Rouzbeth Shams MD
Joshua Morales MD
Eric Stites MD
Thomas Murray MD
Treated with Rituximab
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Calf Pain

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A 35-year-old female presented with a three week history of progressive painful right-sided neck swelling. She had recently completed a failed 10-day course of amoxicillin-clavulanate for presumed sialoadenitis. Review of systems was pertinent for headaches, night sweats, weight loss, fatigue, and anorexia. Past medical history was significant only for chronic anemia and multiple childhood blood transfusions. She immigrated to the United States from Sub-Saharan Africa twelve years prior and admitted to having multiple sexual partners. Her vital signs were unremarkable on admission. Examination was significant for a 4-cm firm but tender right-sided neck mass extending submandibularly, with significant anterior and posterior cervical chain lymphadenopathy. Laboratory investigations were remarkable for a hematocrit of 10 and a WBC of 4. Computed Tomography of the neck demonstrated multiple necrotic appearing multi-locular lymph nodes along the right submandibular region and anterior and posterior lymphatic chains. Chest x-ray was unremarkable. Biopsy of the neck mass revealed caseating granulomas, which were consistent with tuberculosis, and a diagnosis of Tuberculous Cervical Lymphadenitis (Scrofula) was made. She also tested HIV positive, with a CD4 count of 48 and a viral load of 82,000. Empiric treatment with antitubercular medications and Highly Active Anti-Retroviral Treatment (HAART) was initiated and the patient improved clinically. Biopsy cultures of the lymph nodes later returned positive for Mycobacterium Tuberculosis. In the United States, the occurrence of extrapulmonary tuberculosis (EPTB) has increased and was noted to be greater than 20% in 2006, with the majority of patients having concomitant HIV infection [4,7,9]. Clues suggesting EPTB are cervical lymphadenopathy, HIV positive status, and TB endemic country of origin. Scrofula is the most common extrapulmonary TB manifestation, with an incidence of 30-40% [1,2,4,5,6,9]. CT scans of the neck mass often reveal a multi-locular heterogeneous pattern with peripheral or central necrotic foci [3,4]. Fine needle aspiration is an excellent initial diagnostic modality with a high sensitivity and specificity [8]. Lymph node excision biopsy, however can be used, as it provides a much greater specimen yield and allows for a more rapid diagnosis. Use in combination with molecular techniques can also speed diagnosis [1,3,4,9]. Treatment for EPTB consists of a two-months of isoniazid, rifampin, pyrazinamide, and ethambutol followed by four to seven months of isoniazid and rifampin [3,4,9]. Tuberculosis is a disease uncommonly encountered in the United States. In addition, EPTB is an even rarer manifestation, and can easily be missed. A high index of clinical suspicion must therefore be required, especially in high risk groups such as immigrants from TB endemic areas and HIV positive patients.
STREPTOCOCCUS CANIS ENDOCARDITIS: THE SLITHERING DOG

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Introduction: Streptococcus canis is an uncommon human pathogen that has been documented as the causative organism in soft tissue infections, urinary tract infections, osteomyelitis, and pneumonia. Cases of human S. canis endocarditis, however, have not been described. We present herein an unusual case of a 51 year-old patient diagnosed with S. canis endocarditis after initially presenting with cerebrovascular accident secondary to septic thromboembolism from his impressive (and serpentine) cardiac vegetation. Case Description: A 51 year-old Caucasian male with a history of tonsillar cancer (surgically treated), chronic kidney disease stage III, and coronary artery disease presented to the local emergency department with acute onset of right-sided facial droop and sensory changes. Physical exam disclosed poor dentition, a III/VI holosystolic murmur loudest at the apex and right-sided sensory and motor deficits. MRI of the head demonstrated multifocal embolic infarctions in the left middle cerebral artery distribution. A transthoracic echocardiogram revealed a mobile echodensity on the mitral valve (MV), which was further characterized by a transesophageal echocardiogram. The patient was recommended for valve replacement surgery, and he successfully underwent aortic and mitral valve tissue repairs. An excerpt from the procedure note reads as follows: “A massive vegetation is located on the base of the posterior MV leaflet burrowing into the atrioventricular groove and both sides of the annulus with a long tapering tail -- like the rattle snake. It extended down and into the left ventricle and prolapsed up and through the aortic valve. A 1 cm vegetation is located on the non-coronary cusp of the aortic valve.” Blood cultures grew Streptococcus canis. The patient completed six weeks of intravenous antibiotic therapy with ampicillin and gentamicin after valve repair. Discussion: S. canis, a beta-hemolytic species, is not a typical causative organism for infective endocarditis in humans. It is possible this patient’s tonsillar cancer and poor dentition provided entry into the circulation. Additionally, as a pet owner, his close contact with dogs served as a unique risk factor for this organism. It is interesting to note that routine microbial characterization techniques may mistake S. canis for Group B streptococcus (GBS) due to their phylogenetic similarities. As GBS is not regarded as particularly virulent in non-pregnant human adults, improved precision with typing could implicate S. canis as a more prevalent infectious agent than is currently understood. Advanced classification techniques showing improved accuracy have been described in veterinary literature but are not presently available in standard laboratories. This landmark case serves to underscore the pathologic potential of S. canis in humans and suggests that a high index of suspicion should be applied to infections classified as GBS in non-pregnant adults for epidemiologic purposes and patient care.
A Case of Refractory Diffuse Alveolar Hemorrhage Secondary to Systemic Lupus Erythematosis Successfully Treated with Rituximab

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Introduction: Diffuse alveolar hemorrhage (DAH) is a rare but deadly complication of systemic lupus erythematosis (SLE). It is thought to be caused by immune-related damage to the pulmonary microvasculature with subsequent bleeding into the alveoli. High-dose corticosteroids are the mainstay of treatment, and cyclophosphamide is typically administered concurrently, but there is minimal evidence for the benefit of additional therapies. We report a case of SLE-associated DAH refractory to high-dose steroids, plasma exchange electrophoresis (PLEX) and intravenous immunoglobulin (IVIG), which then responded well to rituximab.

Case Presentation: A 24 y/o female with SLE, maintained on prednisone and hydroxychloroquine, was admitted with a non-viable pregnancy and was subsequently found to have a lupus flare. She developed renal failure secondary to lupus nephritis class IV, was started on dialysis and treated with steroids. One dose of cyclophosphamide was administered, but this was discontinued due to thrombocytopenia. Her course was complicated by multiple intubations, initially thought to be secondary to pulmonary infection, and severe sepsis due to enterococcus bacteremia and clostridium difficile colitis.

Several months into her hospitalization, she developed worsening hypoxia requiring maximum ventilator settings. Bronchoscopy showed DAH and she was treated with 3 days of high-dose pulse steroids, 5 cycles of PLEX, and 4 doses of IVIG, with some improvement. No additional immunomodulatory drugs were initially administered due to concern about her recent infections. The patient developed worsening hypoxia 3 weeks later and repeat bronchoscopy showed recurrence of DAH, for which she was again treated with high-dose pulse steroids, 5 cycles of PLEX and 4 doses of IVIG. 10 days later she developed a second recurrence of DAH at which point it was decided to start an immunomodulatory drug. Because she had developed thrombocytopenia in response to cyclophosphamide, and had developed cytopenias with azathioprine and mycophenolate as an outpatient, rituximab was started instead. After initiation her ventilatory status improved within days. She was eventually weaned to extubation and had no further recurrences of DAH.

Discussion: In addition to high dose corticosteroids and cyclophosphamide, IVIG and PLEX are sometimes used as adjunctive treatments for severe cases of DAH or those which do not respond to steroids. However, these have not been definitively shown to improve mortality. Rituximab, a monoclonal anti-CD20 antibody that targets a subset of B lymphocytes, is rarely used in this setting, but several recent case reports suggest that it has successfully treated DAH due to SLE. Our patient's response to rituximab further supports that it may be beneficial in this setting and that it may have benefit in addition to steroids, PLEX and IVIG.
TIME DOES NOT HEAL ALL WOUNDS: A CASE OF A NON-HEALING STERNOTOMY FOLLOWING CORONARY ARTERY BYPASS GRAFT

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A 41 year-old white male inmate was originally admitted to the cardiology service following a cardiac arrest. Coronary artery bypass grafting and aortic valve repair were performed due to severe aortic insufficiency and left anterior descending disease. The patient’s hospital course was complicated by Vancomycin-sensitive enterococcus bacteremia, which was appropriately covered with antibiotics. Over the course of two weeks following surgery, he developed a chronic, non-healing sternal wound as well as breakdown of his saphenous vein graft harvest site, both with multiple necrotic areas. He had had no history of difficulty with wound healing, nutritional deficiency, or rheumatologic conditions. Surgical wash-out and irrigation of both sites were performed, and it was noted that the surrounding muscle and bone appeared healthy despite skin necrosis. A large debrided ulcer on the right medial thigh is described as having arcuate peripheral extensions with a "gun-metal" gray undermined border. Dermatology was consulted intra-operatively and biopsies of the affected areas were obtained. Tissue cultures were negative for infection, with tissue pathology showing severe acute inflammation involving the epidermis, dermis, subcutaneous tissue and skeletal muscle with necrosis.

All work-up for associated disorders was negative to include ANA for systemic lupus erythematosus, c-ANCA and p-ANCA to evaluate for vasculitis, as well as anti-phospholipid antibody, protein C and protein S deficiencies, and anti-cardiolipin antibody. Despite negative tissue and blood cultures, the patient was persistently febrile with leukocytosis of neutrophil predominance. Patient was started on hi-dose prednisone and cyclosporine, as well as a burst of intravenous immune globulin. All wounds showed significant improvement with formation of granulation tissue. By the time of discharge, prednisone was tapered to minimal doses, cyclosporine was discontinued, and patient was started on mycophenolate.

Pyoderma gangrenosum (PG) is an ulcerative, necrotizing dermatosis due to dermal infiltration of neutrophils. Characterized by pathergy, PG may often be mistaken for a postoperative infection. In the case of non-healing surgical wounds despite broad-spectrum antibiotics, one should investigate alternative diagnoses. Pyoderma gangrenosum may present as a syndrome similar to sepsis with persistent negative cultures. Biopsy of the lesions should be obtained and infection ruled out prior to start of immunosuppressants, which is the treatment for PG.
A CASE OF THYROTOXIC PERIODIC PARALYSIS IN AN AFRICAN AMERICAN MALE: A RARE CAUSE OF HYPOKALEMIA

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A 21 y.o. previously healthy African American Male presented with acute extremity weakness. He reported upper and lower extremity weakness particularly in the proximal muscle groups. Upon further questioning he described muscle cramping, a twenty pound weight loss over the past three weeks, heat intolerance, and excessive perspiration. On presentation he was afebrile and hypertensive. Physical exam confirmed decreased strength in his extremities and an enlarged thyroid. His EKG showed sinus rhythm with a prolonged QT interval. Serum potassium was markedly low at 2.2. Thyroid studies include an undetectable TSH as well as elevated Free T4 and T3. Thyroid stimulating antibodies, Thyroid receptor antibodies, and Thyroid peroxidase antibodies were positive. Creatinine, urine electrolytes, renin-aldosterone, and cortisol levels were normal. Thyroid US showed an enlarged, heterogenous, and hyperemic thyroid gland. Radio-iodine thyroid uptake scan was consistent with Graves disease. The patient was diagnosed with Thyrotoxic periodic paralysis (TPP) and Methimazole was initiated. His weakness resolved with electrolyte replacement.

A literature search identified only thirteen other cases worldwide of TPP in African Americans, as it is exceedingly rare in that ethnic group. TPP is a subtype of acquired hypokalemic periodic paralysis which itself has a prevalence of 1:100 000. 95% of TPP cases occur in men despite higher incidence of hyperthyroidism in women. The incidence is particularly high in Asian men with thyrotoxicosis (8.7-13%) compared with non-Asian populations (0.1-0.2%).

The proposed mechanism is that thyroid hormone increases sodium-potassium ATPase activity on the skeletal muscle membrane leading to intracellular influx of potassium. Thyrotoxic patients with periodic paralysis have higher sodium pump activity compared to those without paralytic episodes. Additionally, excess thyroid hormone increases tissue response to Beta adrenergic stimulation. The result is hyperpolarization of the muscle cell membrane which leads to inexcitability of muscle fibers.

This case demonstrates the importance of testing for hyperthyroidism as a potential cause for weakness and hypokalemia, regardless of the patients race.
Case Presentation: A 21 year-old obese African-American male presented to hospital with a three week history of right-sided frontal headache following a flu-like illness. The headaches were associated with occasional involuntary limb movement and staring spells, and a 10-minute grand mal seizure on the day of admission. On examination, he was afebrile, with dyssynchronous jerking movements in the left hand, left arm, and abdomen. Brain MRI revealed right-sided cortical signal abnormality with subtle asymmetry in the diffusion signal, most notable in the temporal lobe. EEG was consistent with seizure activity and baseline encephalopathy. CSF cell count was unremarkable, and cultures were negative. The patient was treated with multiple anti-epileptic agents with poor control of seizure activity, eventually requiring induction of coma in the ICU.

The patient recovered after institution of steroids and a 37-day hospital stay. His MRI abnormalities resolved and he was discharged seizure-free on levetiracetam. Workup for paraneoplastic encephalitis was negative, but anti-glutamic acid decarboxylase (GAD) antibodies were elevated to 87.2 U/mL (N<1.1 U/mL), which was confirmed on repeat study. The discharge diagnosis was limbic encephalitis.

Case Discussion: Limbic encephalitis (LE) can be a result of a viral, paraneoplastic, or autoimmune process that presents with seizures, mood changes, and memory dysfunction. Patients with autoimmune LE can display a number of different antibodies, including anti-GAD, and an understanding of the significance of these findings is evolving.

The GAD enzyme is crucial to the synthesis of gamma-aminobutyric acid (GABA), the down-regulation of which is associated with seizures. GAD antibody titers have been shown to correlate directly with seizure activity and inversely with memory in LE case studies. GAD antibody titers are also high in some patients with refractory epilepsy and in 60% of patients with stiff-person syndrome (SPS). These findings suggest that GAD antibodies are pathogenic in LE, or that they proliferate as a result of another causative process in these disorders. The presence of GAD antibodies in pancreatic islet cells in 70% of patients with type 1 diabetes has already established their role as a harbinger of autoimmune disease.

Case studies suggest that immunosuppressive therapy can improve the outcomes of patients with anti-GAD LE in regards to seizure recurrence and memory. There are no guidelines for treatment at this time, but physicians caring for patients with LE may find it helpful to trend the levels of anti-GAD throughout the course of the illness. As antibody screening becomes more commonplace in neurological disorders, physicians can look forward to a better understanding of GAD, a faith that may be rewarded with new treatments.
A 56 year old male with a history of chronic allergic rhinitis and treated pulmonary tuberculosis presented to his primary care physician’s office with complaints of cough, sore throat, rhinorrhea, and frontal headache. He had previously been treated with neosynephrine nasal spray and subsequently developed intermittent epistaxis. His symptoms did not respond to over-the-counter decongestants and antihistamines. He was diagnosed with acute sinusitis and treated with oral antibiotics. His symptoms failed to improve with two courses of antibiotics, and the patient was subsequently referred to otolaryngology. Anterior rhinoscopy revealed leftward septal deviation, multiple prominent vessels along the septal walls and nasal floors without telangiectasias, but otherwise, no apparent pathology. He was instructed on proper nasal hygiene and continued on oral antihistamines.

Approximately one month later, he presented to the emergency department with continued epistaxis as well as newly developed hemoptysis. Laboratory studies revealed a decrease in hemoglobin from a prior level of 14.1 g/dL to 10.8 g/dL and a rise in serum creatinine from a baseline of 0.8 mg/dL to 2.1 mg/dL. Urinalysis showed 3+ protein and 176 red blood cells per high powered field with many dysmorphic red blood cells. The patient also had chest radiograph and CT findings of patchy airspace disease in the right upper and left lower lobes which could represent reactivation tuberculosis. Reactivation tuberculosis was ruled out with three sputum samples and a bronchoalveolar lavage which stained negative for acid fast bacilli. A rheumatologic work-up yielded a negative anti-nuclear antibody, negative double-stranded DNA antibody, and normal complement levels. Additionally, HIV and viral hepatitis panels were also negative. A vasculitis panel revealed undetectable myeloperoxidase antibody but a proteinase-3 antibody >8.0 AI. The patient underwent renal biopsy and pathology was consistent with clinical diagnosis of Pauci-immune (ANCA associated) crescentic glomerulonephritis secondary to granulomatosis with polyangiitis. He was started on high dose glucocorticoids and cyclophosphamide for induction of immunosuppression.

This case demonstrates the relatively innocuous development which is common in ANCA associated vasculitis such as granulomatosis with polyangiitis (formerly Wegener’s granulomatosis) prior to development of significant disease as manifested in this case by acute renal failure secondary to glomerulonephritis.
Introduction: West Nile Virus [WNV] is one of the most common arboviruses. Since first discovered in the United States in 1999, small outbreaks have occurred. Human infections range from asymptomatic individuals, simple viral febrile illness, pharyngitis, gastrointestinal upset to devastating invasive meningoencephalitis.

Case Presentation: A 63-year-old male with no significant past medical history except mild mental retardation presented with new onset of fever, diaphoresis, headache, and change in mental status. On presentation, he was noted to be febrile to 103.4, with heart rate of 88 and blood pressure of 126/83. Physical exam revealed a well-built man with nuchal rigidity. He was alert, able to follow commands, but oriented only to self. Neurologic examination was otherwise normal. The complete metabolic panel was normal. The CBC was significant for a WBC of 14,000 with a normal differentiation. A head CT demonstrated no acute pathology. Initial attempts at lumbar puncture were unsuccessful. As such, empirical antibiotics with vancomycin, ceftriaxone, and ampicillin were started. On hospital day two, lumbar puncture revealed an opening pressure of 27, WBC 190 with 89% lymphocytes, and RBC 8. Despite thirty hours of broad-spectrum antibiotics, the patient’s mental status progressively deteriorated. The infectious disease consultant recommended adding acyclovir and sending cerebrospinal fluid [CSF] serologies. In the light of the clinical decline, lumbar puncture was repeated 24 hours later showing continued elevated opening pressure and a lymphocytosis. Following intubation for airway protection, serial lumbar punctures were performed indicating increasing intracranial pressure. Ninety-six hours into admission, CSF serologies returned positive for West Nile Virus IgM. The patient slowly improved though required a tracheostomy and gastrostomy tube prior to discharge to a nursing facility. Further investigation determined the likely exposure to have been the trash [including dead birds] at a local park where the patient worked.

Discussion: In 2000, there were 19 cases of neuroinvasive disease related to WNV. The reported incidence has been increasing. During an outbreak in 2003, there were over 2000 estimated cases of neuroinvasive disease. Long-term neurologic deficits are unfortunately common following recovery. This case demonstrates the neurological devastation of West Nile Virus. Furthermore, it underscores the importance that physicians consider the disease in their differential diagnosis of alerted mental status particularly among those individuals are non-responsive to standard therapy. Though therapy is non-specific and supportive, recognition and accurate diagnosis can guide health providers and families in making appropriate management decisions during the acute phase of the illness. Additionally, recognition of the disease provides the best means of employing multi-disciplinary resources including infectious disease specialists, social workers, and the local health department to effectively implement potential community prevention strategies.
Mr. H was a 79 year-old Caucasian male who presented to the outpatient clinic with a three-month history of lower extremity rash. His past medical history included uncontrolled hypertension, hypothyroidism, and a cystic liver mass incidentally discovered on computed tomography (CT) of the abdomen in 2005. At that time, the patient had been seen by a hepatologist but declined image guided aspiration following negative tumor markers, including CA 19-9 and CEA. He had a follow-up CT in 2008, showing increased liver mass size along with a new mesenteric mass, but was lost to follow-up until he presented here three years later. On review of systems, he denied ever experiencing flushing, wheezing, diarrhea, or other recognized carcinoid symptoms. On exam, Mr. H was a well-groomed male in no apparent distress. He had a few facial telangiectasias. Cardiovascular exam revealed a 4/6 crescendo decrescendo murmur at the lower left sternal border. There was a loud S2 with bell-ringing quality on inspiration. There was also slight gynecomastia, 1+ pitting edema of the lower extremities bilaterally with extensive scaling purpuric rash of the anterior and lateral legs. Neurological exam of the lower extremities, including vibratory sensation and strength, was within normal limits.

Because of the constellation of findings including liver and mesenteric masses, cardiac murmur, and lower extremity rash, a diagnosis of metastatic carcinoid tumor with resultant niacin deficiency and pellagra was entertained. Echocardiogram revealed a fixed open and sclerotic tricuspid valve with severe tricuspid regurgitation. Labs included marked elevation of chromogranin A (855 nmol/L, range 0-5), serum serotonin (1419 NG/ML, range 21-321), 5-HIAA (158.8 mg/24 hr, range 0.0-14.9), and neurokinin A (166 pg/mL range 0-40). A twenty-four hour OctreoScan was highly suspicious for a neuroendocrine tumor with increased activity in multiple areas of the liver and in the previously noted mesenteric mass. During the course of his evaluation, he did develop diarrhea. Ultimately, treatment was begun with octreotide twice daily as well as niaspan 500 mg daily with improvement in his lower extremity findings and diarrhea. However, he later became progressively weakened and ultimately succumbed to his disease one year after diagnosis.

Worldwide, pellagra is typically a disease of malnutrition. In the western world, it is more commonly associated with carcinoid syndrome. Tryptophan is an essential component of niacin and serotonin production. The overproduction of serotonin in carcinoid tumor depletes tryptophan, resulting in niacin deficiency. As for valvular heart disease, this case highlights the typical finding of a fixed open tricuspid valve with severe regurgitation. This is believed to be due to the effects of serotonin and 5-HIAA on the endocardium. This case illustrates both the difficulty in diagnosing neuroendocrine malignancy and the association of carcinoid tumor with pellagra and with valvular heart disease.
Radioactive iodine has an established role in treatment of thyroid carcinomas. Data on the transfer of radioiodine into human milk, however, are lacking and there are no specific guidelines on the dosing of I-131 for treatment of metastatic thyroid carcinoma in a lactating patient.

A 38 year-old female presented four weeks post-partum with a new left lateral neck mass. The patient denied any symptoms of thyroid dysfunction or compressive symptoms. A lymph node biopsy revealed papillary thyroid carcinoma. Imaging revealed bulky adenopathy of the neck. She underwent a total thyroidectomy with a neck dissection of levels 1B through 6, and was found to have positive nodes in levels 2a, 3, 4, and 6 with minimal extrathyroidal extension (T3N1Mx). Her post-operative course was complicated only by mild hypoparathyroidism. The patient was discharged with plans for I-131 remnant ablation following dosimetry calculations. A pre-ablation whole body scan showed significant uptake in the neck, supraclavicular region, and breast tissue. The patient continued to breast feed until the day prior to dosimetry, so she was prescribed bromocriptine 2.5 mg daily for five days to suppress lactation prior to ablation and to decrease iodine uptake in the breast. She underwent remnant ablation therapy with 149.2 mCi of I-131. A post treatment scan eight days following ablation therapy showed significantly decreased uptake of I-131 in the breast tissue when compared to the scan taken prior to bromocriptine administration. The patient was started on a suppressive dose of levothyroxine with scheduled follow up in six weeks.

The sodium iodine symporters in lactating breast tissue are responsible for the absorption and subsequent excretion of iodine in breast milk. This can decrease the availability of radioactive iodine to remnant thyroid tissue, potentially compromising effective ablation therapy. One case series of nine patients showed reduced I-123 uptake in those who received lactation-inhibiting medications when compared to those who did not, but there is an absence of literature that addresses effective strategies for radioiodine ablation in the lactating patient.
Autoimmune polyglandular syndrome (APS) is a condition characterized by T-cell infiltration, endocrine tissue destruction, and resultant dysfunction of multiple glands. APS type III is defined as the association of autoimmune thyroid disease with one or more other autoimmune diseases including insulin-dependent diabetes, pernicious anemia, vitiligo, autoimmune hepatitis, and myasthenia gravis. We present the case of a 32 year-old African American female with known anti-GAD positive, insulin dependent diabetes who was admitted to our facility after complaining of dyspnea and fatigue of one month’s duration. She was otherwise healthy but endorsed a past history of anemia that had been attributed to menorrhagia by her primary physician. Admission lab-work revealed a new pancytopenia with a leukocyte count of 2.8, hemoglobin of 5.8, and platelet count of 117 as well as significant macrocytosis with an MCV of 108. The patient was initially treated with transfusion of two units of packed red cells which resulted in only mild improvement of her dyspnea. She continued to experience shortness of breath with severe fatigue and symptoms she described as “mental slowness”. Further analysis revealed profound vitamin B12 deficiency with a serum level of only 39 and elevated methylmalonic acid of 2379. A peripheral blood smear revealed pancytopenia, nucleated red blood cells, and tear-drop erythrocytes raising concern for bone marrow suppression resulting from B12 deficiency. The patient had no history of alcohol abuse thus malabsorption was considered the most likely etiology of her B12 deficiency. Serologic analysis revealed positive antibodies to both intrinsic factor and parietal cells confirming a diagnosis of pernicious anemia. Treatment with intramuscular vitamin B12 injections was initiated which resulted in remarkable improvement in the patient’s shortness of breath and mental acuity. However, she continued to experience fatigue despite improvement of her anemia and resolution of her macrocytosis. Comprehensive thyroid studies revealed an elevated TSH of 8.69, low free T4 of 0.8, and positive anti-thyroid peroxidase antibody titer of 598. Levothyroxine therapy was initiated and the patient reported significant improvement in her fatigue after only 48 hours. The patient’s serology revealed three distinct autoimmune endocrinopathies including insulin dependent diabetes, autoimmune thyroiditis, and pernicious anemia; a triad consistent with the diagnosis of autoimmune polyglandular syndrome type III. An uncommon variant of the disorder, APS type III most frequently presents in women in their 4th and 5th decades with the classic symptoms of thyroid dysfunction and diabetes. Our patient presented with severe disease at an early age and to our knowledge, this is the first reported case of APS type III presenting with pancytopenia secondary to vitamin B12 deficiency. Clinicians should be aware of the individual components of APS as early diagnosis and initiation of treatment can dramatically diminish the morbidity and mortality of this disease.
Pancreatic pseudocysts are a complication of pancreatic disease classified as pancreatic fluid collections of at least four months surrounded by a defined wall. Drainage of these pseudocysts may be accomplished for diagnostic, symptomatic, and treatment purposes. Gastrointestinal (GI) bleeding from a pancreatic origin is a rare complication of pancreatic pseudocysts. Hemosuccus pancreatitis is bleeding of pancreatic origin into the pancreatic duct which enters the GI tract through the ampulla of Vater. Pancreatic bleeding via another route can occur if a pseudoaneurysm fistulizes to the GI tract. Here we describe a unique case of GI bleeding from a pseudoaneurysm in the setting of recent pancreatic pseudocyst drainage.

A 59 year-old male presented with a four week history of alternating melena and bright red blood per rectum. His past medical history was significant for necrotizing pancreatitis with splenic vein thrombosis, sinistral hypertension (esophageal and gastric varices), and a head of pancreas pseudocyst with biliary obstruction. His obstruction was managed endoscopically with biliary stenting and transpapillary and trasduodenal pseudocyst drainage. On admission, he was afebrile with a heart rate of 95 beats per minute and blood pressure of 121/64. Labs revealed a hemoglobin 3.2 g/dL, platelet count 211 x103/uL, INR 1.1, and creatinine 1.0 mg/dL. Resuscitation was given with crystalloid solutions and blood products and he was started on pantoprazole and octreotide drips. Endoscopy revealed a scant amount of bleeding at a pin hole sized lesion in the duodenum that corresponded to the prior fine needle aspiration site (FNA). Suspicion for internal hemorrhage into a pancreato-duodenal fistula prompted abdominal computed tomography angiography which showed an 11 mm pseudoaneurysm off the distal gastroduodenal artery (GDA) near the residual pancreatic head. The patient underwent coil embolization of the distal GDA pseudoaneurysm.

This case highlights a novel presentation of GDA pseudoaneurysm bleeding through an FNA drainage tract. It emphasizes the high level of suspicion needed on endoscopy to pursue further imaging. Finally, it marks the use of coil embolization as definitive therapeutic treatment of GDA pseudoaneurysms without resorting to surgery.
IRON DEFICIENCY AS THE SOLE MANIFESTATION OF CELIAC DISEASE

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EVMS

Introduction: Celiac disease (CD) is an intestinal chronic inflammatory and autoimmune disease that develops as a result of interplay between genetic, immunologic, and environmental factors (like exposure to dietary gluten). Iron deficiency anemia (IDA) is an atypical presentation of the disease and is increasingly seen in pts with iron deficiency of obscure origin.

Case presentation: A 39 yo previously healthy male who was admitted for anemia. On presentation he was c/o chest pain, shortness of breath with mild exertion, palpitations, and fatigue for 2 days. His work place was next to a manufacturing plant which used lead from 2002-2006. PMH was significant for a diagnosis of gastritis determined by endoscopy 15 yrs ago. Physical exam was significant for pallor. Labs showed severe iron deficiency anemia with hemoglobin 7.1, reticulocyte count was inappropriately low at 1.8. Blood smear was remarkable for microcytic, hypochromic anemia and occult stool was negative. Iron studies indicated severe iron deficiency with normal Vit b12 and serum folate levels. He was given 2 units of PRBCs for symptomatic anemia. GI and Hem/Onc was consulted for further work up of anemia. Hemoelectrophoresis did not show any hemoglobinopathies, alpha thal globulin gene analysis and beta thalassemia PCR was negative, SPEP was not significant, flow cytometry of peripheral blood: no evidence of lymphoproliferative disorders. Lead panel including plasma lead: non-detected, zinc protoporphyrin 189 mcg/dl (0-38) and protoporphyrin RBC 172 mcg/dl (0-100). Other labs: RF, ANA and HIV were negative. EGD was normal except for non-erosive reflux disease with irregular Z-line, biopsy at this site revealed chronic inflammation, no evidence of malignancy. Colonoscopy showed internal hemorrhoids and hypertrophied papillae. Pill cam showed significant villous blunting while a small bowel biopsy revealed partly denuded small bowel mucosa with increased intraepithelial lymphocytes and partial villous atrophy suggestive of celiac disease. Additional work up was positive for anti-gliadin and tissue transglutaminase antibody. The iron deficiency was considered to be secondary to malabsorption from celiac disease. He was started on IV iron replacements and gluten free diet with good response.

Discussion: Celiac disease (CD) is one of the most frequent genetically based diseases worldwide. In CD, there is a loss of normal villous structure and intestinal crypts are markedly elongated decreasing the epithelial surface for digestion and absorption. Normally iron in the body is absorbed by the enterocytes in the duodenum; in CD iron deficiency is seen due to the lack of absorption. In two different studies CD was found to be the cause of iron deficiency in up to 10 percent of patients referred to a gastroenterologist and in up to 8.5 percent of patients with iron deficiency anemia unresponsive to oral iron therapy.
Case of New-Onset Behcet’s Disease Masquerading as Disseminated Gonococcal Infection

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UVA

Behcet’s disease is a rare rheumatological condition which has its highest prevalence in Turkish and Middle Eastern populations. A diagnosis of exclusion, its presentation is easily confused with infectious disease and reactive arthritis. A 26 year old female presented to the emergency department with complaints of several days of axillary pain, pustular skin rash, and right ankle pain. She reported the new onset of generalized arthralgias about one week ago followed by the localization of her joint pain to the ankle and the beginning of her skin lesions within the past two days. She endorsed being sexually active with male partners without using condoms. She denied other recent illness. On evaluation, she was noted to be tachycardic and febrile. She had numerous pustular skin lesions with an erythematous base on her limbs and trunk, confluent in the region of her axilla. Her right ankle was warm to touch with a moderate effusion and painful with active and passive motion. The skin of her anterior shins was significant for raised erythematous regions consistent with erythema nodosum. A pelvic exam was performed which was significant for a pustular labial lesion, a red inflamed cervix, and copious mucopurulent discharge from the cervical os. Cultures and gonococcal (GC) and Chlamydia PCR samples were obtained from blood, synovial fluid, cervical discharge, a pustular skin lesion, and pharyngeal and peri-anal swabs. The patient was empirically treated with ceftriaxone out of concern for disseminated gonococcal infection. Over the course of the following two days, she continued to be febrile and she developed aphthous ulcerations of her oral and genital mucosa. On obtaining further history, she reported prior episodes of oral ulcers which were similar in character. A pustular skin lesion was biopsied. PCR and culture results from all sites returned negative and the skin biopsy was found to be consistent with leukocytoclastic vasculitis. In the absence of a current infectious source, the diagnosis of Behcet’s disease was entertained. Colchicine was started and on this therapy the patient defervesced and her skin lesions resolved. She additionally had rapid improvement in her joint pain and was discharged from the hospital in good condition. This case illustrates the difficulty of making an accurate diagnosis of Behcet’s disease, especially in geographic regions where this entity is quite rare.
Rocky Mountain Spotted Fever?

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Introduction: Despite the fact that Rocky Mountain Spotted Fever is the most common rickettsial disease in the United States, it remains a difficult diagnosis as presenting signs and symptoms are nonspecific. Early treatment remains critical and thus a high degree of clinical suspicion must be maintained in a wide range of circumstances.

Case Presentation: A 53 year old female on immunosuppression following renal transplant was brought to the emergency department with three days of lethargy, fever, and nausea that progressed to persistent vomiting and somnolence. Medication review showed appropriate doses and refill dates of all medications including her Mycophenolate, Prednisone, and Tacrolimus. On primary assessment in the ED, she was febrile to 40.5ºC, normotensive at 104/70, in sinus tachycardia with a rate in the low 100s, and tachypnic at 22 breaths per minute with oxygen saturation of 96% on 2.5L. Physical exam was notable for GCS of 11, equal and reactive pupils, dry oral mucosa with cracked lips, no nuchal rigidity, no focal neurological signs, and no evidence of rash, skin breakdown, or petechiae. Initial laboratory investigation revealed an elevated creatinine of 2.36 (baseline 1.3-1.7), a mild transaminitis, and mild hyponatremia. Early in her hospitalization she developed progressive thrombocytopenia to a nadir of 20, progressive leukopenia to a nadir of 0.5, and a relatively mild anemia with a reticulocyte count of 1.3%. Her creatine kinase rose to a peak of 5000. She had mild improvement after 36 hours of aggressive fluid resuscitation to the point that she was able to volunteer some history including a recent tick exposure. Though no specific signs and symptoms were present, her overall condition was suggestive of rickettsial disease and she was started on doxycycline. She steadily improved in the following days with resolution of her thrombocytopenia, leukopenia, and downtrending creatine kinase. RMSF IgG antibodies ultimately returned positive at 1:64.

Discussion: Fever is present in virtually all cases of RMSF and is frequently accompanied by severe headache, nausea, and vomiting. Equally nonspecific findings of encephalitis, transaminitis, hyponatremia, cytopenias, and elevated creatine kinase can present later in the course. The eponymous rash is unhelpful for early diagnosis as it is rarely visible on presentation; it typically occurs on days 3-5 spreading outward from the wrists and ankles. However, up to 10% of patients never develop a rash at all. This patient had no rural exposures but cases of RMSF in urban areas have been described and attributed to exposures in city parks. Treatment drug of choice continues to be doxycycline. This case report exhibits the dramatic and varied presentation that RMSF can have as well as the importance of rapid treatment.
Common variable immunodeficiency (CVID) affects one in 30-50,000 individuals, classically presenting with recurrent sinopulmonary infections often with encapsulated bacteria. CVID results from a primary B cell defect with subsequent immunoglobulin deficiency, typically sparing the NK and CD8 T cell populations. Thus, viral infections, including herpes simplex virus (HSV), enterovirus, and human papilloma virus (HPV), though reported, are rare and unexpected as the presenting illness in CVID. We report CVID in a patient presenting with recurrent HPV, complicating the diagnosis and treatment.

A 49-year-old female presented with 9-10 years of recurrent, pruritic, condylomatous lesions of the vulva, vagina, and anus. Her history included varicella gestionitis, varicella zoster, and recurrent HSV type 1 infections of the nose and upper lip. She had PCR testing that confirmed the presence of HPV followed by multiple surgeries for her condylomatous lesions and courses of topical imiquimod. HPV vaccine was administered without mitigation of her lesions. Her history also included recurrent sinusitis requiring antibiotics and physician-diagnosed pneumonia twice in her life, complicated by a 66 pack-year smoking history and reported chronic bronchitis.

Her exam demonstrated an ulceration in the right nare, along with multiple vulvar, vaginal, and anal condylomas. She had no lymphadenopathy, hepatosplenomegaly, or aberrant breath sounds.

Based on her history of viral infections alone, we anticipated decreased NK and/or T cell populations. However, laboratory evaluation revealed no leukocyte deficits. Specifically, she had an absolute neutrophil count of 2.82k/µL, absolute lymphocyte count of 1.88 k/µL, and normal CD3, CD4 (936/µL), CD8, CD19 (19%, absolute number 357) and CD16 populations. To our surprise, examination of the humoral immune system revealed deficiencies (IgE : 1.0 IU/ml (reference range (RR) 10-180 IU/ml), IgG: 180 mg/dl (RR 694-1618 mg/dL), IgA: 18.4 mg/dL (RR 68-378 mg/dL), and IgM: 25.5 mg/dL (RR 60-263mg/dL)). Consistent with a diagnosis of CVID, she had undetectable HSV1 and HSV2 IgG despite previous infections with these viruses.

Despite a history of HSV/HPV infections consistent with a deficiency of T and/or NK cells, our patient was found to have a humoral immunodeficiency with complete immunoglobulin deficits diagnostic of a highly unusual case of CVID. It is not uncommon for patients with CVID to have a concomitant functional T/NK cell defect which may have led to an impaired antibody dependent cell-mediated cytotoxicity, which might explain her recurrent viral infections. Treatment with IVIG was initiated expecting that this product would contain immunoglobulins to HPV given the general population’s extensive vaccination against HPV. While the diagnosis of primary immune deficiencies proves challenging, this unique presentation should remind general practitioners and subspecialists that even a rare disease may present atypically, and specifically, recurrent papillomavirus infection may be the chief complaint in CVID.
PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY (PML) WITH RITUXIMAB: THE HIGH COST OF THERAPY

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Introduction: Progressive Multifocal Leukoencephalopathy (PML) is a demyelinating disease, seen predominantly in immunocompromised patients due to reactivation of the latent JC virus in oligodendrocytes and astrocytes. This reactivation results in a devastating rapidly progressive neurological decline. Since there have been a limited number of cases reported of PML after rituximab therapy, there are no known risk factors or preventative measures that have been identified.

Clinical Case: A 73 year old male presented to the hospital with a progressive decline in mental status over the past few months. Symptoms included mental slowing, slurred speech, blurred vision, and right sided weakness. Past history was significant for Chronic Lymphocytic Leukemia (CLL), for which the patient was previously treated with 6 cycles of rituximab/fludarabine 750/40, with the last treatment given 6 months prior to admission. On physical examination the patient was noted to be lethargic but arousable, non conversant, and oriented only to self. Significant findings from his neurologic exam included a right sided facial droop, 1/5 strength in RUE and RLE, diminished but symmetric DTRs in all extremities, and an upgoing babinski on the right. A head MRI showed a signal abnormality in the left posterior frontal, parietal, posterior temporal, and occipital lobes with extension across the corpus callosum and involvement in the right occipital and posterior parietal lobes. Patchy involvement in the left thalamus, which tracked into the cerebral peduncle was also noted but without evidence of significant midline shift or herniation. Subsequent brain biopsy of the left occipital lesion was performed; the surgical pathology report was positive for PML with positive staining for BK virus (believed to be from cross reactivity of JC virus).

Discussion: This case highlights a rare but increasingly recognized side effect of certain treatments for hematologic malignancies. The incidence of developing PML with hematologic malignancies is 0.07% if treated with rituximab, and this incidence is highest in patients with CLL (0.5%). Among various medications that PML has been linked to, including belatacept, efalizumab, fludarabine, infliximab, and mycophenolate, PML has been most recently gaining recognition as a complication of rituximab and natalizumab. The patient in this case received both fludarabine and rituximab. The median time from first rituximab dose to the diagnosis of PML is 16 months. It is an almost universally fatal disease (90% fatality rate) with an average survival in non HIV positive patients of only 2.4 months. Recognition of this deadly association is important to remember as the use of these medications increases for the treatment of both malignant and non-malignant diseases in an increasingly aging population. Better understanding of the disease may eventually lead to better therapy selection and preventative strategies for patients requiring these medications.

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CAUGHT RED HANDED: A CASE OF VIBRIO VULNIFICUS NECROTIZING FASCIITIS

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EVMS

Vibrio vulnificus infections can rapidly progress locally and systemically in its host causing multi-organ dysfunction and/or death. Initiation of antibiotic therapy and urgent surgical debridement has been shown to improve patient outcomes. We present a case of Vibrio vulnificus necrotizing fasciitis with septic shock treated successfully with emergent surgical intervention and antibiotic therapy. A seventy five year old male with history of coronary artery disease, hypertension, and hypothyroidism presented to a nearby community hospital with right sided weakness, dysarthria, and paresthesias for one day. He also reported new left hand erythema and pain. History was pertinent for a fishing trip three days prior to admission at which time the patient cut his left hand along the spine of a fish he caught in brackish water. A head CT was negative for acute hemorrhagic stroke. Initial lab work revealed bandemia and leukocytosis of 14,100; ciprofloxacin, piperacillin-tazobactam, and vancomycin were ordered for presumed cellulitis. Later, he became hypotensive despite receiving 1500mL of crystalloid fluid; norepinephrine was ordered. The patient was transferred to our hospital for emergent evaluation. Upon arrival, his vital signs were blood pressure of 73/42, temperature of 97.4 degrees Fahrenheit, and heart rate of 101-130. There was a small erythematous bulla present on the posterior aspect of his left hand. Vasopressin and an additional bolus of 1500mL of crystalloid fluid were administered along with norepinephrine for a target mean arterial blood pressure of 65. Blood cultures were obtained. Doxycycline followed by linezolid was administered. Within two hours of arrival, the size of the bulla increased dramatically and the erythematous areas showed obvious expansion. A decision was made to proceed with emergent debridement of the left hand for necrotizing fasciitis; imaging studies were subsequently postponed. Within 24 hours, discovery of fascial plain involvement, soft tissue air on bedside ultrasound of the left arm, and continued clinical deterioration prompted amputation. Within 48 hours, blood cultures returned positive for Vibrio vulnificus. Antibiotics were narrowed to ceftriaxone and doxycycline. The patient improved, with resolution of neurologic deficits. This is a case of Vibrio Vulnificus infection causing necrotizing fasciitis and septic shock. Unlike “classic” cases of Vibrio Vulnificus infection, our patient acquired the infection via disruption of the skin rather than by a gastrointestinal route and lacked the typical co-morbidities of liver disease, renal disease, and diabetes. Early consideration of Vibrio Vulnificus and other water borne pathogens led to broadened antibiotic coverage which may have contributed to our patient’s survival. Aggressive management of necrotizing fasciitis was pursued and we propose this also contributed to his survival.
Takayasu’s arteritis (TA) affects less than 1% of the population. It is most prevalent in younger Asian females, who are typically found to have prodromal symptoms of inflammation in the presence of decreased or absent peripheral pulses, discrepancies in blood pressure, or arterial bruits. TA has a tropism for medium-to-large intimal inflammation with a feared complication of aortitis.

A 26 year-old male was found to have no blood pressure or palpable pulse in his left upper extremity during a visit for hematochezia. Initial exam documented no neurovascular symptoms. A CT angiogram of his chest and neck found moderate stenosis of the left common carotid and complete occlusion of his left subclavian and left vertebral arteries with extensive collateral revascularization. He was sent to vascular surgery and a follow-up CTA indicated arterial wall thickening in the aortic arch near the proximal regions of the left carotid and left subclavian arteries consistent with the diagnosis of TA. Further review of systems was negative but an initial ESR was elevated. The patient was started on daily prednisone with a slow taper. On follow-up with rheumatology, he was found to have a bruit heard under the left clavicle and his left ulnar and radial pulses were noted to be faint by palpation. An ultrasound revealed subclavian steal syndrome with left vertebral artery retrograde flow. An MRA re-confirmed diffuse inflammation of the thoracic and abdominal aorta, left common carotid artery, left subclavian artery, left vertebral artery, and multiple distal aortic branches. Inflammatory markers and vasculitis activity scores fluctuated throughout the taper of steroids and a new vasculitic skin lesion, paresthesias, and headache required the addition of methotrexate as a steroid sparing agent.

The unique asymptomatic presentation of a life threatening vasculitis is a shocking reminder of the importance of a thorough physical exam. ESR and CRP levels did not mirror disease activity measures and the Birmingham Vasculitis Activity Scores (BVAS), although only validated in small vessel vasculitis, were helpful in gauging his TA activity. Future studies to validate the use of BVAS in medium-to-large vessel vasculitis may prove beneficial.
**Sporothrix Pneumonia: When to Make the Diagnosis**

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Introduction: Sporothrix schenckii is a thermally dimorphic fungus that most commonly causes localized infection of skin and subcutaneous tissues. Primary pulmonary involvement is uncommon with less than 100 cases described in the literature. Here we present a case of primary pulmonary sporotrichosis in an immunocompetent patient without underlying lung disease.

Case Description: A 68 year-old African American female with history of chronic kidney disease stage three, deep venous thrombosis, hypertension, and cerebrovascular accident presented to our facility from an outside hospital for further work up of left lung atelectasis. She initially complained of two weeks of shortness of breath and fatigue. Standard antibiotic therapy for community-acquired pneumonia did not improve her symptoms. She lives with her sister in a rural area but she does not work outside. The patient denied alcohol, tobacco, illicit drug use, or recent travel. Upon arriving at our facility, the patient developed acute hypercarbic respiratory failure requiring intubation. On presentation, her exam was notable for dullness to percussion of her entire left lung, absent left lung breath sounds, and no skin lesions or rashes. Laboratory data revealed normal serum electrolytes, a small leukocytosis, and negative HIV antibody. Chest radiograph demonstrated complete opacification of the left hemithorax with mild leftward tracheal. On hospital day two, a bronchoscopy with bronchoalveolar lavage (BAL) was performed demonstrating thick white mucus extending throughout all segments of the left bronchial tree. BAL was sent for culture and cytology. A thoracentesis was also performed to evaluate the pleural effusion. All results were negative except for isolation of Sporothrix species from BAL fungus culture. The patient was started on Amphotericin B for 5 days and was transitioned to Itraconazole 200 mg twice a day to complete a twelve-month course of treatment. While the patient’s radiographs improved, she was unable to be weaned from the ventilator and required tracheostomy placement.

Discussion: Sporothrix schenckii is naturally found in soil, hay, moss, and plants. Sporotrichosis most commonly infects patients who participate in outdoor activities such as farming and gardening hence the disease also having the name “Rose gardener’s disease.” Sporotrichosis is primarily a localized infection of skin and subcutaneous tissue following traumatic inoculation of conidia. Other forms of disease include osteoarticular, pulmonary, and disseminated sporotrichosis. Pulmonary sporotrichosis almost exclusively occurs in patients with Chronic Obstructive Pulmonary Disease (COPD) who have inhaled the fungus from the environment. Fewer than 100 cases have been documented in the literature. Our case illustrates an uncommon occurrence of pulmonary infection in a patient without COPD or signs of immunosuppression. Even with the increasing incidence of fungal infections due to the intentional immunosuppression in organ transplantation and administration of cytotoxic chemotherapy for cancer treatment, immunocompetent patients are still at risk for fungal pneumonias.
GROUP 3

PHOTODYNAMIC THERAPY IS EFFECTIVE AT PROVIDING LOCAL CONTROL OF CHOLANGIOCARCINOMA IN PATIENTS AWAITING PROTOCOL LIVER TRANSPLANTATION

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Introduction: Cholangiocarcinoma (CCA) is a difficult to treat malignancy that can only be cured by surgical resection. Patients with advanced disease (Bismuth IV) are not operative candidates. However, neoadjuvant chemoradiation in conjunction with protocol liver transplantation offers the possibility for cure in otherwise unresectable CCA that is not metastatic and has not extended into the intrahepatic biliary tree. Intraluminal brachytherapy has been utilized in similar liver transplant protocols, however photodynamic therapy is an underutilized and effective method of achieving tumor control. Photodynamic therapy induced apoptosis or necrosis in cells that have accumulated a photosensitizer and are exposed to a targeted activating light.

Methods: Patients with unresectable CCA who were deemed candidates for protocol liver transplantation at a tertiary care center were included. Patients underwent a protocol consisting of 5-FU and external beam radiation followed by ERCP with intraductal photodynamic therapy (PDT), and finally orthotopic liver transplantation (OLT).

Results: Two patients underwent successful neoadjuvant chemoradiation, followed by ERCP with PDT and OLT.

Case 1 29 year-old female with Bismuth IV CCA confirmed by EUS/FNA was diagnosed 8 months prior to OLT. PDT was applied to both the right and left CHD. ERCP and stent change done three months following PDT noted stable right CHD and left CHD stricturing without visible CCA progression. Post transplant pathology demonstrated extensive right hilar involvement of the cholangiocarcinoma, invasion of the perihilar adipose tissue with superficial invasion of adjacent liver, and extensive perineural invasion but no vascular invasion. The vascular and bile duct margins were without tumor, although invasion was seen at the perivascular fibroadipose level. A single node sent to pathology was without metastasis. Treatment complications included post procedure cholangitis, nausea, vomiting, abdominal pain, mild photosensitivity, biloma, and multi-organism liver abscess. Her three month post OLT course has been unremarkable.

Case 2 29 year-old male with cholangiocarcinoma in the setting of primary sclerosing cholangitis (PSC). PDT was applied to CHD and segment 5/8. ERCP and stent change done four months following PDT noted improvement of biliary structuring and CCA. Post transplant pathology demonstrated abundant fibrosis with inflammation and necrosis within the hilar area of the liver with focal moderate biliary dysplasia (biliary intraepithelial neoplasia grade 2 of 3). Treatment complications included abdominal pain. His five month post OLT course has been unremarkable.

Conclusions:
Photodynamic therapy is an effective and reasonably well tolerated procedure that provides biliary decompression and local tumor control prior to liver transplantation. Post PDT ERCP showed stable or improved CCA and structuring for both patients while post transplantation pathology was negative for metastatic disease.
The Kissing Disease: A Case Report of Epstein-Barr Virus Induced Acute Hepatitis

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Introduction: A patient presenting with an unclear etiology for acute hepatitis and a multitude of risk factors for illnesses affecting the liver is a daunting task to diagnose and manage. Appropriate diagnosis is vital in managing acute hepatic failure. Here, we report a case featuring a patient with multiple risk factors for hepatic injury who presented with acute elevated transaminitis and hyperbilirubinemia.

Case Presentation: A 36 year old Caucasian male with a history of chronic hepatitis C infection and bipolar disorder presented from an outside hospital with jaundice. Five days prior to admission, the patient began to develop a flu-like prodrome with fatigue, muscle aches, headaches, stomach aches, fevers, and chills. To alleviate his symptoms, the patient took acetaminophen for the fever (325mg tablets q4-8 hours for 2-3 days) as well as several aspirin tablets for the muscle aches. He subsequently developed severe right upper quadrant abdominal pain and repeated episodes of vomiting, prompting him to visit the hospital. The patient’s initial values showed AST 2334 IU/L, ALT 3500 IU/L, total bilirubin of 4.4 mg/dL, and an INR 1.34. N-acetylcystine (NAC) was started. Further history revealed the patient had a history complicated by binge drinking alcohol, IV drug use, prolonged incarceration, and a fiancee with chronic hepatitis B infection. A toxicology screen upon presentation was negative. Viral studies (Hep A, Hep B, Hep C, Hep D, VZV, CMV, EBV, HIV), autoimmune hepatitis (ANA, AMA, Anti-LKM, ASM) and Wilson's Disease (ceruloplasmin level) labs were sent. A liver ultrasound showed inflammation of the liver and mild splenomegaly. An elevated white blood cell count was noted with a predominante lymphocyte shift and abnormal lymphocytes on peripheral smear. Active EBV infection was confirmed with an elevated DNA quantification. The patient made a full recovery with supportive care.

Discussion: Active EBV infections are commonly thought to be characterized by upper respiratory symptoms, cervical lymphadenopathy, gross splenomegaly, and possibly mild hepatomegaly that summarizes infectious mononucleosis. One does not normally think acute hepatitis as the initial presentation, especially when a patient has multiple other risk factors such as chronic hepatitis C infection, acetaminophen usage, binge drinking alcohol, IV drug use, prolonged incarceration (high exposure rate to HIV and tuberculosis), and a sexual partner with chronic hepatitis B infection. However, acute hepatitis has been shown to be the rare initial presentation of EBV infection, though it could be a part of the 20% idiopathic etiologies for acute hepatitis. This case illustrates the need to keep EBV on the differential for acute hepatitis and checking EBV labs on presentation for a patient with elevated transaminases and jaundice.
A 68 year old woman, with a history of non-ischemic cardiomyopathy, was admitted with increasing dyspnea and fatigue. Her symptoms were attributed to end stage heart failure and she was deemed an appropriate candidate for a Left Ventricular Assist Device (LVAD), which was inserted without complications. Due to routine blood loss during the procedure, her hemoglobin decreased from 11.5 g/dL to 6.5 g/dL. The patient received four units of packed red blood cells (PRBCs) post surgery and her hemoglobin increased to 8-9 g/dL. On the sixth post operative day, the patient had six episodes of hematochezia and nasogastric lavage was consistent with dark blood. Hemoglobin values continued to decline and two more units of PRBCs were administered. Following these episodes, the patient underwent an endogastroduodenoscopy (EGD), which was significant for atrophic gastritis with hemorrhage and a subsequent EGD done four weeks later for continuing melena showed newly developed angioectasias in the stomach. The short time course between the onset of GI bleeding with the LVAD insertion indicated a correlation between the two and thought to be secondary to the development of angioectasias.

Several case studies have reported an increased incidence of gastrointestinal bleeding in patients following LVAD insertion. This has been attributed to formation of arteriovenous malformations in the GI tract related to reduced arterial pressure. A similar condition, Heyde’s syndrome, is the association of GI bleeding from angiodysplasia in patients with aortic stenosis. Angiodysplasia is an acquired condition that causes submucosal vasculature to have a greater tendency to bleed spontaneously. The common characteristics of Heyde’s syndrome and LVAD insertion are the reduced pulse pressure, leading to dilation of mucosal veins, increased smooth muscle relaxation and consequently arteriovenular dilation leading to malformations. A second correlation between aortic stenosis and GI bleeding has been the development of acquired von willebrand’s disease. Specifically, the destruction of high molecular multimers of von willebrand factor due to the high shear across an aortic stenotic calcified valve leading to bleeding from angiodysplasias due to distribution of hemostasis. In effect, it has been postulated that a LVAD insertion may lead to acquired von willebrand’s disease due to the cleavage of multimers from the rotating elements of the LVAD. In our patient, a von willebrand (VW) multimer analysis resulted in a pattern that occurs in individuals with Type 1, Type 2M or Type 2N VW disease, consistent with acquired von willebrand’s disease. Thus, LVAD insertion with consequent von willebrand’s disease and the development of angioectasias contributed to the GI bleed. Clinicians need to be aware of this clinically important association of GI bleeding following an LVAD insertion as it is a common and expected adverse outcome.
Cerebral Venous Thrombosis is a rare but well documented complication of hormonal contraception. However, its association with vaginally administered hormonal contraception is less well known, which may lead to delays in diagnosis and treatment. A 41 year old Caucasian female with a past medical history of bipolar disorder presented to our hospital with worsening headache, nausea, and vomiting for 3 days. Her only outpatient medication was Depakote, which she took for bipolar disorder. She denied smoking, illicit drugs, and alcohol use. Per interview, her husband denied that she used any oral contraception. During initial evaluation and work-up, the patient became unresponsive and experienced a generalized tonic-clonic seizure. She was treated with lorazepam and Depakote and was intubated for airway protection. A non-contrast CT head was concerning for venous sinus thrombosis. A subsequent MRI/MRA of the head revealed extensive venous sinus thrombosis. Laboratory tests for a hypercoagulable state were drawn and the patient was started on IV heparin. Subsequent interviews with her husband revealed that the patient was using NuvaRing contraception. The device was immediately removed. The patient improved clinically with anticoagulation and was extubated 2 days later. She was transferred out of the ICU for physical rehabilitation. Her only residual deficit was decrease in visual acuity for her left eye, which was thought to be secondary to papilledema related to sinus venous thrombosis. Her hypercoagulable work-up was ultimately negative, including Protein C and S, prothrombin gene mutation, homocysteine, and Factor V Leiden. She was counseled to avoid all hormonal contraceptives in the future and was discharged home with outpatient follow-up. The association of venous thrombosis, including deep vein thrombosis, pulmonary embolism, and sinus venous thrombosis, in patients using oral contraceptives has long been established. Lesser known is the pro-thrombotic risk of estrogen-releasing vaginal contraceptives, particularly as manifested by acute cerebral venous sinus thrombosis. The Nuvaring device releases 120 mg of etonogestrel and 15 mg of ethinyl estradiol daily, which is absorbed by the vaginal mucosa. While systemic concentrations via this route of administration have been shown to be lower than standard oral contraceptives, there does not appear to be a similar decrease in thrombotic risk. While events are rare, the relative lack of awareness of vaginally administered hormonal contraceptives as a potential cause of thrombosis can pose a significant risk to patients via misdiagnosis and delay in treatment. This case is presented to further support efforts to improve awareness of this rare complication of vaginally administered hormonal contraception, thereby improving recognition and treatment for these unfortunate individuals.
LEG PAIN – GETTING TO THE HEART OF THE MATTER: A CASE OF CARDIOBACTERIUM HOMINIS ENDOCARDITIS PRESENTING AS CALF PAIN

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With Staphylococcus aureus as a cause of infective endocarditis (IE) on the rise and improved diagnostic capabilities, fewer cases of IE remain undiagnosed for prolonged periods resulting in fewer patients with subacute presentations and classic stigmata of endocarditis. Cardiobacterium hominis, a gram-negative bacteria in the HACEK group, is an uncommon cause of IE, and can have an indolent presentation.

A 30 year-old male with bicuspid aortic valve with moderate to severe aortic insufficiency was referred to infectious disease for anemia. He began feeling unwell eight months prior while stationed in Japan, after returning from deployment to Afghanistan. He developed bilateral calf pain attributed to running and was diagnosed with Achilles tendonitis, without improvement from physical therapy. During this time, he developed acute onset of a painful erythematous confluent rash on his hands and feet. He was diagnosed with cellulitis and treated with several courses of antibiotics without improvement. The rash would spontaneously resolve then recur after a few weeks. He also began to experience malaise, fevers, night sweats, and 25 pound weight loss. Exam revealed a tender nodule on his fingertip consistent with an Osler node and a 4/6 systolic murmur. His initial workup included blood cultures that grew gram-negative bacilli, which were eventually speciated as C. hominis. A transthoracic echocardiogram showed a moderate-sized vegetation on the aortic valve with severe aortic regurgitation and one aortic leaflet prolapsing into the left ventricular outflow tract. He underwent a mechanical aortic valve replacement and completed four weeks of ceftriaxone.

C. hominis is a fastidious gram-negative bacillus recognized as an uncommon cause of IE. This pathogen has low virulence and may go undiagnosed for weeks to months. The most common symptoms include fatigue, lethargy, and fevers. This patient reported symptoms for eight months before blood cultures were drawn resulting in severe aortic valvular disease by the time of diagnosis and requiring mechanical replacement. Other complications of C. hominis include peripheral emboli and congestive heart failure. Primary care physicians need to maintain a high index of suspicion for IE in patients with longstanding constitutional symptoms, especially those with pre-existing valvular defects.
Spontaneous CSF leaks with intracranial hypotension should be considered when evaluating patients with postural headache symptoms; familiarity with characteristic neuroimaging findings may hasten the diagnosis and implementation of proper treatment.

A 19 year-old previously healthy female with tilt table-positive neurocardiogenic syncope presented with several weeks of worsening bilateral, postural headaches, exacerbated when upright, improved when supine, and associated with neck stiffness and fatigue. While standing during the past several months, she had experienced occasional near-syncope; she denied any related trauma, but noted her boyfriend accidentally dropped her onto her back without apparent injury one year ago. Neurological examination was normal. Head CT demonstrated bilateral iso-to hypodense crescentic extra-axial fluid collections, likely representing subacute to chronic subdural hematomas without shift, with slit-like third ventricle and temporal horns of the lateral ventricles; suprasellar cistern crowding was noted, suggesting possible uncal herniation. An ensuing stat MRI contributed the finding of diffuse dural enhancement.

Diagnosed with bilateral subdurals, presumably following neurocardiogenic syncope-related trauma, the patient was admitted for observation and IV fluids. After four days with minimal headache improvement, new-onset nausea and somnolence, repeat CT imaging showed enlarging hematomas, now with midline shift. A newly-consulted neurosurgeon postulated the diagnosis of intracranial hypotension: repeat brain MRI was confirmatory, demonstrating characteristic brainstem sagging. Spinal MRI demonstrated large CSF fluid volume at multiple spinal levels, consistent with significant CSF leak. The hematomas were evacuated, and blood patches were placed. Ultimately, the patient would require readmission post-discharge for re-expanding subdural fluid collections and persistent CSF leaking, necessitating additional surgical intervention.

Incidence of spontaneous intracranial hypotension ranges from 1-5/100,000, occurring most in middle-aged adults, and in women twice as often as men. A history of trivial trauma can be elicited in one third of patients; two thirds of patients appear to have underlying connective tissue disorders contributing to dural weakness and CSF leaks. Our patient had no clinical or ultrasound findings consistent with Marfan’s, Ehlers-Danlos, or autosomal polycystic kidney disease. According to the Monroe-Kellie hypothesis, the volume of cerebral blood, CSF, and cerebral tissue must remain constant when a skull is intact; as CSF fluid escapes, subdural hygromas form to maintain intracranial volume, and compliant intracranial blood vessels dilate. Consistent with this hypothesis, initial neuroimaging studies showed isodense fluid collections and dural enhancement from dilated veins. Evidence of diminished CSF was also present: diminished subarachnoid cisterns and slit-like ventricles. If the brain sags enough, bridging veins can tear and create subdural hematomas. In our case, a plausible diagnosis (neurocardiogenic syncope with resulting traumatic subdurals), lack of familiarity with the diagnosis and the associated preliminary neuroimaging findings delayed diagnosis and blood patch administration.
Two exceedingly rare complications of hematogenous seeding occurring simultaneously

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Septic arthritis of temporomandibular joint (TMJ) and pyomyositis are two rare findings typically occurring secondary to hematogenous seeding from a distant site, both with Staph aureus as the most common causative agent. Only approximately 80 cases of TMJ septic arthritis have been reported in the previous 70 years, typically presenting with trismus, preauricular erythema, or malocclusion. Ninety-eight cases of pyomyositis have been reported in North America from 1971–1992, most often associated with HIV, diabetes mellitus, cancer, connective-tissue diseases, cirrhosis, or other immunocompromised conditions. We report a case involving both processes occurring simultaneously in a patient with MRSA bacteremia. A 67 year old male with past medical history significant for poorly controlled diabetes mellitus (Hgb A1c 11.5) presented to the Emergency Department with right sided headache radiating to the jaw for 10 days. He was found to have elevated sed rate (97) and started on high dose steroids for presumed temporal arteritis. Patient returned to Emergency Department two days later as had continued jaw pain and had developed pain and erythema in right lower extremity. On physical exam, patient was afebrile. Noted to have tenderness upon palpation of right TMJ with mild trismus. Warmth, erythema and tenderness noted over right lateral thigh. Patient also had extensive folliculitis with excoriations noted over left thigh and groin which had been present for past three weeks as per patient. CBC positive for leukocytosis (WBC 17). Found to be bacteremic growing MRSA 2/4 bottles. Had lower extremity CT with contrast showing microabsceses in the distal portion of the right vastus lateralis muscle, consistent with pyomyositis. CT guided aspiration of pyomyositis grew MRSA as well with identical resistance pattern to bacteria isolated in the blood. Had MRI showing evidence of septic right TMJ arthritis with associated localized osteomyelitis at the tip of the articular eminence. Transthoracic and transesophageal echo were negative for vegetations. Patient treated with 6 week course IV antibiotics with vancomycin and rifampin. Symptoms were resolving at time of discharge. In this case, we propose a three week history of lower extremity folliculitis in a poorly controlled diabetic as a source of MRSA bacteremia, a known skin colonizer. The patient subsequently developed seeding to right vastus lateralis muscle and right TMJ. Both are rare findings requiring prompt diagnosis and treatment to prevent complications such as sepsis in the former and joint dysfunction, alterations in growth, fibrosis, and Ankylosis in the latter.
A 22 year old female with a history of asthma presented to the emergency room with acute onset shortness of breath. She developed acute coughing episodes with associated chest tightness earlier in that day that did not respond to additional doses of albuterol. Prior to arrival to the ER, she had received three albuterol nebulizer treatments and an ipratropium nebulizer prior to arrival to the ER. She was given a dose of methylprednisolone, magnesium, and was started on continuous albuterol for 2hrs. She additionally received two additional nebulizers of albuterol and an albuterol/ipratropium nebulizer. Patient failed to improve and was ultimately intubated. Chest x-ray showed no evidence of pneumonia. ABG was performed that showed a pH 7.16, pCO2 54 mmHg and pO2 of 80 mmHg with an anion gap of 14. Labs were consistent with a mixed primary respiratory and metabolic acidosis. Lactic acid levels were drawn soon after intubation and was elevated at 9.6 mmol/L, and remained elevated over the next 5 hours to 7.7 mmol/L while intubated and sedated. She received IV fluids and albuterol doses were stopped at that point and her lactate levels trended ultimately down to normal over the next 8hrs. Patient was quickly weaned off the ventilator and extubated the next day.

Work of breathing may have played a role in her lactic acid elevation, but given the continuous albuterol use for 2hrs and multiple albuterol nebulizers, one should consider the effects of albuterol causing a type B lactic acidosis. Increased work of breathing from asthma needs to be accounted for, but the lactic acid levels peaked at 9.6 mmol/L, and remained elevated while intubated and sedated. In this case, there was no hypoxemia, inadequate cardiac output or anemia as her cause of lactic acidosis. There was no evidence of sepsis or any drug induced causes of lactic acidosis. Renal and hepatic functions were also normal.

There have been limited case reports of β-2 agonists causing lactic acidosis. β-2 agonists activate receptors that produce excess glycogenolysis and lipolysis. An increase in glycogenolysis can lead to an increase in pyruvate levels. Pyruvate is converted to acetyl CoA prior to entering the citric acid cycle or lactate in the anaerobic pathway. Lipolysis increase acetyl CoA concentrations, and at high concentrations, acetyl CoA can potentially inhibit pyruvate oxidation and drive the reaction towards lactate production. Additionally, β-2 receptor stimulation inhibits pyruvate dehydrogenase complex, which further limits the rate of pyruvate oxidation to acetyl CoA, driving the reaction to lactate formation.

This case illustrates and helps make aware the possibility of severe lactic acidosis in patients with repeated and prolonged β-2 agonist drug use as discussed above.
An Infarction Like No Other: A Case of Diabetic Muscle Necrosis

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VCU

Case Presentation A 66 year old man with a past medical history significant for uncontrolled diabetes mellitus with neuropathy and nephropathy, hypertension, and hyperlipidemia presented to clinic with a two week history of severe left thigh pain. The patient reported progressively worsening left thigh pain associated with a palpable mass in the area of discomfort. He denied any antecedent trauma or injections to the area, nor fever or chills. On physical exam, he had a 6cm x 8cm firm mass in the middle third of his left thigh, which was tender to palpation, but without erythema, warmth, or skin discoloration. Distal pulses were intact. Ultrasound of the left lower extremity revealed probable intramuscular edema or hematoma and patient was sent home with acetaminophen for conservative management and close follow up. Labs were significant for hemoglobin A1c 11.1%, white blood cell count 20.5, platelets 481, and creatinine 1.92 (his baseline). Patient returned to clinic four days later with continued pain, which was now significantly impairing his gait. Physical exam was unchanged but repeat labs showed WBC count decreased to 14.6. Further imaging was pursued out of concern regarding abnormal CBC in the setting of a patient with multiple co-morbidities and a soft-tissue mass. MRI with contrast showed a 10.8cm x 1.4cm area of diffuse intramuscular edema and enhancement consistent with muscle necrosis in the anterior compartment of the thigh. Patient was evaluated by orthopedic and vascular surgery and found to have no indications for surgical intervention, so he was ultimately discharged home with analgesics and rest.

Discussion There are several well-known micro- and macro-vascular complications of diabetes including neuropathy, nephropathy, retinopathy, and atherosclerotic disease, all of which are routinely monitored for; however, diabetic muscle infarction is a rare and likely underreported complication of which physicians should be aware. Diabetic muscle infarction occurs most commonly in long-standing, poorly controlled diabetics (more frequently, type 1) and primarily involves the lower extremities. Definitive diagnosis is made through muscle biopsy, but clinical diagnosis may be made through history, exam, and MR findings. MR imaging typically shows subcutaneous edema, and hyperintensity of involved muscle on T2-weighted images. Other associated diagnostic abnormalities include mildly elevated WBC, ESR, and CK. Mainstays of treatment include low dose aspirin and bed rest with spontaneous resolution occurring in weeks to months. Recurrence is frequent and generally carries a poor long-term prognosis. Awareness of this diabetic complication and maintaining high clinical suspicion in a certain patient population will allow for more timely diagnosis as well as prevent unnecessary invasive diagnostic procedures.
Purpose: The purpose of this study was to evaluate the association of admission mean platelet volume (MPV) with outcome in acute liver injury/failure (ALF).

Methods: 204 consecutive patients with acute liver injury/failure (ALI/ALF) were enrolled in the ALF Study Group Registry from Virginia Commonwealth University Medical Center between July, 2001 and September, 2011. Complete blood count, including MPV, was collected at admission and retrospectively analyzed for association with outcome of hospitalization. MPV was analyzed using ANOVA as a continuous variable, and also divided into cohorts by default laboratory ranges; low (<6.1 fL), Normal (6.1-8.9 fL), and elevated (>8.9 fL). These cohorts were analyzed using χ². Outcome of hospitalization was determined as transplant free survival (TFS), transplant, or mortality.

Results: In this population, 122 patients had TFS, 21 received transplant, and 61 died. Admission MPV values were available for 199 patients. We observed statistically significant association with admission MPV and TFS (p=0.002), and mortality (p=0.001), but not with transplant (p=0.990). When grouped by low, normal or high MPV, there were 0 patients with low MPV, 116 patients with normal MPV and 83 with elevated MPV. Patients with normal admission MPV (6.1-8.9 fL) had 72% TFS, (84/116). Patients with elevated admission MPV (>8.9 fL) had 42% TFS (35/83) with a statistically significant difference between normal and elevated groups (χ² =19.195, prob> χ² <0.001).

Conclusions: This retrospective case series supports that normal admission MPV is associated with TFS in acute liver failure. Acute liver failure is marked by increased levels of pro-inflammatory cytokines. These inflammatory cytokines effect the production of all cell lines and increase proliferation in bone marrow. We hypothesize this is reflected in an increase in MPV. This study shows an association with MPV and outcome in acute liver failure. Since MPV is often routinely gathered and automatically calculated as part of the complete blood count, it may provide additional cost-effective prognostic data for patients with Acute Liver Failure.
A CLINICAL TRIAL OF ALOE VERA AS PROPHYLAXIS FOR RADIATION-INDUCED DERMATITIS

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VCU

Purpose: To evaluate Aloe Vera lotion as prophylaxis for radiation-induced dermatitis.
Experimental Design: All patients with a prescription of radiotherapy to a minimum dose of 4000 cGy were eligible for this study, provided that their treatment area could be anatomically divided into 2 symmetrical halves. Patients were given an Aloe Vera lotion to use twice daily on one half of their radiation area, with no medication to use on the other half. The grade of dermatitis (I-IV) in each half was recorded weekly until 4 weeks after the end of radiotherapy. In the case of a grade II or higher, routine medications were prescribed. Results: 60 patients with a mean age of 52 years and male-to-female ratio of 1:2 consented for entry into this trial. Primary tumors included 23 breast, 13 head and neck, 11 cervix and endometrium, 7 rectum, and 6 other cancers. Field size was 80-320 cm² with a mean of 177 cm², and dose of radiotherapy was 4000-7000 cGy with a mean of 5391 cGy. 20 patients received concurrent chemotherapy. Maximum grade of dermatitis on both halves was III. At the 5th week of radiotherapy there were 3 grade II and 1 grade III dermatitis on the Aloe side, versus 17 and 1 on the other side. Mean grade of dermatitis from week 4 to 6 of radiotherapy and then the 2nd and 4th weeks after radiotherapy with and without Aloe Vera was 0.81 and 1.10 (p<0.001), 0.96 and 1.28 (p<0.001), 1.00 and 1.57 (p=0.006), 0.59 and 0.79 (p=0.003), and 0.05 and 0.21 (p=0.002) respectively. Field size had a significant effect in multi-factorial analysis. The resonance effect of chemotherapy on dermatitis subsides by Aloe Vera. Conclusion: Prophylactic use of Aloe Vera reduced the intensity of radiation-induced dermatitis.
PERCEPTION AND BARRIERS TO INDOOR AIR QUALITY AND PERCEIVED IMPACT ON RESPIRATORY HEALTH: AN ASSESSMENT IN RURAL HONDURAS

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VCU

Purpose for study: The aim of this study was to identify household-specific factors associated with respiratory symptoms and the perceived impact of indoor air pollution (IAP) as a health issue. Methods: An IRB-approved, voluntary, anonymous 23-item survey was conducted in Spanish at the Honduras Outreach Medical Brigade Relief Effort (HOMBRE) 2012 clinic site and at the homes of survey respondents (N=79). Statistical Analysis Software (SAS) was used to describe frequency of specific housing characteristics and respiratory complaints. Comparative analyses were performed to determine specific household characteristics that may demonstrate a correlation to increased respiratory complaints. Summary of results: Respiratory symptoms were frequently reported by survey respondents: 42% (33/79) reported watery eyes due to smoke, 42% (33/79) had household members with coughs within the past two weeks, 25% (20/79) reported household members currently experiencing difficulty breathing, and 8% (6/79) reported deaths within their household due to respiratory illness. The majority had mud/adobe/sand stoves (94%, 74/79), used firewood as their major fuel type (96%, 76/79), and had chimneys in their homes (77%, 61/79). There were three kitchen locations: indoor (37%, 29/79), outdoor (20%, 16/79), and attached (40%, 32/79). Compared to households with outdoor kitchens, those with attached kitchens reported fewer members being treated for IAP-associated respiratory problems [44% (7/16) vs 12% (4/32), p <0.05] and watery eyes [62% (10/16) vs. 34% (11/32), p <0.05]. Eighty-nine percent (70/79) of respondents indicated that IAP was not a health problem. Conclusions: Respiratory complaints were common in Yoro, Honduras, although only 6% (5/79) of respondents identified IAP as a health concern. The attached kitchen location was associated with fewest respiratory symptoms. We postulate that the attached model more efficiently ventilates smoke when compared to either the indoor or outdoor kitchen models. Our findings have implications for addressing IAP in this region.
A family history of gastric cancer is associated with the presence of gastric intestinal metaplasia in patients undergoing EGD with biopsy

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UVA

BACKGROUND: Gastric intestinal metaplasia is considered a pre-malignant lesion that can develop into gastric adenocarcinoma through a sequential cascade involving non-atrophic gastritis, atrophic gastritis, intestinal metaplasia, gastric dysplasia, and ultimately carcinoma. Despite an epidemiologic link between gastric intestinal metaplasia and adenocarcinoma, there are no clear guidelines on how best to screen for or survey gastric intestinal metaplasia.

AIMS: (1) To estimate the prevalence of gastric intestinal metaplasia in patients undergoing EGD with biopsy at a tertiary academic medical center. (2) To determine what clinical factors might be associated with gastric intestinal metaplasia.

METHODS: A retrospective review of consecutive patients who underwent EGD with biopsies, from March to June 2011, at the University of Virginia was conducted. Patient demographics, insurance status, and possible risk factors for the development of gastric intestinal metaplasia (including smoking, alcohol use, and family history of gastric cancer) were retrieved from electronic medical records. Frequencies were analyzed by Fisher’s exact test and exact logistic regression. Continuous variables were analyzed by the Wilcoxon rank-sum test. Age-adjusted multivariate analyses were performed to examine the association between pathological diagnosis and type of health care coverage.

RESULTS: Three hundred patients (54% women; median age of 53.0 years, range: 1-91 years) who underwent EGD and biopsy were included in the study. Pathology from gastric biopsies for various indications found H. pylori infection in 2% (n=6), chronic gastritis in 20% (n=61), and gastric intestinal metaplasia in 5% (n=15) of patients. The frequencies of pathological diagnoses in the stomach are listed in Table 1. Among the 15 patients with gastric intestinal metaplasia, a first-degree family history of gastric cancer was found to be a statistically significant risk factor (OR 11.4, 95% CI: 2.1-51.8, P=0.008) on univariate analysis. (See Table 2). Patients had private insurance (44%), Medicare (29%), Medicaid (10%) or were uninsured (15%). Uninsured patients (OR 5.1, 95% CI: 2.4-11.2, P<0.001) and those with Medicaid (OR 3.6, 95% CI: 1.3-9.7, P=0.014) were significantly more likely to have chronic gastritis as compared to those with private insurance on age-adjusted multivariate analysis. Uninsured patients (P=0.15) and those with Medicaid (P=0.15) trended towards an increased frequency of gastric intestinal metaplasia.

CONCLUSIONS: Gastric intestinal metaplasia was found in 5% of patients who underwent EGD with biopsy at a tertiary-care academic medical institution with a diverse patient population. Uninsured patients and those with Medicaid (surrogate markers of lower socio-economic status) were at increased risk of having chronic gastritis and possibly intestinal metaplasia. A family history of gastric cancer significantly increased the odds of having gastric intestinal metaplasia. As such, patients in the U.S. with a family history of gastric cancer, and possibly those with lower socio-economic status, might benefit from at least a screening EGD with biopsy for premalignant gastric lesions, for which subsequent endoscopic surveillance might be considered.

Table 1: Frequency of pathologic diagnoses among patients undergoing EGD with biopsy

<table>
<thead>
<tr>
<th>Pathologic diagnoses</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP infection</td>
<td>6 (2.0%)</td>
</tr>
<tr>
<td>Chronic gastritis</td>
<td>61 (20.3%)</td>
</tr>
<tr>
<td>Intestinal metaplasia</td>
<td>15 (5.0%)</td>
</tr>
<tr>
<td>Gastric dysplasia</td>
<td>2 (0.7%)</td>
</tr>
<tr>
<td>Gastric cancer</td>
<td>1 (0.03%)</td>
</tr>
</tbody>
</table>

Table 2: Possible risk factors associated with the development of gastric intestinal metaplasia

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Frequency of pts with gastric IM vs those without gastric IM</th>
</tr>
</thead>
</table>

34
With Without Alcohol use 5/15 (33.3%) 100/280\(^{\ast}\) (35.7%) \(P=1.00\) Cigarette use 7/14 (50.0%) \(119/280\)^ 42.5% \(P=0.59\) Family history of gastric cancer

3/15 (20.0%) 6/285 (2.1%) \(P<0.01\) OR 11.4 (95% CI: 2.1-51.8) \(\ast\) 1 patient with gastric intestinal metaplasia had unknown cigarette use history \(^{\ast}\) 5 patient without gastric intestinal metaplasia had unknown alcohol and cigarette use history
Purpose of study: To compare the frequency and concurrence of adult medical and surgical services with ASP interventions in an urban, academic medical center over a three year period.

Methods: ASP intervention data of inpatient services from 2008-2010 was analyzed. Interventions were categorized into those designed to promote appropriate antimicrobial coverage and those designed to decrease antimicrobial selective pressure. An analysis was performed to determine if differences existed in concurrence with ASP recommendations by inpatient service type and major category.

Results: From 2008-2010 there were 401 interventions designed to promote appropriate antimicrobial coverage and 1,659 interventions designed to decrease antimicrobial selective pressure for a total of 2,060 total interventions. There were 972 and 1088 total interventions for medical and surgical services, respectively. The frequency of concurrence with ASP interventions is shown in Table 1.

Conclusions:

1. Interventions to reduce selective pressure were over 4-fold more common than interventions to

<table>
<thead>
<tr>
<th>Major Category</th>
<th>Inpatient Service Type</th>
<th>Medicine</th>
<th>Surgery</th>
<th>Medicine and Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASP concurrence with AC interventions / total AC interventions</td>
<td>Medicine</td>
<td>191/212 (90%)</td>
<td>153/189 (81%)</td>
<td>344/401 (85%)</td>
</tr>
<tr>
<td>ASP concurrence with SP interventions / total SP interventions</td>
<td>Medicine</td>
<td>613/760 (81%)</td>
<td>615/899 (68%)</td>
<td>1228/1659 (74%)</td>
</tr>
<tr>
<td>ASP concurrence with all interventions / total interventions</td>
<td>Medicine</td>
<td>804/972 (83%)</td>
<td>768/1088 (70%)</td>
<td>1572/2060 (76%)</td>
</tr>
</tbody>
</table>

Note: ASP-Antimicrobial Stewardship Program; AC-interventions to improve appropriate antimicrobial coverage; SP-interventions to decrease antimicrobial selective pressure

Medicine Includes: General Internal Medicine, Bone Marrow Transplant, Hematology and Oncology, Coronary Intensive Care Unit, Cardiology, Medical Intensive Care Unit, Neurology, Palliative Care, Psychiatry, and Physical Medicine and Rehabilitation

provide adequate coverage. There were also 116 more interventions for surgery relative to medicine.

2. Medical services were 13% more likely than surgical services to concur with interventions to reduce antimicrobial pressure (SP) and 9% more likely to concur for interventions to provide proper coverage (AC).

3. For all interventions, ASP concurred with the treating providers’ final management decision 76% of the time. Further stratifying the interventions into major categories revealed that ASP concurred with treating providers 85% of the time for interventions designed to promote appropriate antimicrobial coverage, versus only 74% percent for interventions designed to decrease antimicrobial selective pressure.

4. Antimicrobial stewardship programs that employ active interventions should analyze compliance data in order to inform program efforts and help improve appropriate use of antimicrobials.
Assessment of a Water Filter Program in Reduction of Diarrheal Pathogens and Illness in a Rural Honduran Community

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Water sanitation in the rural Honduran community of La Hicaca and surrounding villages is a focus of the nonprofit organization Honduras Outreach Medical Brigada Relief Effort (HOMBRE). We assessed the use of water filters distributed by HOMBRE and tested their microbiologic and clinical efficacy. The study was approved by the institution’s IRB. A 22-item questionnaire was administered by survey personnel in Spanish during the June 2012 HOMBRE trip. The questionnaire assessed water sources, water obtainment/storage, water sanitation, and incidence of gastrointestinal disease. Water samples from home filters (assembled in country, and made of clay in plastic cases with spigots) in La Hicaca were obtained and paired with surveys from the same home to assess the microbiologic effectiveness of the filters and the relationship between filter use and the presence of gastrointestinal disease. We compared survey results using Chi-squared tests. We counted the number of bacterial colonies for four bacterial classifications from each sample and recorded the results on site. The classifications were differentiated by color based on their galactosidase and glucuronidase activity (E. coli; Enterobacter/Citrobacter/Klebsiella; Proteus/Salmonella; non-coli-form). Sixty-five surveys were completed. Forty-five (69%) individuals used a filter to clean water; 36 of 37 (97%) from La Hicaca and 9 (32%) from surrounding villages (p<0.01). Fifteen respondents reported diarrhea in their home in the last 30 days; this incidence was higher in homes not using a filter. Paired water samples and surveys were available from 33 homes in La Hicaca. Twenty-eight samples (85%) were positive for bacteria growth. E. coli colonies grew from 6 samples with a mean count of 393 colony forming units/100mL. A control sample was obtained from the local river, the principal water source; both number and bacterial colony types were innumerable within 24 hours. Diarrhea was reported in only 2 homes (7%) with a filter sample positive for bacterial growth. Access to clean water, the use of filters and other sanitation methods differed within a geographically proximal region. Filters cost approximately $25 and provide potable water to a household for 2 years. Although the majority of the water samples obtained via filters failed to achieve bacterial eradication, water filters may sufficiently reduce bacterial coliform counts to levels below infectious inoculation. Clay water filters, manufactured in country, may be a sustainable, inexpensive water sanitation measure in resource poor settings.