Abstracts From the Louisiana American College of Physicians Associates Meeting

Each year medical students in Louisiana and residents from the seven Internal Medicine training programs in Louisiana are invited to submit abstracts for the annual Louisiana American College of Physicians (ACP) Associates Meeting. The content of these abstracts includes clinical case vignettes or research activities. The abstracts have all identifying features removed (ie, names, institutional affiliations, etc.) before being sent to three physician judges who are not directly affiliated with the medical schools or training programs. Each judge scores each abstract independently and then the scores from the three judges are averaged and ranked. This year we are excited to be able to publish the 25 most highly ranked abstracts presented at this year’s competition. These abstracts (15 oral; 10 poster) were presented at the Associates Meeting held at Ochsner Clinic Foundation in New Orleans on January 22, 2009. We would like to thank the Journal of the Louisiana State Medical Society and appreciate its efforts to publicize the hard work of these young trainees.

Lee Engel, MD, PhD
Chair, Louisiana Associates Liaison Committee

Fred A. Lopez, MD, FACP
Governor, Louisiana Chapter ACP

GI Manifestation of Systemic Sclerosis.
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Case: A 54-year-old woman with a history of gastroesophageal reflux disease presented with a several month history of intermittent diarrhea and constipation. She denied any abdominal pain, nausea, or vomiting. Physical examination revealed taut, fibrotic skin with sclerodactyly and numerous telangiectasias over her hands and face. The patient was diagnosed with limited systemic sclerosis with CREST (calcinosis, Raynaud phenomenon, esophageal dysmotility, sclerodactyly, and telangiectasia) syndrome. Upper endoscopy revealed severe reflux esophagitis with a stricture in the lower esophagus. The duodenum was dilated, relatively atonic and had scattered arteriovenous malformations. The patient was placed on empiric antibiotic therapy for presumed small bowel bacterial overgrowth. Her diarrhea symptoms decreased minimally. Barium enema revealed a fistula between the left colon and jejunum. Colonoscopy confirmed the presence of a large fistulous communication between the distal colon and small bowel. No other mucosal abnormalities in the colon or small bowel were appreciated. The patient underwent a laparotomy with resection of the fistula. The resected specimen showed a chronically inflamed fistula tract, as well as focal chronic serositis of the colon. Her post-operative course was uneventful and the patient has had a decrease in her stool output.

Discussion: Gastrointestinal manifestations in systemic sclerosis are increasingly recognized and may affect over 80% of patients. Findings such as gastroparesis, reflux esophagitis, and dilated small bowel leading to pseudo-obstruction can be debilitating and challenging to treat. A loss of neuromuscular regulation and function and progressive fibrosis of the smooth muscle in the muscularis propria lead to decreased peristaltic activity, abnormal growth of gut flora, and diarrhea. Fistulas between the esophagus and other thoracic structures have been described in SS, but these were the result of changes associated with severe reflux esophagitis. Our case is unique because there was only one focal area of inflammation around the fistula, illustrating the importance of seeking alternative diagnoses in patients not responsive to antibiotics in systemic sclerosis associated diarrhea.

Streptococcus agalactiae Endocarditis in an Intravenous Drug Abuser.
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Introduction: Streptococcus agalactiae (Group B streptococcus) is an uncommon cause of bacterial endocarditis, accounting for 1.7% of all cases. Recent reports suggest an increasing number of invasive infections caused by Group B streptococcus (GBS) in the non-pregnant adult population. Risk factors include a history of alcoholism, diabetes mellitus, injection...
drug use, valvular disease, human immunodeficiency virus infection, and prior endocarditis.

Case: A 60-year-old man with a history of hypertension, diabetes mellitus and intravenous drug use presented to the emergency department complaining of generalized myalgia, fever, and headache for two weeks. Of note, he had an episode of bacterial endocarditis two years prior which required surgical mitral valve repair and intravenous antibiotics. At admit, abnormal vitals included a temperature of 102.2°F and a pulse rate of 117/minute. Respiratory, abdominal and neurologic examinations were unremarkable. Cardiovascular exam revealed no audible murmurs. Multiple needle tracks were noted on his forearms bilaterally. An initial white blood cell count was elevated with bandemia. The patient was started on empiric coverage for bacterial endocarditis with vancomycin, rifampin, and gentamicin. A transesophageal echocardiogram showed a large vegetation on the anterior mitral valve leaflet and an aortic paravalvular abscess. Blood cultures grew *S. agalactiae* susceptible to penicillin (MIC=0.125). Infectious disease and cardiothoracic surgery were consulted and the treatment regimen was modified to ceftriaxone and gentamicin.

Discussion: *S. agalactiae* endocarditis is an uncommon but highly aggressive disease, associated with high mortality (34%). Medical management alone rarely proves to be successful. Recent case series report a decline in mortality due to GBS endocarditis possibly due to earlier and more frequent surgical intervention. The risk factors for the patient presented here include intravenous drug use, a history of endocarditis resulting in surgical repair, and diabetes. This case report underscores the need for increased awareness of *S. agalactiae* as a cause of infective endocarditis in intravenous drug users.

Cramps!!! The Pill That Did It…
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Introduction: Quinine was banned by the US Food and Drug Administration in 1994 because of increasing reports of severe reactions to quinine and the absence of evidence for its efficacy in the treatment of leg cramps. However, over-the-counter quinine continues to be easily available as a component of remedies and supplements from Internet sources and stores such as Wal-Mart and General Nutrition Center.

**MEET THE TEAM**

**Nicholas Gachassin, III:**

**A Healthcare Administration Law Expert**

Nicholas’ practice is limited to legal issues affecting healthcare providers, including hospitals, physicians, nursing homes, home healthcare agencies, rehabilitation hospitals, rural health clinics and diagnostic surgery centers. In addition to his practice, Nicholas imparts his expertise to students by teaching a course on legal issues in healthcare administration for the University of Louisiana at Lafayette’s MBA program. He also shares his experience and insights with the healthcare community as a frequent speaker on health law issues. Nicholas Gachassin, III is licensed to practice in Louisiana and Mississippi.
Case: A 48-year-old woman presented to the emergency room with one day complaints of lower abdominal pain that extended to her back and was associated with nausea, vomiting, and diarrhea. She was anuric over the previous 14 hours. Physical exam was unrevealing except for slight tenderness over the lower abdomen. Significant lab data include – creatinine elevated from a baseline of 0.8 to 1.4mg/dL and a lowered platelet count from baseline of 338,000 to 120,000/dL. A computed tomographic scan of her abdomen revealed findings suggestive of bilateral cortical necrosis of the kidneys and bowel necrosis.

The patient was admitted to the intensive care unit and volume resuscitated. Overnight, the patient had worsening renal function. Her platelet count dropped further to 54,000. A peripheral smear showed schistocytes and a working diagnosis of thrombotic thrombocytopenic purpura (TTP) was made. Upon further questioning she reported taking one quinine pill a day for restless legs syndrome. She was treated with total plasma exchanges over the next few days with improvement in her platelet counts. However, her renal function did not improve and she developed end stage renal disease requiring long term hemodialysis.

Discussion: Quinine, used in over-the-counter preparations to treat muscle cramps, is the most common cause of drug-induced TTP-hemolytic uremic syndrome. Quinine-dependent antibodies may be responsible for this syndrome which can be triggered by a single quinine tablet or by quinine-containing beverages taken many months or years after a previous exposure. The diversity of quinine-induced systemic reactions makes the diagnosis of quinine induced TTP a challenge. A careful history is often required to establish the presence of quinine-induced disease.

Psychosis or Cerebritis? A Cerebral Dilemma.
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Department of Internal Medicine, Tulane University Health Sciences Center, New Orleans, Louisiana

Case: A 45-year-old woman with a history of chronic paranoid schizophrenia presented with three weeks of leg pain and fever. She exhibited paranoia and hallucinations. Her head and neck examination was normal, with no evidence of meningismus or trauma. Her lung and heart exams were normal, and her abdomen was non-tender with no organomegaly. Manipulation of her knees and ankles caused exquisite pain, but the joints were not swollen or erythematous. Edema to her mid-shin was present bilaterally, and a small eschar was present on the second digit of the right foot. There was no rash, oral ulceration or lymphadenopathy. Lymphopenia and normocytic anemia were noted, as was proteinuria. The erythrocyte sedimentation rate and C-reactive protein were elevated. Imaging of the legs was negative. Human immunodeficiency virus and rapid plasma reagin test were negative. A diagnosis of systemic lupus erythematosus was considered. The antinuclear antibody assay was positive, as was the anti-dsDNA assay. Ribosomal-P antibody and anticardiolipin G were mildly elevated; anti-SSA, anti-Sm/RNP and direct Coombs tests were positive. The cerebrospinal fluid protein was elevated. Neuropsychiatric systemic lupus erythematosus (SLE) was suspected, and high-dose intravenous glucocorticoids were initiated. Within twelve hours, the patient’s examination changed dramatically: she became afebrile and fully oriented, her affect improved, hallucinations resolved, and she was able to walk without pain.

Discussion: The general internist must be aware of the medical causes of psychiatric illness. Common causes include infections, toxidromes, medications, and inflammatory disease. Of the latter, lupus is the most common. Ninety percent of patients with lupus will have a central nervous system complication at some point in their life. Manifestations of neuropsychiatric lupus include neurologic (headache, stroke, seizures, movement disorders, transverse myelitis, cognitive disorders) and psychiatric (mania, depression, delirium, psychosis) syndromes.

In the patient with psychiatric symptoms superimposed upon systemic illness, the clinician must consider medical causes of psychiatric illness. In addition to providing a unifying diagnosis, neuropsychiatric SLE is amenable to medical treatment and its sequelae are often reversible.
Paravalvular Leak Causing Intravascular Hemolysis in a Patient With a Bioprosthetic Valve.
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Introduction: Intravascular hemolysis is associated with many causes including G-6-PD deficiency, hereditary spherocytosis, sickle cell anemia, autoimmune disease, disseminated intravascular coagulation, thrombotic thrombocytopenic purpura, and defective cardiac valves. Paravalvular leak causing intravascular hemolysis in patients with replacement heart valves is a rare early complication.

Case: A 69-year-old man with coronary artery disease, atrial flutter and mitral valve re-replacement with a bioprosthetic valve in 2000 presented to the hospital with complaints of fatigue, weakness and lightheadedness for one day. The patient was not taking warfarin as prescribed. He denied hematemesis, melena or hematochezia, but reported red colored urine for one month prior to his presentation. Physical exam revealed bilateral scleral icterus, a 3/6 holosystolic murmur at the apex and an unremarkable rectal exam. Initial serum chemistries included a hemoglobin of 11 g/dL and hematocrit of 33%, total bilirubin of 5 mg/dL, and an aspartate aminotransferase of 170 U/L. Urine analysis demonstrated blood without the presence of red blood cells. A 2D-echo revealed a normally functioning bioprosthetic mitral valve with severe dual paravalvular mitral regurgitation jets; a new finding compared to an echo done four months prior. Serum B12 and folate were within normal reference ranges. Serum lactate dehydrogenase, reticulocyte count, indirect bilirubin were elevated, while serum haptoglobin was decreased. The peripheral blood smear demonstrated fragmented red blood cells. These findings suggested the diagnosis of intravascular hemolysis, which we concluded, was caused by the paravalvular leak. The patient’s anemia worsened during the hospitalization requiring transfusion of a total of four units of packed red blood cells. The patient had two prior difficult valve surgeries and cardiothoracic surgery felt he was a poor candidate for further surgical intervention. The patient’s anemia improved, his symptoms resolved, and he was discharged with close outpatient follow-up.

Discussion: The occurrence of paravalvular leak associated with mechanical and bioprosthetic valves is not significantly different; 1.5% per patient-year. Most paravalvular leaks are benign, but some may cause symptoms due to a large regurgitant volume or hemolysis which can be life threatening. Symptomatic paravalvular leaks should be an indication to consider valve re-replacement surgery. However, reoperation for our patient carried significant morbidity and mortality and palliative medical therapy was initiated.

A Case of Aplastic Anemia.
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Introduction: Aplastic anemia is a stem cell disorder characterized by pancytopenia with hypoplastic bone marrow. Although the etiology is often not found, aplastic anemia has been associated with infection, drugs, immunologic disorders and radiation therapy. Presenting symptoms include fatigue, easy bruising, bleeding gums, heavy menstrual periods and epistaxis.

Case: A 46-year-old Caucasian woman presented with complaints of shortness of breath and fatigue for three weeks.
She also reported easy bruising and bleeding gums over the last month. Neither past medical nor surgical history was contributory. She smoked ten cigarettes a day and snorted cocaine and ecstasy once a week but denied intravenous drug use. At admit, the patient had mild tachycardia (pulse-102) and physical examination was significant for pallor and bilateral lower extremity pitting edema. Serum chemistry revealed a hemoglobin and hematocrit of 3.4 mg/dL and 9.9% respectively with a mean corpuscular volume of 112 FL. The patient's white blood cell and platelet count were 1300/microL and 29000/microL respectively. A bone marrow biopsy showed trilineage hypoplastic bone marrow with cellularity of 10%-15%. Flow cytometry did not reveal any immunophenotypically abnormal cell population. Results from hepatitis panel, human immunodeficiency virus, antinuclear antibody panel, rapid plasma reagin test, vitamin B12, folate and ham test were normal. The patient was admitted to the floor with reverse isolation and given irradiated packed red blood cells transfusion and same donor platelet transfusions. She was also started on antithymocyte globulin for five days and discharged on cyclosporine for six months. She continued to require blood transfusion and remained on cyclosporine.

Discussion: Bone marrow transplant or immunosuppressant therapies are the definitive treatments for patients with progressive cytopenias or severe hypoplastic disease. Bone marrow transplant is most successful in younger patients.

Immunosuppressive therapy may be more beneficial in patients over 45 years of age. Prognosis of aplastic anemia depends on age and severity of disease. Unless successfully treated, the one year mortality rate is more than 70% in severe cases of aplastic anemia.

Back to ‘Bac’.
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Case: A 73-year-old man with a history of a left-sided stroke, chronic spastic paresis, and hypertension presented to the hospital with a change in mental status. His wife reported that the patient began to have worsening visual hallucinations, confusion, and agitation over the last three days.

Upon initial assessment the patient was moderately hypertensive but all other vital signs were normal. On physical examination, he was confused but no new focal neurological deficits were appreciated. The rest of his physical exam was unremarkable. Lab studies revealed a normal complete blood count, urinalysis, urine toxicology screen, serum volatiles, thyroid-stimulating hormone, and comprehensive metabolic profile. Chest radiographs, urinalysis, and blood cultures were negative. A computerized tomography of his head showed chronic ischemic changes consistent with his past stroke; no acute changes were evident.

On detailed questioning regarding medications, the patient's wife reported that the patient was compliant with all of his home medications. However, four days prior to admission, he had run out of baclofen abruptly, normally taken three times per day, for chronic spastic paresis. The patient was admitted to the hospital and restarted on his home regimen of baclofen. Over the next three days his mental status gradually improved. By discharge, the patient was back to his baseline mental status.

Discussion: Baclofen is a widely prescribed antispasmodic drug that inhibits spinal reflexes and reduces muscle spasms by activating the inhibitory GABA\textsubscript{B} receptor. The sudden cessation of baclofen therapy can cause a release of neurotransmitters onto supersensitized receptors. This dis-inhibition can lead to autonomic dysregulation manifested by tachycardia, hypertension, agitation, delusions, hallucinations, and delirium. Most patients who experience baclofen withdrawal are on chronic therapy for at least five months, as with our case. The initial treatment strategy should be the immediate re-administration of baclofen. Symptom resolution usually occurs within three days. Baclofen withdrawal should be considered in the differential diagnosis of a patient with new onset changes in mental status or autonomic instability after abrupt cessation of baclofen therapy.
When Good Pastures Mimics Kidney Stones, Protein Beware!
S Alex, MD; R Love, MD; P Schnabel, MD; C Carter, MD; R Perret, MD; T Delord, MD; R Marts, MD; D Daberkow, II, MD; S Gupta, MD
Department of Internal Medicine, Leonard J. Chabert Medical Center, Houma, Louisiana

Introduction: Goodpasture’s syndrome is a systemic disease which usually presents as acute glomerulonephritis with hemoptysis but can present with isolated glomerulonephritis. Diagnosis is challenging but imperative to ensure a good outcome.

Case: A 24-year-old woman presented to the emergency department with complaints of back pain and hematuria. Serum creatinine was 2.4 mg/dL. A computerized axial tomography scan was negative for nephrolithiasis and a urinalysis revealed proteinuria, hematuria and pyuria. She was discharged with a diagnosis of urinary tract infection and told to follow up with nephrology for further evaluation. She returned to the emergency department five days later with complaints of back pain, hematuria, oliguria with nausea and vomiting. She denied any chest pain, dyspnea, hemoptysis, fever, or chills. Serum creatinine was now 5.3 mg/dL. Urinalysis revealed proteinuria and hematuria without pyuria. She was diagnosed with acute glomerulonephritis.

On examination, the vital signs were normal. She had mild costovertral angle tenderness bilaterally. Peripheral edema was present. She received intravenous fluids and the serum creatinine rose to 6.3 mg/dL. A renal ultrasound demonstrated two normal sized kidneys. The nephrology service was consulted and the patient was given high dose intravenous methylprednisolone. On hospital day three, the serum creatinine was 7.1 mg/dL. Kidney biopsy revealed crescentic glomerulonephritis and immunofluorescence was positive for linear IgG staining of the basement membrane consistent with Anti-GBM disease or Goodpasture’s syndrome. Chest radiograph and chest computed tomography revealed bilateral pleural effusions with patchy upper lobe and perihilar nodular infiltrates. Plasmapheresis was initiated on hospital day four with a serum creatinine of 7.3 mg/dL. Anti-GBM titers were 182 (0-20). Oral steroids were continued and the plasmapheresis was continued for two weeks alternating with ultrafiltration. The serum creatinine fell to 6.8 mg/dL on hospital day 14, and 4.4 mg/dL on hospital day 28 and she did not require hemodialysis. She was discharged home with a tapering dose of steroids. One year later, her serum creatinine is 2.3 mg/dL and her Anti-GBM titer is 18 (0-20). She has returned to work without any residual problems.

Concurrence of Sarcoidosis and Systemic Lupus Erythematosus.
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Introduction: Sarcoidosis and systemic lupus erythematosus (SLE) are autoimmune diseases in which gamma interferon (IFN-γ) plays a significant pathogenic role. Yet over the last 40 years, only a few cases of patients with concurrent sarcoidosis and systemic lupus erythematosus have been reported.

Case: A 48-year-old African American woman initially presented in 1982 with diffuse joint pain and swelling, Raynaud’s phenomenon, anemia, and a positive antinuclear antibody. She was treated with prednisone for approximately one year and then remained stable on hydroxychloroquine. In 2008, she was noted to have abnormalities on routine lab work including alanine transaminase of 59 U/L, aspartate aminotransferase of 64 U/L, and alkaline phosphatase of 533 U/L. Complete blood count showed normocytic anemia (hemoglobin 11.6 gm/dL, hematocrit 35.4%). Angiotensin converting enzyme level was 75 µg/L, and antinuclear antibody was positive 1:160 (speckled pattern). The patient had no other complaints except mild dyspnea on exertion.
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**Serving Since:** 2004

**Premiums:** 70%**

**Defense Rate (To Date):** 100%

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Although the incidence of sarcoidosis in the general population is only 2 to 60 per 100,000, recent studies have found the incidence of sarcoidosis in patients with SLE to be as high as 1%. IFN-γ and Interleukin-2 drive autoimmune inflammation in both disorders. Both sarcoidosis and systemic lupus erythematosus may present with nonspecific clinical features including fever, arthralgias, lymphadenopathy, sicca symptoms, and rashes. This case study emphasizes the importance of considering the possibility that new cutaneous, neurological, or lung manifestations in patients with systemic lupus erythematosus may be due to secondary causes including sarcoidosis.

**Discussion:** Although the incidence of sarcoidosis in the general population is only 2 to 60 per 100,000, recent studies have found the incidence of sarcoidosis in patients with SLE to be as high as 1%. IFN-γ and Interleukin-2 drive autoimmune inflammation in both disorders. Both sarcoidosis and systemic lupus erythematosus may present with nonspecific clinical features including fever, arthralgias, lymphadenopathy, sicca symptoms, and rashes. This case study emphasizes the importance of considering the possibility that new cutaneous, neurological, or lung manifestations in patients with systemic lupus erythematosus may be due to secondary causes including sarcoidosis.

**Wellen’s Warning in the Shadow of Pneumonia.**
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**Introduction:** Wellens’ syndrome is a preinfarction stage of coronary artery disease. This syndrome can be identified by characteristic T-wave changes with occasional involvement of the ST segment in the precordial leads which are associated with significant obstruction of the proximal left anterior descending (LAD) artery.

**Case:** A 54-year-old man presented to the walk in clinic complaining of left sided chest pain of two days duration. The pain increased with inspiration and movement and was not relieved with nitroglycerin. The pain was associated with cough and shortness of breath. Past medical history was significant for hypercholesterolemia, and stable angina. Social history was significant for smoking (60 packs per year) and occasional marijuana use. The patient’s father died from myocardial infarction at age 57. Medications included occasional sublingual nitroglycerin. The patient had a temperature of 99.1°F and decreased breath sounds in left lung base on physical exam. Labs showed white blood cell count 12,400/uL and cardiac enzymes were negative for three sets. A computed tomography scan of the chest showed left sided consolidation. Electrocardiogram showed biphasic T waves in V2 and V3 with no pathologic Q waves. The patient was admitted to the hospital with the diagnosis of community acquired pneumonia and started on antibiotics. A cardiac catheterization was performed which showed a significant proximal LAD occlusion. The patient was placed on aspirin, clopidogrel and a heparin drip. A 3X18 mm Vision stent was deployed to open up the LAD blockage.

**Discussion:** This case was interesting because the patient did not have typical chest pain suggesting heart disease; his chest pain was pleuritic secondary to pneumonia. Wellen’s warning was the only basis for the cardiac catheterization which revealed significant proximal LAD occlusion. This illustrates the important point that Wellens’ warning even in the absence of typical chest pain can have great predictive value for the presence of LAD lesions and thus warrants aggressive diagnostic and therapeutic management.

**Fecal Bacteriotherapy in Resistant Clostridium Difficile Infection.**
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**Introduction:** The new, heartier strain of *Clostridium difficile* (C. diff), widespread across hospitals in the United States and Canada, poses challenging treatment opportunities for clinicians. Treatment modalities include antibiotics, toxin binding resins, colectomy and fecal bacteriotherapy.

**Case:** A 76-year-old woman with a history of systolic heart failure (EF 30%), paroxysmal atrial fibrillation, B cell lymphoma (stage IIIB), hypothyroidism, chronic obstructive pulmonary disease, chronic malnutrition, and recurrent C. diff colitis presented with a one day history of nausea, vomiting, and loose stools resulting in hypotension and decreased mental status. In the previous six months, the patient failed three previous treatments for C. diff colitis, twice with metronidazole and once with oral vancomycin. Vitals signs revealed an afibrile, hypotensive (70's/40's), orthostatic, and tachycardic patient. Significant exam findings included a somnolent, cachectic, hypovolemic patient. Significant exam findings included a somnolent, cachectic, hypovolemic female, with mild abdominal pain. Rectal exam showed guaiac positive liquid brown stool. The blood urea nitrogen and creatinine were elevated, stool was positive for C. diff toxin. The patient required critical care admission with pressor support, initially. Stool output remained at greater than a liter of liquid stool per day. Colonoscopy revealed pseudo membranes. The patient was placed on oral vancomycin with oral metronidazole and vancomycin retention enemas with modest reduction in stool output. Five days later, fecal bacteriotherapy was applied. Donated fecal material (fecal specimen was screened for *Clostridium difficile* toxin, pathogenic stool culture) from a daughter in law material (fecal specimen was screened for *Clostridium difficile* toxin, pathogenic stool culture) from a daughter in law colectomy and fecal bacteriotherapy.

**Discussion:** This case was interesting because the patient did not have typical chest pain suggesting heart disease; his chest pain was pleuritic secondary to pneumonia. Wellen’s warning was the only basis for the cardiac catheterization which revealed significant proximal LAD occlusion. This illustrates the important point that Wellens’ warning even in the absence of typical chest pain can have great predictive value for the presence of LAD lesions and thus warrants aggressive diagnostic and therapeutic management.
and blood pressure improved dramatically in the first 24 hours. The patient was successfully transferred out of the intensive care unit and discharged from the hospital on a 30 day regimen of oral vancomycin.

**Discussion:** C. **diff** disease can range from mild diarrhea to life-threatening colitis. C. **diff** colitis has long been associated with antibiotic use, but recurrent C. **diff** infections have become more frequent, more virulent, and more resistant to standard therapy. Emerging evidence suggests that fecal bacteriotherapy is a viable treatment alternative in these resistant infections.

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**A Pain in the Neck.**
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**Case:** A 20-year-old woman from Honduras presented with a 4x3 cm mass on the left side of her neck that had been gradually enlarging over the past three years. The mass was well defined, mobile, and non-erythematous. She had mild tenderness at the site, but was otherwise without complaints. She had no history of fevers, chills, night sweats, cough, or lymphadenopathy. She denied any known sick contacts or other risk factors for *M. tuberculosis*.

She had been treated with oral antibiotics on multiple occasions, but had no improvement in her symptoms. Chest X-ray revealed no cavitary lesions or evidence of intrapulmonary processes and her human immunodeficiency virus (HIV) test was negative. However, a 14 mm induration developed after a purified protein derivative skin test was placed and a subsequent fine needle aspiration sample revealed caseating granulomatous tissue that was later identified as *Mycobacterium tuberculosis*. She was placed in respiratory isolation and multiple sputum smears were negative for acid fast bacilli. The patient was ultimately diagnosed with scrofulous tuberculosis and started on multiple drug anti-tuberculosis therapy with outpatient monitoring at a tuberculosis clinic.

**Discussion:** Scrofula is an extra-pulmonary manifestation of *Mycobacterium* infection in the subcutaneous tissue that most often affects the submandibular, parotid, or supraclavicular lymph nodes. Over the last 20 years a rise in the incidence of scrofula has been noted in the United States, illustrating the importance for the general internist to be able to recognize the extra-pulmonary manifestations of *Mycobacterium tuberculosis*. This is primarily due to a rise in immigration from endemic countries, the rising population of those infected with HIV, worsening urban social conditions, and the abandonment of rigid tuberculosis control programs. Oral anti-tuberculosis therapy remains the preferred method of treatment and should be initiated promptly.

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**Chest Pain in a Chronic Aortic Dissection.**
J Garcia, DO; J Ramirez, MD
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**Introduction:** The incidence of aortic dissection (AD) in the United States ranges from 5-30 cases per million individuals per year and most commonly occurs between the ages of 50-70 years. Major risk factors for AD include hypertension, cocaine use, connective tissue diseases, and syphilis. Chronic aortic dissection is defined by the presence of initial symptoms for greater than two weeks duration.

**Case:** A 45-year-old African American woman with a past medical history of anemia, hypertension, former cocaine abuse, and aortic dissection diagnosed in 2005 presented to the emergency department with chest pain, headache, and dizziness of two weeks duration. Vital signs upon admission were unremarkable except for a blood pressure of 197/101. Physical exam revealed a Grade IV/VI holosystolic murmur at her right second intercostal space. She had equal bilateral peripheral pulses. Chest X-ray demonstrated a widened mediastinum. Chest and abdominal computed tomography revealed a Stanford A/Debakey Type I AD involving the left iliac artery. Surgery recommended medical management. The patient was treated with esmolol and nicardipine drip initially and then switched to oral antihypertensive medications. Echocardiogram showed an ejection fraction of 55%, an aneurysmal aorta and supported the diagnosis of a Type I dissection. A retroperitoneal ultrasound showed left renal artery stenosis, a small left kidney, and a 4.8 cm diameter abdominal aortic aneurysm extending to the level of the renal arteries. On hospital day six, transesophageal echocardiogram demonstrated a dilated ascending and descending aorta. A dissection flap was visualized extending from aortic arch to abdominal aorta with good flow in false lumen from multiple communications. The patient remained symptom free with blood pressure control.

**Conclusions:** This woman probably developed aortic aneurysms and dissections secondary to the effects of cocaine use and uncontrolled hypertension. Chronic aortic dissection can present with atypical signs and symptoms including headache and dizziness as evidenced with this case presentation. Dissections involving ascending aorta should be surgically treated. However, mortality rate may approach 70% in complicated patients, justifying medical management in these cases.

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**Severe Hypokalemia and Hematuria: An Interesting Case of Munchausen Syndrome.**
MR Matrana, MD, MS; PF McDonald, MD; E Rostlund, BS

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Munchausen syndrome is a rare form of factitious disorder in which patients actively assume the sick role with no clear monetary gains or motives. Sufferers usually have extensive medical histories and backgrounds in the healthcare industry.

Introduction: Munchausen syndrome is a rare form of factitious disorder in which patients actively assume the sick role with no clear monetary gains or motives. Sufferers usually have extensive medical histories and backgrounds in the healthcare industry.

Case: A 46-year-old man was found in his home by emergency medical services with a respiratory rate of four breaths per minute and a Glasgow Coma Scale (GCS) score of three. The patient was given naloxone and responded to a GCS score of 14. He reported an overdose with oxycodone, alprazolam, and carisoprodol. On examination, he had miotic pupils, a diffusely tender abdomen without rebound, and had a waxing and waning level of consciousness. He had a Foley placed in the emergency room with dark brown urine. Urine toxicology was positive for benzodiazepines and opiates. Urinalysis revealed small blood and 3-5 red blood cells per mm². The patient's room was searched and empty packaging for hundreds of laxative tablets was found. The patient purchased more than 200 laxative tablets, which were confiscated. The following day, the patient's daughter brought her 240 bisacodyl tablets, which were also confiscated. The patient was suspected of injecting blood into the bladder and clotted the catheter and the balloon port. After removal, balloon dissection revealed a large clot. The patient's room was searched and empty packaging for hundreds of laxative tablets were found. The patient's daughter revealed that he purchased more than 200 laxative tablets each week for his mother. The patient was transferred to psychiatry. Her hematuria and hypokalemia quickly resolved.

Discussion: Both self-induced hypokalemia and factitious hematuria have been reported, but never in the same patient. Surreptitious laxative abuse should be considered when other organic causes of electrolyte abnormalities have been ruled out. Self-infusion of one's own blood into the bladder to simulate hematuria has been previously reported in two cases.

Appeasing the Masses.
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Case: A 47-year-old woman was admitted for hypokalemia. Her history included fibromyalgia, nondiabetic gastroparesis, irritable bowel syndrome, migraines, multiple infections, depression, and anxiety. She had been evaluated by dozens of physicians, with multiple surgeries and admissions to other hospitals. She complained of weakness with two recent falls, tingling and cramping of the extremities, and fatigue. Medications were methadone (for pain), hydrocodone, pregabalin, duloxetine, alprazolam, trazodone, and ondansetron. She previously worked as a hospital secretary. Her history included fibromyalgia, nondiabetic gastroparesis, irritable bowel syndrome, migraines, multiple infections, depression, and anxiety. She had been evaluated by dozens of physicians, with multiple surgeries and admissions to other hospitals. She complained of weakness with two recent falls, tingling and cramping of the extremities, and fatigue. Medications were methadone (for pain), hydrocodone, pregabalin, duloxetine, alprazolam, trazodone, and ondansetron. She previously worked as a hospital secretary. Her hematuria and hypokalemia quickly resolved.

Discussion: The diagnosis of a central nervous system (CNS) space-occupying lesion in a patient with acquired immune deficiency syndrome can be challenging. Infectious agents such as Toxoplasma gondii, Mycobacterium tuberculosis, Cryptococcus neoformans, Treponema pallidum, and primary CNS lymphoma can produce lesions that are indistinguishable on neuroimaging studies. Toxoplasma has a predilection for the basal ganglia and can present with multiple brain masses. If the toxoplasma IgG antibody is positive and there is no other clear alternative diagnosis, empiric therapy with sulfadiazine plus pyrimethamine can be tried. A significant decrease in size on repeated neuroimaging after 10-14 days of treatment suggests the diagnosis. Otherwise, brain biopsy is warranted. It is the internist's role to make the diagnosis, but it is even more important to protect the patient from unnecessary invasive tests.

Dark Urine and Partying Hard.
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Case: A 43-year-old man with human immunodeficiency virus presented with a two week history of worsening altered mental status. He had become increasingly confused and slurred his speech. He developed right-sided weakness and difficulties with coordination and gait. He denied fevers, vision changes, seizures and had no neck pain or stiffness. His vital signs were normal. His speech was slow and slurred. Strength testing was 4/5 in the right upper and lower extremities. Finger to nose and rapid alternating movements were impaired. Lab values revealed a CD4 count of seven cells per mm³. Neuroimaging showed a 2 cm ring-enhancing mass in the left basal ganglia with a large amount of surrounding edema causing midline shift and right-sided subfalcine herniation. Serum toxoplasma IgG titers were positive. Despite being a single lesion, the location in the basal ganglia and ring-enhancement was suspicious for toxoplasmosis. In an attempt to circumvent a brain biopsy, we empirically treated our patient for toxoplasmosis with the addition of high-dose corticosteroids for two weeks and repeated the brain imaging. He improved dramatically during that time and the mass decreased in size confirming our diagnosis.
cells per high power field. He was acidotic as determined by arterial blood gas analysis. Peaked T waves were evident on telemetry and on 12 lead electrocardiogram. The patient received two grams of calcium gluconate. While waiting for serum chemistries, the patient was empirically started on two liters per hour of normal saline and a bicarbonate drip. The resulting serum chemistries revealed a creatinine phosphokinase of 111,160 units per liter, ionized calcium of 0.7 mmol per liter, potassium of 6 mEq per deciliter, a serum creatinine of 3.5 mg per deciliter (with a normal baseline creatinine), and a myoglobin too high to measure. The patient was diagnosed with rhabdomyolysis.

**Discussion:** Rhabdomyolysis is a syndrome of muscle necrosis, with resulting release of muscle enzymes. It is caused most often by trauma with crush injury, comatose state, postsurgical, lower extremity compartment syndrome, physical exertion, or metabolic myopathies. This disorder is characterized by myoglobinuria, elevated muscle enzymes, electrolyte abnormalities (hyperkalemia, hyperphosphatemia, hypocalcemia, hyperuricemia, and metabolic acidosis), and renal failure. Renal failure is thought to be caused by volume depletion and renal tubular injury from free iron. Treatment is aimed at preventing renal failure with fluid resuscitation of 1-2 liters per hour with a goal of urine output of 200-300 mL/hour and forced alkaline diuresis with a bicarbonate drip.

**Typically Atypical Renal Cell Carcinoma.**

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**Case:** A 49-year-old Caucasian man with hypertension presented to the hospital reporting a three month history of right hip and lower back pain which progressed to bilateral lower extremity weakness. The patient also reported a one week history of difficulty urinating and constipation. The patient had been seen in the emergency room for back pain (treated with nonsteroidal antiinflammatory drugs) several times during the past three months. A year prior, he had an unremarkable examination and serum chemistries noted by his primary care physician. The patient had a 15 pack per year history before quitting ten years ago. Review of symptoms was unremarkable. Physical exam revealed tenderness to palpation over the lumbar spine as well as increased rectal sphincter tone. The patient had decreased lower extremity strength (3/5) bilaterally. Lower extremity deep tendon reflexes were absent bilaterally. Serum chemistries were significant for hemoglobin 12.7 gm/dL and hematocrit 36.4%. Urinalysis was positive for blood with 6-10 red blood cells per hpf. Magnetic resonance image for suspected spinal cord compression revealed a large enhancing lesion extending from L3 to L5 with neural foraminal involvement and thecal sac displacement. The lesion extended into the right psoas and erector spinae muscles. The lesion appeared to be highly vascular and suspicious for metastases. Considering the patient’s history of smoking, age, anemia, and hematuria, a primary renal malignancy was considered. A computed tomography (CT) scan of the abdomen demonstrated a 9 cm left renal mass. CT guided biopsy of the paraspinal lumbar mass turned clinical suspicion into a tissue diagnosis of stage IV clear cell renal carcinoma.

**Discussion:** Renal cell carcinoma represents about two percent of total yearly cancer incidence and mortality in the United States. A timely diagnosis improves prognosis. Five-year survival in stage III disease with appropriate treatment reaches 70% as opposed to a median survival time of 16-20 months for patients with stage IV disease. Renal cell carcinoma should be considered in the presence of back pain and otherwise, vague symptoms.

**First Do No Harm.**

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**Case:** A 62-year-old man presented with a history of gradually worsening chronic lower back pain over many years. In the past he had been treated with nonsteroidal antiinflammatory drugs, muscle relaxants, and received a course of physical therapy. Several months prior to presentation he had been referred to pain/anesthesia clinic
and received two series of epidural steroid injections in his lower sacral region. Although the steroid injections were initially helpful in pain control, the effects were transient and he was referred for further investigation. Magnetic resonance image revealed an area of irregularity and poor definition of the endplates along with a band-like abnormal signal in the adjacent vertebral marrow at the L4-L5 level that was concerning for possible discitis/osteomyelitis. He had mild tenderness at the L4-L5 spinal region, but was otherwise without positive physical exam findings. He was afebrile, had no focal neurological deficits, no evidence of spinal cord compression, and denied a history of intravenous drug abuse. Blood work revealed a mildly elevated erythrocyte sedimentation rate of 30, normal white blood cell count, and a negative blood culture. A follow up full body bone scan demonstrated evidence of osteomyelitis at the L4-L5 region. The patient was ultimately diagnosed with discitis that had progressed to vertebral osteomyelitis, which was presumed to be secondary to his epidural injections. He received a peripherally inserted central catheter line and was started on vancomycin.

**Discussion:** Osteomyelitis is an infection of the bone that usually occurs via hematogenous spread of bacteria, direct trauma to the bone, or contiguous spread from a local area of infection as in cellulitis. Vertebral osteomyelitis is uncommon, with an incidence of one case per 100,000-250,000 population per year. Diagnosis and treatment are often delayed, because of its rarity and vague initial symptoms. The general internist must be able to recognize the presenting features of vertebral osteomyelitis and initiate an appropriate workup and treatment.

**Proteinuria, the “Tip of the Iceberg”: A Critical Finding in HIV Associated Nephropathy.**

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**Introduction:** Human immunodeficiency virus associated nephropathy (HIVAN) is the third leading cause of end-stage-renal disease (ESRD) among African Americans age 20 to 60 years of age. It is an aggressive renal disease commonly characterized by proteinuria, azotemia, normal-to-large kidneys, normal blood pressure, and focal segmental glomerulosclerosis (collapsing type).

**Case:** We report the case of a 53-year-old African American woman with newly diagnosed hypertension and an unremarkable social history who presented to the emergency department (ED) complaining of dysphagia, odynophagia, and weight loss for three weeks. She was seen by her primary care physician one week prior to admission and was found to have acute renal failure. At presentation to the ED, she had an elevated blood pressure and a benign physical exam. Labs were significant for anemia, elevations in blood urea nitrogen and creatinine, and low albumin. Nephrotic range proteinuria was demonstrated by urinalysis. Renal ultrasound showed bilateral increased echogenicity consistent with medical renal disease. A diagnostic renal biopsy was done and histological findings were consistent with focal segmental glomerulosclerosis, collapsing type. She continued to have worsening of renal function and required hemodialysis during the rest of her hospital course. Evaluation of her dysphagia included an esophagram which demonstrated pan-esophagitis with surrounding edema. An esophagogastroduodenoscopy showed Candida esophagitis, confirmed by tissue biopsy. She was successfully treated with fluconazole. The patient had a seropositive HIV test which led to the diagnosis of HIVAN.

**Discussion:** HIVAN accounts for 60% of HIV nephropathy and has mortality close to 50%. The progression to ESRD is worse in patients with advanced acquired immune deficiency syndrome, especially if their CD4 count is less than 50. The introduction of antiretroviral therapy (HAART) has been associated with a decline in the incidence of HIVAN. Aggressive initiation of HAART and angiotensin-converting enzyme inhibitors for patients with advanced HIV disease is the current standard of therapy to delay disease progression. Physicians should consider HIVAN in patients who are seropositive for HIV and have proteinuria.

**The Chronicles of Chronic Daily Headache.**

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Case: A 46-year-old woman presented with a right sided headache for three months. She described the pain as a throbbing, constant headache that was relieved briefly with tramadol and ibuprofen. She was recently seen in the emergency room and diagnosed with a sinus headache and advised to take ibuprofen. She denied fever, neck stiffness, headache with valsalva, or heavy caffeine intake. She admitted to photophobia and aversion to loud noises, but reports this headache is different from her regular migraines. She had a past medical history significant for post-traumatic stress disorder, bipolar disorder, migraines and drug abuse. She smokes occasionally and quit using cocaine two months ago. Home medications included tramadol, ibuprofen, quetiapine, depakote, and fluoxetine. Her vital signs were normal. Physical exam revealed an uncomfortable appearing woman with tenderness and decreased sensation on her right forehead. She had no papilledema and was neurologically intact. Her complete blood count was normal. Erythrocyte sedimentation rate (ESR) was elevated at 38, urine drug screen (UDS) was negative. A computed tomography, magnetic resonance image, and magnetic resonance angiography of her head revealed no abnormalities. The patient was diagnosed with chronic daily headache. She was treated by stopping the ibuprofen and tramadol while initiating a steroid taper. At follow-up in the neurology clinic, she reported resolution of her headache.

Discussion: The differential diagnosis of chronic headaches in this patient included trigeminal neuralgja, migraine headache, tension headache, temporal arteritis, cocaine withdrawal, and chronic daily headaches. Because our patient had normal imaging, only mildly elevated ESR, a negative UDS, and associated analgesic abuse, the diagnosis of chronic daily headache was made. Our patient had prior history of a mood disorder, obesity, migraine headaches and was taking multiple analgesics, all of which are risk factors for chronic daily headache. Physicians should keep chronic daily headache in the differential diagnosis and not perpetuate the use of analgesics in these patients.

The Bean Has Two: A Rare Case of Simultaneous Squamous Cell and Renal Cell Carcinoma of the Kidney.
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Introduction: Squamous cell carcinoma of the kidney is a rare neoplasm with a malignant course. We describe a patient with this condition who also had a simultaneous occurrence of renal cell carcinoma.

Case: A 56-year-old African-American man presented with a long history of left-sided nephrolithiasis for which he underwent numerous lithotripsy procedures. He reported worsening left-sided flank pain over a two month period associated with intermittent hematuria. Computed tomography showed a large left renal mass measuring 8 x 8.3 cm, and a positron emission tomography scan further revealed a large hypermetabolic reactive metastatic focus in the superior and posterior acetabulum with bone destruction consistent with metastatic disease. He underwent a radical left-sided nephrectomy and the pathology showed a multifocal squamous cell carcinoma of moderate differentiation with presence of keratinization at two separate foci. There was focal lymphovascular invasion with one renal hilar lymph node positive for keratinizing squamous cell carcinoma. In addition, there was also a 1.6 cm papillary renal cell carcinoma without lymphovascular invasion.

Discussion: The simultaneous occurrence of squamous cell and renal cell carcinoma is an exceptional condition. In general, renal cell carcinomas account for more than 95% of renal malignancies whereas squamous cell carcinoma is extremely rare. The risk factors for squamous cell carcinoma include nephrolithiasis and infections such as chronic pyelonephritis. Chronic and recurrent nephrolithiasis induce reactive changes in the urothelium causing metaplasia and leukoplakia which are believed to predispose to malignancy. This explains why squamous cell carcinoma occurs more frequently in the renal pelvis. Imaging shows renal calculi or hydronephrosis unless the tumor is large. Hence, the diagnosis is challenging and relies on histological analysis. Treatment includes radical nephrectomy. The role of chemotherapy is not well established. The prognosis is poor with most patients succumbing to their illness within a year or two of diagnosis.

A Catty Cough.
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Case: A 66-year-old woman presented with three days of shortness of breath. She also reported a productive cough, fever, and chills over the same time period. Three days ago the patient reported no dyspnea and reported excellent exercise tolerance. She reported improvement with albuterol and worsening with laying flat. She denied any sick contacts.

Her past medical history included diabetes, hypertension, high cholesterol, and hypothyroidism. She smoked a pack per day for 20 years. She denied any illicit drugs or alcohol abuse. Family history was significant for lung cancer in both her parents. Abnormal vital signs at presentation included a temperature of 101.7°C, pulse of 105 beats per minute, and an oxygen saturation of 88% on room air. Physical exam was remarkable for diffuse wheezing and decreased airflow bilaterally. Her complete blood count was normal. Electrolytes and liver function tests were normal, except for a low serum sodium and albumin. Chest X-ray
demonstrated right middle lobe airspace disease. Blood cultures from admission demonstrated gram negative coccobacilli consistent with Pasteurella multicoda. On further questioning the patient stated she lived in a small trailer with multiple pet cats. The patient was successfully treated with levofloxacin and slowly weaned off respiratory support to room air.

Discussion: Community acquired pneumonia is a common illness, affecting 1 out of 1000 adults each year. Streptococcus pneumoniae is the most common cause of pneumonia although many other bacteria can cause disease. Pasteurella multicoda is a rare but important pathogen to consider in the differential of community acquired pneumonia. The bacteria are normally found in the upper respiratory tract of bird and mammals, especially healthy pet cats and dogs. Questions regarding companion animals is an important part of the social history and can be a useful aid in the diagnosis of Pasteurella infections.

A-Rhythmia and Blues.
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Case: An asymptomatic 57-year-old woman with excellent functional capacity, no significant past medical history, and no family history of sudden death was found to have right ventricular hypertrophy, right ventricular lift and an accentuated P2. Electrocardiogram revealed right ventricular hypertrophy, T-wave inversions and epsilon waves in V1-V2. Frequent premature ventricular contractions were further confirmed on Holter monitoring. The 2D echocardiography performed on three different occasions revealed a grossly dilated right atrium and right ventricle with moderate pulmonary hypertension. Right heart catheterization was however normal: RV - 31/10mmHg and PA -28/12/18mmHg. She exercised for nine minutes and was extubated on postoperative day one. Thereafter, his hospital course was uncomplicated.

Discussion: Asymptomatic patients with ARVD may initially be identified by their primary care physicians and managed conservatively in some instances. The condition involves myocardial fibrofatty infiltration initially in the right ventricle with the potential to affect the left heart. These infiltrates can involve the desmosomes connecting cardiac muscle cells which results in the disruption of electrical conduction and fatal arrhythmias; particularly during periods of great physical stress. This patient satisfied two major ARVD criteria: a markedly and irregularly dilated right ventricle (4.8cm) and epsilon waves. Defibrillators are indicated for patients with ventricular dysfunction and tachycardia (high risk category). However, this patient represents a low to intermediate risk group for whom no definite treatment guidelines exist. In the absence of ventricular dysfunction and tachycardia, the use of beta-blockade and avoidance of strenuous activity seem prudent owing to the lifetime risk of arrhythmias and ventricular dysfunction.

Massive Gastrointestinal Bleeding From a Meckel’s Diverticulum with Heterotopic Gastric Mucosa.
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Introduction: Meckel’s diverticulum is the most common occurring congenital anomaly of the gastrointestinal tract and may be found in 2% of the population. Generally asymptomatic, Meckel’s diverticulum is an infrequent cause of massive lower gastrointestinal bleeding particularly in those beyond two years of age.

Case: A 15-year-old adolescent boy presented to the emergency department following a single episode of hematochezia and syncope. The patient was noted to have significant anemia at presentation and transfusion of blood products was initiated. During the first several hours of hospitalization the patient continued to experience hematochezia and was subsequently evaluated with esophagastroduodenoscopy (EGD). EGD revealed two small ulcers in the antrum with no active bleeding and no stigmata of recent hemorrhage. Due to significant, unabating hemorrhage the patient was taken to the operating room for further evaluation. Preoperative proctoscopy was performed and demonstrated voluminous bright red blood which prompted exploratory laparotomy. Intraoperative findings included a large Meckel’s diverticulum noted approximately 2 to 2.5 feet from the ileocecal valve with a large amount of intraintestinal blood. Postoperative gross pathology revealed 4.0 x 2.5 x 1.5 cm diverticulum filled with clotted blood and microscopic evaluation revealed gastric heterotopia. In total the patient required over 20 units of blood products including packed red blood cells, fresh frozen plasma, and platelets. Following his return to the intensive care unit the patient had appropriate improvement and was extubated on postoperative day one. Thereafter, his hospital course was uncomplicated.

Discussion: This case illustrates an uncommon presentation of a common congenital anomaly. Despite the infrequent occurrence of massive hemorrhage related to Meckel’s diverticulum, the differential diagnosis of lower gastrointestinal bleeding should still include this entity as operative intervention may be mandated.

Eustrongylidiasis – A Parasitic Infection After Eating a Live Minnow.
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For more information about becoming a CMAP provider, please visit our Web-site, cmaprx.org (under the Apply/physicians tab) or contact Wendy Roy, CMAP Program Director at 888-443-7494.
Introduction: Eustrongylidiasis is a rare parasitic infection associated with the ingestion of raw or improperly cooked fish. It has been reported to cause intestinal perforations and thus far, only five cases have been reported in the US literature.

Case: A 28-year-old man presented with nausea, vomiting and diffuse abdominal pain of two days duration. He denied diarrhea, fever or chills. He had been on a fishing trip one day prior to the onset of his symptoms. His physical exam was remarkable for diffuse abdominal tenderness more prominent on the right lower quadrant without guarding or rebound; good bowel sounds throughout. Initial laboratory studies showed a leukocyte count of 13.08 k/uL (85.9% granulocytes; 5.4% lymphocytes; no eosinophils) and normal chemistries. Initial abdominal computed tomography (CT) showed bowel wall thickening with inflammation of the cecum and ileocecal valve.

He was admitted with a presumptive diagnosis of appendicitis. On day four, abdominal pain worsened and he became febrile. A repeat abdominal CT showed findings of a possible perforated appendix. He underwent an emergency exploratory laparotomy that revealed signs of peritonitis and an inflamed cecum with a normal appendix. After removal of the omentum, a ~2.2 cm pink foreign body was seen emerging from the distal small bowel without evidence of perforation. Pathology showed a parasite consistent with a nematode. He was discharged home on a two-week course of praziquantel and albendazole. The specimen was reevaluated by a parasitologist who concluded that the larval nematode was consistent with *Eustrongylides* species.

One month later the patient had fully recovered and was asymptomatic. Upon further questioning, patient admitted to eating a live minnow during his fishing trip.

Discussion: *Eustrongylides* consist of three different species: *Eustrongylides tubifex*, *Eustrongylides excisus* and *Eustrongylides ignotus*. Minnow fish are a secondary intermediate host for *Eustrongylides ignotus*. Eustrongylidiasis occurs after consuming the live minnow. This condition may mimic appendicitis but a good history of patient’s exposures and food consumption should help you keep this in your differential diagnosis of acute abdominal pain. There is no evidence of any effective medication against *Eustrongylides* species, so removal of the nematode is required to prevent further complications.