



# **FOMA STUDENT/INTERN/RESIDENT RESEARCH POSTER COMPETITION**

**CASE and EXPERIMENTAL RESEARCH  
PRESENTATIONS**

**February 17-21, 2016**  
113<sup>th</sup> Annual FOMA Convention  
Bonaventure Resort & Spa  
Weston, Florida

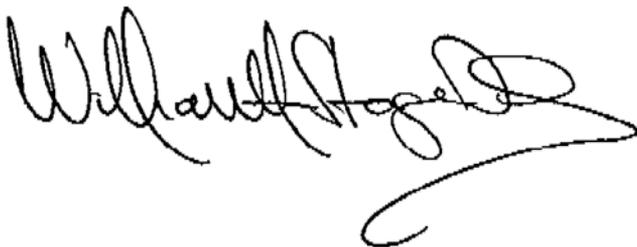
**Sponsored by the Osteopathic Foundation of East Orlando  
and the Advocates to the Florida Osteopathic  
Medical Association**

*Dear Residents, Interns and Students,*

*On behalf of the Florida Osteopathic Medical Association, I want to thank you for participating in the 6th Annual FOMA Research Poster Competition. Your hard work, dedication and commitment to osteopathic research and medicine is shown in the poster presentations you created for this competition.*

*I encourage each of you to continue with your scholarly research and strive to provide safe, effective and quality care to your patients now and in the future.*

*Congratulations!*

A handwritten signature in black ink, appearing to read "William H. Stager". The signature is fluid and cursive, with a long, sweeping underline that extends to the right.

**William H. Stager, DO, MS, MPH, FAAFP, FAAMA, FAAO, FACOFP**

*FOMA President  
2015-2016*

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**Title:** Sunburn Risk and Florida Residents: A Cross-Sectional Study Examining Demographic, Dermatological and Attitudinal Factors  
**Authors:** Sergey Arutyunyan, OMS-3; Sarah Alfonso, BS; Nilda Hernandez, AA; Tracy Favreau, DO; M. Isabel Fernandez, PhD  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Background:** Skin cancer is the most common malignancy in the United States and its incidence is increasing. The annual cost of skin cancer treatment in the US is estimated at \$8.1 billion. Rates of skin cancer are elevated in states, such as Florida, where the amount of ultraviolet radiation is among the highest in the country. Among the modifiable (i.e. non-genetic) risk factors, sunburn is both significant and easily preventable. For instance, the risk of melanoma - the type of skin cancer that carries the highest morbidity and mortality - nearly doubles for individuals with history of sunburn and 86% of melanomas can be attributed to exposure to ultraviolet radiation from the sun. Despite the salience of sunburn to skin cancer risk, only a limited number of studies have examined the factors associated with sunburn, a necessary first step towards developing preventive interventions.

**Objective:** The purpose of this study was to identify predictors of having had a red or painful sunburn in the past 12 months among people living in Florida, where there is a high percentage of sunny days and where many have prolonged sun exposure during recreation at beaches.

**Methods:** A total of 619 participants were recruited from public places and on-line to complete an anonymous cross-sectional survey to assess demographic, dermatological, knowledge, attitudinal and behavior factors associated with main outcome variable - sunburn. Sunburn was defined as having a red or painful sunburn lasting a day or more in the last 12 months. Eligible participants were those who: 1) resided in Florida, 2) were 18 years of age or older; and 3) spoke and understood English. Nova Southeastern University's Institutional Review Board approved the protocol as exempt on January 21, 2015.

**Results:** In multivariate logistic regression, younger age was the most significant predictor of sunburn. Other significant predictors included identifying as non-white, reporting higher levels of skin sensitivity to the sun, having had a full body skin exam by clinician, having high perceived vulnerability to skin cancer, and having a less favorable attitude towards sun protection. The model was statistically significant at  $p < .001$  and correctly classified 78% of participants.

**Conclusions:** The findings highlight the urgency of developing tailored sunburn prevention programs particularly aimed for younger individuals, who are at greatest risk. The link between attitudinal factors and sunburn suggests that such programs might benefit from promoting changes in attitudes. An important focus of future research would be the development of standardized attitudinal measures that could yield more nuanced understanding of the associations so that improved prevention methods could be developed and incorporated as routine part of clinical practice.

**Title:** Cancer Gene Therapy Targeted Towards Methionine Metabolism: Characterization of Methionine gammalyase-deaminase (Mgld)  
**Authors:** Sean Baksh, OMS-1; K.V. Venkatachalam, PhD  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Background:** Methionine is a key nutrient that is activated into s-adenosylmethionine (SAM) which is the universal donor for various intracellular methylations. Venkatachalam et. al., studied the effects of cytoplasmic methionine deprivation using methionine degrading enzyme methionine gammalyase-deaminase (Mgld) gene constructs that was transfected on to various cancer cell types. It was reported that upon Mgld transfection there was either severe cell aggregation and/or moderate (10-30%) cell death depending on the cancer cell types. The vector that causes the expression of Mgld protein in the cytoplasm is called C-Mgld. Venkatachalam et. al., have molecularly cloned the Mgld into a new vector that has nuclear localization signal (NLS) DNA sequence upstream to Mgld gene (NLS-Mgld). Characterizing the Mgld would facilitate the optimization of the target for cancer cell therapeutics.

**Objective:** Our objective was to characterize the recombinant, overexpressed, purified Mgld enzyme in order to better use Mgld as a therapeutic target for cancer and related diseases.

**Methods:** Mgld gene was cloned into bacterial overexpression vector was transformed into BL-21 strain of E.coli. The recombinant colony was selected with kanamycin and the colonies were grown in bulk in special growth medium (Terrific Broth, TB) that contained 50 □g/n culture was then induced with isopropyl β-D-1-thiogalactopyranoside (IPTG) and the cells were grown further for 7-9 hours. The culture media was centrifuged, pellet lysed with buffer that contained protease inhibitor, purified by Ni<sup>+</sup> affinity chromatography, TEV cleaved and further purified by DEAE column chromatography. Peak fractions were pyridoxal phosphate (PLP) exchanged. The purity was tested by SDS-PAGE. PLP antibody further confirmed the purity of the holoenzyme.

**Results:** We feel the recombinant bacteria cultured in TB broth yielded higher amounts of Mgld protein. The purified PLP exchanged protein had characteristic 425 nM absorption peak. The purified protein had maximal activity at pH above 7.5. The enzyme exhibited temperature optimum between 37-55°C. The lyase half reaction of Mgld exhibited a Km of ~0.6 mM for methionine and a Vmax of 58 □μmol/min forming α-ketobutyrate exhibited Km of 1.0 mM, Vmax of 5.27 □mg/min and a monomeric k<sub>cat</sub>/K<sub>m</sub> of 3729.3 M<sup>-1</sup>s<sup>-1</sup>. □μmol/min overall rate

**Conclusions:** Mgld enzyme cleaves and deaminates methionine into methylthiol, ammonia and α-ketobutyrate at an appreciable rate that would dwindle intracellular methionine significantly in cancer cells while it is transfected. Therefore, we conclude persistent expression of Mgld in cancer cells would hamper cancer cell division. Hence, we feel Mgld gene is good therapeutic target for cancer cell death.

**Title:** Primary torsion and infarction of the Greater Omentum Presenting As Acute Appendicitis: A Case Report  
**Authors:** Alexander B. Buttermore, OMS4  
**Program:** Lake Erie College of Osteopathic Medicine - Bradenton Campus

**Introduction:** The greater omentum is a broad, fatty peritoneal fold originating from the stomach, proximal duodenum, and transverse colon and extends to caudal regions of the small intestine. Infarction at any point along this structure may cause abdominal pain and tenderness to palpation resembling acute appendicitis. Incidentally, the majority of omental infarctions occur in the right abdomen. Some studies postulate this to be caused due to a congenital venous abnormality; however, other studies have suggested that the omentum is longer and more mobile on the right side, which predisposes it to infarction.

**Case Description:** A 53 year old Hispanic male, BMI of 24.03 kg/m<sup>2</sup>, with no significant PMH presented to the ED complaining of RLQ pain for 2 days duration. The patient described the pain as a “constant, sharp” and “localized” pain that did not radiate. Patient denied subjective fever, chills, nausea, vomiting, diarrhea, dysuria, and dizziness. On original physical exam in the ED, patient was afebrile with a soft, non-distended abdomen. Patient complained of tenderness to palpation and positive guarding to palpation in the RLQ. Initial laboratory evaluation showed a WBC count of 8.41 X 10<sup>3</sup>/mm<sup>3</sup>, neutrophils 4.44 X 10<sup>3</sup>/mL, CRP and ESR studies were not ordered, liver function test was within normal limits, and urinalysis was within normal limits. CT abdomen and pelvis showed no acute findings in the abdomen or pelvis and a normal appendix. At this time, our general impression was surgical abdomen with suspected diagnosis of acute appendicitis. Decision for laparoscopic appendectomy was established based on physical exam findings suggestive of atypical presentation of acute appendicitis with signs of peritoneal irritation. General laparoscopic exploration of the abdomen revealed a 6.8 x 3.5 x 0.7 cm area of hemorrhagic, brown fatty infarcted omentum adherent to the peritoneal wall in the RLQ, causing significant irritation. The appendix was identified and appeared grossly normal.

**Discussion:** This discussion aims to elucidate the differences between omental infarction and acute appendicitis in order to improve the management of cases of omental infarction. Relative to appendicitis, omental infarction is a rare phenomenon. Pinedo-Onofre *et al* documented the incidence of omental torsion to be 0.0016% to 0.37% compared to cases of appendicitis. Risk factors of primary omental infarction include adhesions, overexertion, obesity, and overeating. Clinical symptoms are variable and often non-specific; however, there is a large number of patients that present with severe right-sided abdominal pain, rebound tenderness, abdominal distension, abdominal guarding, and fever. A lack of gastrointestinal symptoms in addition to the aforementioned symptoms increases omental infarction on the probable list of differential diagnoses. Diagnosing omental infarction remains a difficult task and remains a largely incidental surgical finding. Radiological modalities have been discovered and increasingly utilized to diagnose omental infarction conservatively. One such modality described and cited in literature is the “whirl sign” found on CT scan of the abdomen and pelvis, which denotes a whirling pattern of fat and vessels, omental caking, and fat stranding. Other radiological descriptions include a triangular or oval shaped mass or an interspersed area with hyperattenuating streaky infiltration. These signs have been shown to be specific in the diagnosis of omental infarction and provide a means of non-surgical diagnosis. Multiple studies have shown that conservative management consisting of fluids, NSAIDs, and analgesics reduced morbidity and mortality when compared to laparoscopy.

**Title:** Disc Herniation vs Acute Malignant Plasma Cell Dyscrasia  
**Authors:** Elena Cabb, DO, PGY-2; Niranjan Gunasekaran, DO, PGY-2  
**Program:** Internal Medicine Program - Palmetto General Hospital

This case illustrates a common diagnosis such as disc herniation that in actuality was an aggressive malignancy. Our patient presented with symptoms of lower extremity weakness thought to be associated with her reported disc herniation. Patients with multiple myeloma generally present with bone pain, leukopenia, anemia and thrombocytopenia. In advanced disease, patients may present with hypercalcemia, lytic lesions and renal abnormalities.

Our patient is a 42 year old female that presented with bilateral lower extremity weakness and urinary incontinence. The patient was following with a neurosurgeon outpatient for what she was told was a disc herniation. Her weakness had progressed significantly over the past month and for a week she developed urinary incontinence. The neurosurgeon advised the patient to go to the hospital. The patient had no history of trauma or injury. Neurosurgery as well as neurology was consulted. MRI of the brain and thoracic spine w/o contrast was ordered by neurology. MRI of brain showed no abnormality. MRI of T spine showed old T7 fracture. Neurology recommended a repeat MRI of the Thoracic spine and Brain with contrast and an MRI of the cervical spine with contrast to rule out demyelinating disease. MRIs with contrast revealed lytic bone lesions in the calvarium and C3 and C4. A bone scan was ordered to further evaluate and was remarkable for multiple lytic and non-lytic lesions. On admission the patient was also found to have anemia for which she was worked up. Results showed normal B12/folate levels and normal Iron/TIBC/Ferritin. Further blood work was done which showed significant paraprotein gap of 9.6 and corrected calcium was calculated to be 10.7. SPEP and UPEP, HIV were ordered. The patient's symptoms remained unchanged. HIV was negative however SPEP showed a spike in the gamma region and IgG kappa monoclonal bands were detected on immunofixation tests. Heme/onc was consulted and ordered a CT guided bone marrow biopsy which returned results of Plasma Cell Myeloma with a gain of chromosome 15 in 37.0% of nuclei, a monosomy for chromosome 13 in 97.0% of nuclei, and a gain of 1q21 in 64.0% of nuclei. The patient was started on Zolendronic acid by heme/onc and cleared for discharge with outpatient treatment.

Multiple myeloma accounts for 1% of cancers and is thought to be a cancer of the elderly. Typically, younger patients have better outcomes and median survival. However, multiple myeloma with deletion of chromosome 13 is known to have worse prognostic factors and acute presentations as in this case. The diagnosis for which the patient had the greatest pretest probability was with a disc herniation which was not evident on imaging. Our patient was a young, white female. She represents less than 2% of patients with multiple myeloma. Given the patient's anemia and symptomatology further testing was warranted and led to the discovery of this aggressive form of multiple myeloma. The patient has completed induction chemotherapy and is scheduled for autologous hematopoietic stem cell transplant in the next few weeks.

**Title:** Metastatic Brain Tumors Presenting as Chronic Neck Pain  
**Authors:** Rick Carlson, DO, PGY-4; Jason Morris DO  
**Program:** Emergency Medicine Residency Program - St. Lucie Medical Center, PBCGME

**Introduction:** Metastatic brain tumors are the most common intracranial tumors in adults. Common presenting symptoms include headaches, focal neurologic dysfunction, cognitive dysfunction, seizures, and stroke. This case involves a patient presenting with chronic neck pain, a common complaint in the emergency department. The unique challenge in this case involved pursuing a more complete history from an out of town family member which guided a more advanced diagnostic workup than initially considered. This led to the discovery of metastatic tumors in the lung, cervical spine, and brain with associated life threatening subarachnoid hemorrhage.

**Case Description:** A 70 year old male with a history of COPD and chronic neck pain presented to the emergency department with the chief complaint of worsening chronic, atraumatic neck pain that began six weeks prior to arrival. Pain had been previously treated with muscle relaxants without improvement. The pain was described as constant, aching, severe, located to the right of midline on the posterior aspect of the neck with radiation to the right shoulder. Symptoms were exacerbated by rotation of the neck. Review of systems was otherwise negative. Examination of the neck revealed tenderness along the right paraspinal and trapezius muscles. The patient was alert and oriented with no focal neurologic deficits and demonstrated a normal gait. A cervical spine X-ray demonstrated only degenerative joint disease. The patient was given ketorolac and cyclobenzaprine without improvement of pain. Prior to a potential discharge, communication with the patient's daughter by phone provided further history of episodes of confusion and unsteady gait over the course of the previous month. This prompted further workup with a non-contrast CT of the brain and cervical spine which demonstrated a lytic bone lesion at the level of the C1 vertebrae as well as a parietal lobe lesion in the brain with intracranial hemorrhage. MRI of the brain later revealed multiple intracranial tumors. CT imaging of the chest demonstrated multiple pulmonary nodules. The suspected diagnosis was metastatic lung cancer with hematologic spread to the cervical spine and brain.

**Discussion:** Neck pain is a common chief complaint of patients presenting to the emergency department. The challenge to the emergency physician is to distinguish those patients with neck pain caused by life threatening etiologies. This case demonstrated a unique presentation of metastatic cancer that involved the lung, cervical spine, and brain. The patient reported a history of chronic neck pain that became worse over the previous six weeks. The patient's initial history and physical exam were not consistent with a life threatening process. It was not until further history was sought from the daughter, by phone, did we initiate a more advanced workup. Reports of confusion and unsteady gait raised concerns for neurologic involvement which led to CT imaging demonstrating lesions consistent with a neoplastic process. It is not efficient nor in the best interest of patients to utilize advanced imaging on everyone with neck pain. However, as this case demonstrates, it is the responsibility of the physician to seek a more complete history to guide evaluation of even the most simple complaints.

**Title:** Posterior reversible encephalopathy syndrome presenting as seizure in a child with poststreptococcal glomerulonephritis  
**Authors:** Rita Zeidan, OMS-3; Michael Carranza, OMS-3; Blaze Emerson, OMS-3  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Posterior Reversible Encephalopathy Syndrome (PRES) is a rare clinico-radiologic manifestation of endothelial dysfunction associated with hypertension, renal failure, eclampsia, cytotoxic agents and various immune-mediated etiologies. PRES is characterized clinically by headache, seizure, visual disturbance, confusion, vomiting, and focal neurological deficit. Neuroimaging with T2-weighted MRI demonstrates cerebral edema with white matter hyperintensities within the posterior vascular distributions of the cerebellum and cerebral hemispheres, particularly in the parieto-occipital regions. The majority of cases of PRES are seen in adults, particularly in the setting of hypertension and/or renal failure. In this case report we present a child with PRES secondary to acute post-streptococcal glomerulonephritis (PSGN) complicated by hypertensive emergency and renal failure.

**Case Description:** JM is a previously healthy 12-year-old male who presented to a walk-in clinic with a 3-day history of facial swelling, which was treated as an allergic reaction with corticosteroids. He continued to have facial and bilateral lower extremity swelling in addition to headaches, and thus was sent to the ED, where he was found to be in hypertensive crisis with blood pressures exceeding 180/130. The patient suffered one seizure episode before being admitted to the PICU. Aggressive blood pressure management as well as seizure prophylaxis was initiated and the patient was eventually stabilized. An abnormal EEG was followed by an MRI study of the brain. Studies with and without contrast demonstrated a symmetric pattern of posterior parasagittal cortical and subcortical signal abnormalities with enhancement as well as a small focus of abnormal signal in the right posterior cerebellum, consistent with the presence of PRES. The severe hypertension that precipitated PRES was accounted for with throat culture positivity for group A Streptococcus. Following an aggressive course of intensive care management, during which time the patient's condition had begun to improve significantly, the patient was discharged with instructions to follow up with nephrology on an outpatient basis. At follow up the patient continued to have hypertension and urinalysis findings consistent with glomerulonephritis. The patient underwent CT-guided biopsy of the lower pole of the left kidney and was discharged in stable condition. Results of the biopsy were benign and demonstrated a self-limited disease process. A repeat MRI of the brain seven days after the initial MRI showed that the edematous areas with cortical signal abnormality seen on prior exam had resolved.

**Discussion:** It is estimated that PRES occurs in 5% to 10% of children hospitalized with acute glomerulonephritis of all etiologies. However, the prevalence of PRES accounted for by PSGN is unknown. In addition to causing PRES, untreated group A streptococcal infections may progress to rheumatic fever which may cause valvular heart disease and become fatal. Most cases of PRES resolve clinically and radiologically within days to weeks following prompt and aggressive management. Thus it is imperative to identify the presence of PRES caused by PSGN and intervene early to improve clinical outcomes and decrease the risk of progression to permanent neurologic and cardiovascular sequelae or death.

**Title:** Granulomatosis with polyangiitis in a patient presenting with hemoptysis and epistaxis: a case study  
**Authors:** Claire M. Cascio, DO, PGY3  
**Program:** Family Medicine Residency Program - St. Petersburg General Hospital

**Introduction:** Granulomatosis with polyangiitis (GPA), formerly known as Wegener's granulomatosis, is a multisystem disease of unknown etiology that is characterized by necrotizing granulomatous inflammation in small and medium sized vessels. It is generally characterized by a triad of upper airway disease, pulmonary disease, and renal disease, associated with antineutrophil cytoplasmic antibody (ANCA).

**Case Presentation:** A 74 year old Caucasian male presented to the emergency department with chief complaint of initially dry cough evolving into hemoptysis and shortness of breath. With further questioning, the patient stated he had former episodes of epistaxis and hemoptysis for the past nine months that was being worked up by his primary care physician. On admission the patient had a creatinine of 4.7 and X-ray findings consistent with diffuse alveolar hemorrhage. A bronchoscopy and positive c-ANCA contributed to the diagnosis of GPA. The patient was treated with plasmapheresis, high dose steroids, and cyclophosphamide.

**Discussion:** GPA can present with a variety of signs/symptoms. Though it often presents with the classic triad of upper airway, lung, and kidney disease, it can present with just one or none of those processes. All of the presenting symptoms of GPA can indicate varying differential diagnoses, so though it is relatively rare, it is essential when the classic triad arises that GPA is considered in the list of differentials. Prior to the implementation of steroids and cyclophosphamide as treatment, the one-year mortality for GPA was 82%. With treatment, the remission rate increased to 75% and survival rate grew to 80%. It is imperative to identify GPA early and begin treatment once suspicion arises.

**Title:** Clot Spot: Atypical Presentation of A Pulmonary Embolism  
**Authors:** John R. Collins, DO, PGY-4, Hourri K. Pamela, MD  
**Program:** Emergency Medicine Residency Program - St. Lucie Medical Center, PBCGME

**Introduction:** Pulmonary embolism is a blood clot that forms in the lungs and usually arises from a DVT in the lower extremity. Risk factors include previous DVT/PE, recent trauma or surgery, cancer, age (risk increased above the age of 50), oral contraceptives, hormone replacement therapy, pregnancy, immobility, air travel, obesity, Factor V Leiden Mutation, antiphospholipid antibody syndrome. The patient commonly presents with shortness of breath, chest pain, cough, hemoptysis, anxiety, syncope, dizziness/lightheadedness. On physical exam, pt is usually tachycardic with a low oxygen saturation.

**Case Presentation:** We present a case of a 55 y/o female who presents to the emergency department with a chief complaint of abdominal pain. She states 3 days ago, she had sudden onset of 10/10, sharp, right upper abdominal pain that does not radiate anywhere. The pain is now constant and unrelieved despite taking motrin. She states the pain is worse with movement and breathing in. She has never had similar pain in the past and there is no association with food. BP was 130/82, HR: 74; T: 98.8, O2 sat: 98% on RA. On physical exam, she had reproducible tenderness over her right lower ribs without any ecchymoses/rash/erythema. Her abdominal exam was benign. CT Angiogram of Chest showed a right sided pulmonary embolism.

**Discussion:** This case demonstrates the importance of history and physical and keeping the diagnosis of PE in the back of your head when a patient does not present with the typical signs of pulmonary embolism. Abdominal pain can be a presenting symptom of pulmonary embolism.

**Title:** Skin Water and Firmness of Face and Neck Skin of Young Women  
**Authors:** Kelly Corbitt, OMS-3; Alexandra Grammenos, OMS-3; Jason Mammino, OMS-2; Allen Abello OMS-2; Harvey N Mayrovitz, PhD  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Background:** Prior research has suggested a link between skin's mechanical properties and its water content. Such conclusions have generally been based on measurements of stratum corneum (SC) electrical capacitance as an indicator of SC water. Because SC measurements do not include the possible contribution of dermal or hypodermal water to the net skin mechanical properties this aspect of the role of skin water has not been investigated. An understanding and characterization of any such relationships might pave the way for detecting early skin changes that accompany pathological changes or those related to normal age-related changes. We hypothesized that skin hydration, as measured by tissue dielectric constant values (TDC) in upper dermis and deeper, will in fact directly correlate with measures of skin firmness.

**Objective:** Our goal was to test this hypothesis and to additionally provide reference skin water-skin firmness data for subsequent assessments of potential age-related changes.

**Methods:** All data is expressed as mean  $\pm$  SD. Skin water was assessed by tissue dielectric constant measurements (TDC) at 300 MHz to skin depths of 0.5 mm and 2.0 mm on four face sites and two forearm sites of 28 healthy subjects ( $25.1 \pm 1.7$  years). TDC values are dimensionless since they are ratios of tissue to vacuum permittivity. For reference, water has a value of 76 at 32°C. Skin firmness at these sites was determined by measuring the FORCE needed to indent skin 1.3 mm with force in mNewtons (mN). Regression analysis was used to test the hypothesized inverse relationship between skin firmness and TDC values which are indices of local skin tissue water. Skin firmness was also measured on two neck sites and compared to values at the other sites. Percentages of total body water (TBW) and body fat (TBF) were measured by bioimpedance at 50 KHz and were  $52.3 \pm 4.8\%$  and  $29.2 \pm 6.9\%$  respectively. BMI was  $23.2 \pm 3.9$  Kg/m<sup>2</sup>. All subjects signed an IRB approved consent form.

**Results:** Among face sites, FORCE varied between  $25.6 \pm 6.8$  and  $43.3 \pm 17.2$  mN ( $p < 0.001$ ) with an overall average of  $33.6 \pm 7.2$  mN. Average values of FORCE at neck and forearm were  $28.2 \pm 9.1$  and  $58.4 \pm 18.9$  mN with arm values significantly greater than face or neck ( $p < 0.001$ ). TDC averages varied by face site with an overall average among the four face sites of  $35.4 \pm 3.8$  at 0.5 mm and  $37.2 \pm 4.1$  at 2.0 mm depths. Forearm average TDC values were significantly less ( $p < 0.001$ ) being  $31.4 \pm 4.1$  and  $27.1 \pm 4.3$  for 0.5 and 2.0 mm depths respectively. Regression analysis showed an inverse correlation between FORCE and TDC on forearm ( $r = -0.624$ ,  $p < 0.001$ ) but no significant correlation on face. Contrastingly, TDC values on forearm and face correlated with TBW and inversely with TBF ( $p < 0.05$ ).

**Conclusion:** Results suggest that face and forearm skin water-skin firmness relationships are quite different with no demonstrable relationship for face skin and a negative correlation for forearm. A possible explanation for this differential may lie with the significantly greater forearm skin firmness yet similar TDC values. So, the results are only partially consistent with the initial hypothesis which indicates additional anatomical sites need be studied to determine if a more general relationship exists. The additional findings that face and forearm TDC values directly correlate with total body water suggests that skin hydration might be positively affected by maintaining adequate water intake. This however would need to be tested prospectively. Finally, the skin firmness data for face, neck and forearm for this young female group should provide reference data for subsequent comparisons of possible age affects.

**Title:** A Forme Fruste Manifestation Of Neuroleptic Malignant Syndrome  
**Authors:** Kevin Donohue, DO, PGY-1; Andrew Elliott, DO, PGY-2; Maheera Farsi, DO, PGY-1; Kristen N. Thomas, OMS-3  
**Program:** Internal Medicine Program - Largo Medical Center

**Introduction:** Neuroleptic malignant syndrome (NMS) is a rare, but possibly fatal, complication of the administration of neuroleptic anti-psychotic medications. NMS is considered a neurological emergency with mortality between 10-20%. The classical clinical presentation of NMS consists of high-grade fevers, altered mental status, autonomic instability, and rigidity. While typically associated with high potency neuroleptic drugs such as haloperidol, it has also been seen with newer atypical antipsychotic medications such as clozapine. There have been reports in the literature of atypical, or forme fruste, presentations of NMS in which rigidity may be milder or even absent. These atypical cases are usually seen with the use of the newer atypical antipsychotic agents.

**Case Description:** We present the case of a 50 year old gentleman with a past medical history of schizophrenia and type 2 diabetes mellitus who presented to the emergency department with a chief complaint of confusion, mild nuchal and upper extremity rigidity, and a fever recorded at home of 106°F. The patient had been on clozapine for the past 20 years, but reported a recent dose increase by his outpatient psychiatrist in the previous week. Initial concern was for bacterial meningitis, for which the patient's LP and CSF analysis were negative. The patient sustained high fevers for the first 4 days of admission despite broad-spectrum antibiotic administration. Infectious Disease was consulted and the patient underwent a rigorous investigation which failed to show any infectious etiology. Dantrolene was ordered and considered for administration, but due to the lack of rigidity and elevated CK levels, was not given on the advice of Neurology. The standard of care for NMS is withholding the offending agent and providing supportive care. Over the course of his admission, the patient continued to exhibit autonomic instability with tachycardia and new-onset atrial fibrillation, which have been documented with NMS. The patient's altered mental status and fevers resolved over admission with supportive care and was discharge safely home with instructions for outpatient follow up.

**Discussion:** NMS is an extremely rare neurological emergency that is potentially fatal without treatment. The atypical presentation of NMS is likely to be overlooked due to the lack of extreme muscle rigidity, but must be considered in the differential diagnosis in patients on neuroleptic medications. The case report as above is consistent with the few reports of atypical NMS in the medical literature and further elucidates the management of this rare condition.

**Title:** Peroneal Neuropathy: A Unique Case of Footdrop and a Novel Treatment Approach  
**Authors:** Rebecca Drucker, OMS-3; Blaze Emerson, OMS-3; Melissa Tabor, DO  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Ganglion cysts are benign masses that commonly arise adjacent to joint spaces and can interfere with the function of surrounding nerves and vessels. In rare circumstances, external compression by the ganglion cyst can induce a peripheral neuropathy and lead to symptoms of nerve palsies. Here we present the unique case, and the treatment of a young cross-country athlete with footdrop due to compression of the common peroneal nerve by a ganglion cyst.

**Case Description:** A 15-year-old Caucasian male presented with an 11-month history of left foot drop and ankle pain. Visits to a neurologist, several orthopaedists, and seven months of physical therapy did little to improve his symptoms. He presented to our sports medicine clinic with pain and left ankle strength of 3/5 in dorsiflexion. Instead of opting for surgery we decompressed his common peroneal nerve using a novel approach of combination hydrodissection, cyst aspiration, and corticosteroid injection all under ultrasound guidance. Twenty-four hours after the procedure the patient was able to dorsiflex his ankle maximally and ambulate normally. Following two weeks of physical therapy the patient was back to running on the cross country team without a return of symptoms.

**Conclusion:** Common peroneal nerve ganglion cysts are an extremely rare cause of footdrop in the pediatric population and this case should remind physicians to rule out this condition when evaluating a young person with signs of common peroneal nerve compression. This case also demonstrated that ultrasound guided peroneal nerve ganglion cyst aspiration with hydrodissection is a viable treatment option for this condition and should be considered before more invasive procedures are undertaken.

**Title:** Primary Cutaneous Apocrine Carcinoma arising within a Nevus Sebaceous: A Case Report & Review  
**Authors:** Natalie Edgar, DO, PGY-3; Ryan A. Schuering, DO, PGY-1; Richard A. Miller, DO  
**Program:** Dermatology Residency Program - Largo Medical Center

**Introduction:** Nevus sebaceous (NS) is an uncommon, benign hair follicle neoplasm present in approximately 1% of the population, usually involving the scalp, neck, or face. These lesions are usually present at birth or identified soon after, during the first year. They present as a yellowish, hairless patch or plaque but can develop a more papillomatous appearance, especially after puberty. Historically, the concern with NS was its tendency to transform into basal cell carcinoma, which prompted surgical excision of the lesion during childhood. This has been discounted in more recent decades as further research has suggested that what was once thought to be basal cell carcinoma may have been confused with the similarly appearing trichoblastoma. However, malignant transformation of NS still does occur, with basal cell carcinoma still being the most common.

**Case Description:** In this case report, we present a 76-year-old Caucasian female with several trichoblastomas, as well as a very rare primary cutaneous apocrine carcinoma, arising within a longstanding nevus sebaceous. The patient was treated utilizing frozen section excision to ensure clear margins and the surgical defect was closed utilizing skin flap and grafts.

**Discussion:** Nevus sebaceous (NS) is the most common adnexal tumor and is classified as a benign, congenital hair follicle tumor that is located most commonly on the scalp, but also occurs on the face and neck.<sup>1</sup> The lesions are usually present at birth but can also develop during the first year of life.<sup>2</sup>

The identification of apocrine adenocarcinoma tumors arising from NS is exceedingly rare. A study performed by Cribier et al. in 2000 retrospectively analyzed 596 cases of excised NS from 1932 to 1998. No apocrine carcinomas were reported in this study.<sup>19</sup> Approximately 12 cases have been previously reported throughout the literature.<sup>20-26</sup> Apocrine carcinomas occur most frequently in apocrine rich areas such as the axilla, external ear, eyelid, and anogenital area. However, in the cases in which apocrine carcinomas have developed with respect to a NS, the carcinomas have been located almost exclusively on the scalp.<sup>23</sup>

These apocrine carcinomas do have the potential for lymphatic metastasis as seen with multiple studies; Domingo et al. identified regional lymph node metastasis in 2 of its 4 apocrine carcinoma patients.<sup>21</sup> Robson et al. had lymphovascular invasion in 4 cases and perineural invasion in 2 of the 24 patients studied.<sup>26</sup> However, even in the context of recurrence and regional metastasis, the prognosis was good and seldom fatal.<sup>26</sup>

In the case of apocrine carcinoma development, excision is undoubtedly recommended, with unclear recommendations regarding further evaluation for metastasis.

**Title:** Unilateral Arm swelling in a young female athlete: Paget-Schroetter syndrome

**Authors:** Desmond Fonji, D.O. PGY-3

**Program:** Family Medicine Residency Program - St. Petersburg General Hospital

**Introduction:** Paget-Schroetter Syndrome (PSS) is predominantly caused by extrinsic mechanical forces. This leads to venous compression; resulting in an axillary or subclavian vein thrombosis (ASVT). Though rare, it is a potentially fatal condition if untreated, due to pulmonary thromboembolism. It predominantly affects young active healthy males, usually involving the dominant arm. Patients typically present with swelling of the arm, heaviness, rubor, Urschel's sign or nonspecific symptoms. Conservatively, it is treated with anticoagulation and supportive measures; resulting in sustain long-term residual disability from venous obstruction. Currently the standard of care is based on the acuity of presentation; involving early catheter-directed thrombolysis, with or without thoracic outlet decompression surgery, and with anticoagulation.

**Case Description:** A 26-year-old Caucasian female presents with aching right shoulder and arm pain and associated heaviness. Her shoulder and arm were erythematous and swollen. She had paresthesias in her forearm and fingers. Symptoms progressively worsened over two weeks when she resumed intense exercising in preparation to join the Army. Overhead lifting initially relieved her swelling, but caused paresthesias and numbness along her ipsilateral forearm and hand. Lowering of her ipsilateral arm caused the abnormal sensations to subside. Initial differential diagnosis was as follows: thoracic outlet syndrome shoulder strain, upper extremity deep vein thrombosis, lymphedema, compression of the subclavian vein due possible neoplasm, and cellulitis. Duplex ultrasound was negative for UEDVT. Chest and shoulder x-rays were negative for pathology. Patient was then conservatively treated with Tramadol, physical therapy, thoracic outlet release, and compression sleeves, without improvement. CT venogram was then ordered, showing a complete venous occlusion of the right subclavian, axillary, and upper brachial branches. Given current consensus on management, patient was admitted and started on therapeutic heparin. Vascular surgery was consulted; catheter-directed thrombolytic was initiated. Surgery was performed four days later with a trans-axillary 1<sup>st</sup> rib resection with decompression of the thoracic outlet. Patient was discharged with a compression sleeve and Coumadin for six months. Follow-up six month venogram showed patency of all veins with no residual physical findings. **Discussion:** This case of PSS resulted from extrinsic repetitive venous compression causing intima micro trauma from a physically active patient involved in daily swimming, heavy lifting, tennis playing. Based on the patient's nonspecific symptoms, young age, activity level, and physical exam, UEDVTs can often be missed. It is paramount to make an early and accurate diagnosis. Avoid conservative management with anticoagulation alone to prevent sequelae of functional disability, and pulmonary emboli that would potentially occur without treatment. A negative duplex ultrasound does not exclude thrombosis. A contrast venogram remains the diagnostic test of choice. Though no optimal consensus for treatment has been established, traditional treatment in the past has involved arm elevation with anticoagulation alone; both with poorer outcomes. Today early catheter directed thrombolysis is regarded as the initial treatment of choice, with subsequent anticoagulation. Surgical intervention with vein patch angioplasty and decompression of the thoracic outlet is indicated in this case. This applies if symptoms have been ongoing for greater than 1 week and/or evidence of extrinsic venous compression is seen on MRI with hypertrophy of coracobrachialis and short head of bicep. Physicians need be diligent in their work-up and highly suspicious of PSS in patients who present with non-specific symptoms as described in this case and highly aggressive in treating without delay.

**Title:** ME/CFS Genes Study: Using Social Media as a Participant Recruitment Tool for a De-Identified Subject Population Genetic Database  
**Authors:** Kristina Gemayel, OMS-2; Kelly Gaunt, OMS-2  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Background:** This is a prospective multi-site ME/CFS study with the purpose to develop a de-identified subject population genetic database. Investigators will implement analysis strategies to develop subgroup criteria for future genetic discoveries linked to ME/CFS. The goal of this study is to develop a large web-based genetic database using publicly available genetic testing sites, linked to a clinical database, to utilize for future research discovery.

**Objective:** Our objectives are multifaceted and intend to systematically apply a set of instruments to assess the domains of ME/CFS and related syndromes, including severity of illness, function, comorbid and exclusionary conditions. We also intend to implement the assessment tools using a computer/web based format, collect de-identified genetic data from the ME/CFS population through the utilization of social media, and maintain a database for future work in this area.

**Methods:** In order to gather a large subset of individuals within a certain disease population we are using social media as a recruitment tool to gather genetic information for the future use of genetic studies. Previously most of the research in the ME/CFS field was not aimed at genetic studies, but there has recently been a push towards this direction. Using novel methods such as bioinformatics analysis, and genetic testing, we can quickly determine SNPs in a large sample size of participants.

**Results:** Currently, we have created an online RedCap Platform with appropriate ME/CFS questionnaires, and obtained IRB approval for the first phase of our study. Moving forward we intend to release the RedCap Questionnaire to the public within the coming weeks, we the anticipation of generating a sample size of 500-750 participants. We are using social media platforms such as Facebook, Pheonix Rising, and Patients Like Me. After obtaining the participants responses and genetic data, we intend to submit an IRB for the second phase of our study, which includes bioinformatics analysis of SNPs in the MTHFR gene, and the folate methylation pathway.

**Conclusions:** Utilizing social media as a platform to reach a large sample size of participants has alleviated some of burden associated with study recruitment. The combination of survey questionnaires, along with uploaded genetic data, will allow us to subgroup the population of participants based on symptoms and SNP patterns. The database can help with future funding and facilitate collaborative efforts among researchers in the ME/CFS field.

**Title:** Hovering above the meninges: A case of pneumococcal meningitis after a hoverboard injury  
**Authors:** Maddie Goldstein, MPH, OMS-4; Allegra Meachem, DO, PGY-1; Alejandro Isava, MD  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Pediatric head trauma is a growing public health concern, as shown by an increasing number of children admitted to the hospital for head injuries. Head trauma involving basilar skull fractures are most commonly associated with cerebrospinal fluid (CSF) fistulae and cranial nerve injuries which can both carry devastating consequences. In fact, approximately 20% of skull base fractures develop a CSF fistula, with 80% occurring within 48 hours of injury. Patients with a CSF fistula typically present with rhinorrhea and/or otorrhea, with drainage that is usually clear and nonmucoid, and may be difficult to detect when in the presence of blood. The initial management of otorrhea is conservative; however, bacterial meningitis is a serious and potentially fatal complication that must be considered.

**Case Presentation:** A 4 year old male with a past medical history of sinusitis diagnosed 4 days prior was transferred by ambulance as a level II trauma for profuse bleeding from the mouth, nose, and ears after a closed head injury earlier that day. The patient had been playing with his uncle who was on a “hoverboard” when the Uncle fell off and landed directly on the patient’s head. His vital signs were stable. He appeared sleepy, but was arousable and responded appropriately to stimuli. His nares, dorsum of his tongue, and both external auditory canals were crusted with sanguineous fluid, but there was no active drainage, raccoon eyes, or battle sign. He had no focal deficits, and had a negative Brudzinski’s and Kernig’s sign. Initial labs were significant for a leukocytosis of 25.2, hemoglobin of 10.1, PT 15.1, PTT 25.7. Computed tomography (CT) of the brain and face revealed a subarachnoid hemorrhage within the pre-pontine cistern and around the band of the brain stem, left temporal bone fracture with a moderate amount of pneumocephalus, and right temporal bone fracture with air and fluid in the right middle ear. During his hospital course, the patient had copious flow of cerebrospinal fluid (CSF) from the right ear. The patient became febrile, with a Tmax of 38.9°C on hospital day 4. The patient developed photophobia, nuchal rigidity, and opisthotonic posturing. Repeat labs showed an increased leukocytosis of 28.97 with 87% neutrophils and a CRP of 21.6. Lumbar puncture revealed 2740/cumm white blood cells in the CSF, of which 86% were polymorphonuclear cells. Both CSF and blood culture grew Streptococcus pneumoniae. During the remainder of his hospital course, the patient improved on Ceftriaxone and received the polysaccharide pneumococcal vaccine prior to discharge.

**Discussion:** The patient’s traumatic head injury allowed a nidus for infection to proliferate the patient’s central nervous system and cause pneumococcal meningitis. Bacterial meningitis is a complication that must be considered in head injuries that include a basilar skull fracture, particularly when associated with cerebrospinal fluid leakage. The diagnosis of traumatic CSF leakage presents physicians with difficult clinical decisions, including the use of prophylactic antibiotics for prevention of meningitis, the choice of antibiotic to use in the era of increasing antimicrobial resistance, and the concurrent administration of dexamethasone with antibiotics once pneumococcal meningitis has been diagnosed.

**Title:** Traumatic Brain Injury; A Unique Case  
**Authors:** Kristen Hanrahan, PGY-3; Josephin Mathai, DO; Thomas Matese, DO  
**Program:** Emergency Medicine Residency Program - St. Lucie Medical Center, PBCGME

**Introduction:** Traumatic brain injury (TBI) is characterized by a “non-degenerative, non-congenital insult to the brain from an external mechanical force, possibly leading to permanent or temporary impairment.”<sup>49</sup> According to the CDC, emergency department visits, hospitalizations and deaths are for TBIs are increasing. There are many complications and rehabilitation is usually long-term, with many patients rarely fully recovering. This case report highlights one of the unique complications that can occur with traumatic brain injury.

**Case Presentation:** 36 year old male, with no significant past medical history brought in by EMS after motor vehicle accident. Pt was a restrained driver of a tractor-trailer who veered out of his lane and struck another large truck and involved several smaller vehicles. His truck rolled several times and he was found restrained, but partially extruded from his driver side window. Patient was intubated in the field by EMS. He was tolerating the endotracheal tube without sedation. He was noted to have significant facial trauma, located mainly on the left face, including left orbit with noted skull depression. Patient was stabilized in the trauma bay and taken to CT. CT brain showed extensive intracranial hemorrhage, extensive skull and facial fractures, including multiple basilar skull fractures with disruption of left globe. CT cervical spine showed displaced cervical fracture involving the C7 spinous process. CT chest showed pulmonary contusions. Patient was admitted to the Trauma ICU for further care. Patient taken to operating room by neurosurgery and underwent craniotomy with ventricular/subdural drain placement. While in OR patient also underwent facial reconstruction by plastic surgeon and OMFS attempted to repair left orbital fractures. Patient then transferred to Trauma ICU (TICU) for further care. While in TICU the patient was noted to have large volume urine output after surgery, approximately 400ml/hr. His sodium was also noted to increase over the course of time as well. Patient was suspected to have diabetes insipidus, likely secondary to his underlying TBI. Labs were obtained which confirmed the diagnosis. Labs were as follows: urine specific gravity: 1.006, urine osmolality: 193 mOsm/kg, serum osmolality 315mOsm/kgSerum. His sodium was also noted to increase from 141 on initial arrival to 158. Patient was started on DDAVP IV at 2mcg every 8 hours as well as lactated ringers for resuscitation. His urine output slowly decreased and sodium improved.

**Discussion:** Diabetes insipidus is a detrimental complication that can occur after severe traumatic brain injury. Prompt diagnosis and management are paramount in treating these patients. This case illustrates the importance of close management in critically ill patients.

**Title:** Phlegmasia Rubra Dolens: May-Thurner Syndrome Masquerading as Limb-Threatening PAD  
**Authors:** Rami Heart, DO, PGY-7; Joe Carragher, DO, PGY-4; Philip Wiener, DO, PGY-1; Merril Krolick, DO  
**Program:** Interventional Cardiology Fellowship Program - Largo Medical Center

**Introduction:** Gangrene arising from thrombus obstruction of venous circulation was first described in 1593 by Fabricius Hildanus. The term phlegmasia cerulea dolens was first used by Raymond Gregoire in description of the unique and rare presentation of this obstruction leading ischemia and subsequently to gangrene rather than the non-ischemic form of obstruction known as phlegmasia alba dolens. In addition, Gregoire defined PCD as a triad of limb swelling, ischemic pain, and cyanosis. PCD ischemia is derived from a decrease in arterial flow secondary to the outflow obstruction. In addition, mortality of those with PCD is 25-40% especially in those patients with gangrene. In 1955, there was one reported case of a patient with phlegmasia rubra dolens, which describes an erythematous color change to the extremity rather than white or blue. May-Thurner Syndrome is the compression of the left common iliac vein by overlying right common iliac artery and underlying vertebral body.

**Presentation:** An 80 y/o Caucasian female presented with complaints of acute worsening left foot and leg swelling, redness and pain. She had recently been diagnosed with left femoral DVT, based on outpatient ultrasonography 3 weeks prior and subsequently treated with Xarelto. Repeat venous ultrasound at the time of presentation showed no DVT. Due to her symptoms and clinical findings a course of oral antibiotics was initiated for a diagnosis of cellulitis. Two weeks later, in out outpatient follow-up she had no improvement in her symptoms and developed black discoloration of her great toe consistent with gangrenous changes. The clinical findings prompted an arterial ultrasound that demonstrated unilateral, diffuse monophasic waveforms throughout the left lower extremity. She underwent peripheral angiography that was without any major stenosis but did demonstrate TIMI I flow in the anterior tibial artery. The severity of her symptoms and physical exam were disproportionate to the minimal peripheral arterial disease. There was a high clinical index of suspicion given the severely abnormal ultrasound results leading to a contrasted CT of the abdomen and pelvis with delayed venous phase imaging showing the right common iliac artery causing compression of the left common iliac vein against the vertebral column. Subsequent venography and IVUS guided stenting of the left common iliac veins resulted in resolution of her symptoms.

**Discussion:** A patient on the phlegmasia spectrum will have a near or total occlusion of the venous outflow system. This leads to an increase in the intravascular hydrostatic pressure which overcomes the intravascular oncotic pressure. Then, there is extravasation of plasma into the interstitium leading to increased peripheral vascular resistance. This increase in resistance further impedes arterial inflow and ultimately leads to acute limb ischemia. Phlegmasia rubra dolens proceeds phlegmasia alba dolens in the spectrum of severity. Arterial inflow is maintained, albeit impeded, as evidenced by the red discoloration. May-Thurner Syndrome enables the formation of thrombus formation via compression of the left common iliac vein and resulting stagnation of flow. In 2012, Johns Hopkins conducted a study of 230 patients who underwent CT pelvis with contrast and diagnosed with DVT and found that mean compression in 36.6%, 29.6% had >50% compression, 7.2% had compression >70%, and the >70% group showed an increased risk of left DVT with OR 3.03

**Title:** Say Yes to the DRESS  
**Authors:** Jacob Hirsch, OMS-3; Aman Seth, DO, PGY-1; Krishna Vanam, DO, PGY-3  
**Program:** Lake Erie College of Osteopathic Medicine – Bradenton Campus

Hypersensitive drug reactions present in a wide range of clinical findings. It is for physicians to consider the clinical presentations of uncommon drug reactions for commonly prescribed medications, in this case anticonvulsants. Some serious reactions can cause life-threatening systemic reactions requiring immediate action, including airway compromise or shock. Others can cause a subtler presentation with delayed onset, allowing them to be masked by other conditions until their manifestations become more pronounced. The latter group of conditions include Drug Reactions with Eosinophilia and Systemic Symptoms (DRESS), also known as Drug-induced Hypersensitivity Syndrome. Drug classes known to be culprits include sulfonamides, anticonvulsants, and occasionally antibiotics and antidepressants. This case is a 30-year-old Caucasian male, who presented to the emergency department from a rehabilitation center with complaints of diffuse abdominal pain and left lower extremity pain for the past 6 days, nausea, episodes of non-bloody vomitus, decreased appetite, fever, and chills. Patient has a history of CVA with residual left-sided hemiparesis and subsequent rhabdomyolysis-induced renal failure requiring hemodialysis 3 days per week, which led to a renal biopsy with subsequent kidney injury requiring endovascular coiling (all occurring 1 month prior), and hepatitis C. Patient admits to 10 year history of heroin IVD use, quit 1 month prior. Vital signs stable with tachycardia. Physical exam shows agitated patient laying in right decubitus position, pruritic maculopapular rash over the abdomen, lower extremities, and face, abdominal tenderness in all quadrants, left extremity weakness, clear breath sounds, heart sounds present with 2/6 systolic murmur heard over mitral area. At presentation, patient medication list included lacosamide (Vimpat), begun after his CVA at another institution. Patient labs showed leukocytosis with eosinophilia, anemia, mild liver enzyme elevation. CT showed a retroperitoneal hematoma. During workup for infectious etiology, the patient's liver enzymes rose over the course of several days from 120-130s to over 980. The rash progressed over the entire body, began to peel and became confluent, looking similar to a peeling sunburn. DRESS syndrome was suspected and lacosamide was withheld and IV methylprednisone and topical triamcinolone were started. Leukocytosis resolved the following day. Over the next 3 days, the rash began to improve, liver enzymes had fallen considerably. Patient recovered renal function and no longer required dialysis and later returned to a rehabilitation center. With this case, we will discuss pathophysiology and management of drug-induced hypersensitivity reactions, with a concentration on DRESS syndrome.

**Title:** Early Cardiac Tamponade Rooted in Hypothyroidism? Hashimoto's Thyroiditis Gets to the Heart of the Matter  
**Authors:** Kristin Hornick, OMS-3, Matthew Uhde, DO, PGY-3, Ariel Caplan, DO PGY-3, Joe Paczkowski, DO, PGY-1  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Hashimoto's Thyroiditis is an autoimmune destruction of the thyroid gland leading to inflammation, and eventually, hypothyroidism. Most often, it presents with fatigue, cold intolerance, weight gain, goiter, and depression— some patients may not have any symptoms. Patients may present with other complaints, such as altered mental status, which often leads to misdiagnosis. Small pericardial effusions are frequently seen in patients with Hashimoto's Thyroiditis, however, massive effusions (with or without cardiac tamponade) are rarely observed. In patients who are poor historians, a detailed physical exam and imaging studies are crucial in considering the wide variety of presentations of Hashimoto's disease.

**Case Description:** We present a 67-year-old female admitted for altered mental status and uncontrolled hypertension. Her baseline mental status was unknown and she was only oriented to self. She was afebrile, respiratory rate was 18 breaths per minute, and oxygen saturation was 98% on room air. Her heart rate was 75 beats per minute and initial blood pressure was 216/102. The initial working diagnosis was a urinary tract infection as the etiology of her altered mentation. The urinalysis obtained was positive for nitrites, 2<sup>+</sup> leukocyte esterase, and white blood cell clumps. After being examined on the inpatient floor, she was found to be short of breath with diffuse wheezing. Lower extremities exhibited edema, bilaterally. Chest X-ray revealed a widened mediastinum with a massively enlarged cardiac silhouette. An STAT cardiology consult for transthoracic echocardiogram and subsequent transesophageal echocardiogram (TEE) were consistent with a possible/probable type A aortic dissection with large pericardial effusion. Ejection fraction was estimated to be 35-40%. The patient was transferred emergently to a cardiovascular care center. A CT angiogram performed post-transfer showed no evidence of aortic dissection or aneurysm. A pericardiocentesis with a pericardial window was performed and 700 ccs of fluid was drained from around the heart. Intraoperative TEE showed mild compression of the right ventricle indicating early tamponade. Thyroid function panel results were consistent with Hashimoto's thyroiditis – TSH: 88.6 mIU/mL (0.35-3.14), Free T4: 0.2 ng/dl (0.7-1.8), Thyroglobulin Antibody: 119.0 IU/mL (0-40), Thyroid Peroxidase Antibody: 177.0 IU/mL (0-35).

**Discussion:** The initial differential diagnosis in this case highlights the nonspecific clinical pattern of Hashimoto's that may divert clinicians from considering thyroid involvement as an underlying cause of a critically ill patient. This case illustrates a rare presentation of Hashimoto's thyroiditis, demonstrating the effect of hypothyroid-related impairment of lymphatic drainage and increased capillary permeability leading to pericardial effusion.

**Title:** Rectus Sheath Hematoma: A Case Mimicking Constipation and Ileus  
**Authors:** Erin N Huston, DO, PGY-3; Eileen M Conaway, DO  
**Program:** Family Medicine Residency Program - Florida Hospital East Orlando

**Introduction:** Characterized by vague abdominal pain, rectus sheath hematoma (RSH) is a diagnosis of exclusion. Most commonly diagnosed in the right lower abdomen and occasionally accompanied by mass, RSH is often not discovered on initial imaging. RSH is associated with abdominal wall trauma with injury to the epigastric vessels however, increased use of anticoagulation and anti-platelet agents have increased the incidence. Due to the inconsistent presentation more common abdominal pain etiologies are usually explored prior to making an accurate diagnosis.

**Case Description:** An 84 year old male presented to the ER complaining of cough and congestion for three days with dyspnea and non-radiating pain localized to the left upper quadrant on exam. Pain worsened with coughing. Abdominal CT revealed no new findings compared to previous. The patient was treated empirically for cough, constipation and new atrial fibrillation during his hospital course. For atrial fibrillation he was initially treated with enoxaparin and transitioned to apixiban. Upon abrupt increase in abdominal pain and left-posterior flank bruising, new CT imaging revealed a large, acute left-sided rectus sheath hematoma. All oral anticoagulation was held and the patient was evaluated by a general surgeon.

The RSH was treated conservatively. Repeat CT two months later revealed decreasing size of the RSH.

**Discussion:** From admission the patient complained of vague left-sided upper abdominal pain which fluctuated in both intensity and cause. Cough induced musculoskeletal pain and constipation were preliminary diagnoses and indeed he did have some improvement with their treatment. Due to the patient's interval fluctuation in his pain severity and lack of clear etiology the time to accurate diagnosis was delayed. The likely cause of this RSH is attributed to a tear in the rectus sheath secondary to paroxysmal coughing and subsequent anticoagulation to treat the patient's arrhythmia.

Due to the increased use of anticoagulation during inpatient admissions, RSH is frequently misdiagnosed with delay in identification, and is an important inclusion in the differential. Although our patient did not have the typical RSH location, his clinical course followed the often delayed path of accurate diagnosis contributing to an extended clinical stay and increased medical costs.

**Title:** Osteopathic Medical Students' Attitudes Towards Health Information Technology Utilization In Medical Practice  
**Authors:** Hassan Iqbal, MS, OMS-3; Robin J. Jacobs, PhD, MSW, MS; Zaid Rana, OMS-3; Arif M. Rana, PhD, EdS, MS  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Objective.** This study was conducted to determine osteopathic medical students' (OMS) attitudes toward health information technologies (HIT) used in medical practice and how these factors might influence their readiness to utilize HIT in future practice.

**Background.** Attitudes towards HIT may influence medical students' successful adoption, willingness to learn, and utilization of HIT tools to improve patient outcomes. Yet scarce information is available on which factors influence students' readiness for HIT engagement and utilization prior to clinical training.

**Methods.** A cross-sectional study using validated measures was conducted via pen-and-paper questionnaire administered to first-year OMS (2015). Multivariate regression modeling was used to determine if knowledge, attitudes, behaviors, and personal characteristics will predict OMS' readiness to utilize HIT tools in future practice.

**Results.** A multivariate linear regression was calculated using SPSS to predict HIT readiness in students ( $N=474$ ) based on gender, age, HIT knowledge, IT self-efficacy, attitudes toward HIT, and IT utilization. A significant regression equation was found,  $F(6, 368) = 27.77, p < .001, R^2$  (adjusted) of .250. Greater IT self-efficacy when using computer technology, higher scores on openness to change, more favorable attitudes toward HIT utilization, younger age, and being male were associated with readiness to utilize HIT in future practice.

**Conclusion.** Innovative approaches to HIT education and design an Internet-age medical school curriculum that has medical informatics woven into its fabric are needed using specially designed classrooms where students are motivated, and not merely instructed, to learn how to use HIT technologies.

**Grants.** This study was funded by a grant from the HPD Research Fund.

**Title:** The Relationship Between Co-occurring Disorders in School Age Children with ADHD

**Authors:** Kalvin Kapoor, DO, PGY-3

**Program:** Psychiatry Residency Program - University Hospital, PBCGME

**Introduction/Background:** ADHD is a psychiatric disorder which affects about 6-7% of children under DSM-IV criteria. If untreated, about 30-50 % of those diagnosed continue to have symptoms in adulthood. The condition affects boys three times more frequently than girls. Studies have indicated that genetics also play a significant role in this disease's inheritance with genetics determining 75% of inheritance and the rest usually affected by the environment. The diagnosis of this condition involves background information about a child's behavior from his/her parents, teachers, peers and mentors in addition to a number of neuropsychological computerized test kits that are available to clinicians. Based on the current DSM criteria, there are three types of ADHD: 1) the inattentive type 2) the hyper-impulsive type and 3) the combined type. Most children with ADHD usually have the combined type. There are also a number of associations of this disease with other disorders such as oppositional defiant disorder, conduct disorder, obsessive compulsive disorder, substance abuse, sleep and anxiety disorders. In addition, children with ADHD present with a higher risk of developing ADHD. The main problem associated with the condition is a drop in academic performance and school grades as well as poor social interactions with family, teachers and peers. This often can have a devastating impact on a child's performance and biopsychosocial state leading to school dropout and failure as well as substance use.

**Objective:** The objective of this study is to determine if there is a relationship and if so, the extent of a relationship between the presence of an underlying mood disorder in children between ages 4-17 with ADHD.

**Method:** The study was designed as a retrospective cross-sectional study using data previously gathered for patient care in an outpatient psychiatric office setting. A total of about 62 subject's data from the past five years are designated to be used. The following selection criteria is used: 1) Patients must be between ages 4-17 years 2) Patients must be treated with ADHD medications (stimulants and/or non-stimulants) in the past 2 years 3) The patient must not have a diagnosis of psychotic disorder spectrum such as psychosis NOS, schizophrenia and schizoaffective disorder. The data collected once complete was analyzed using linear regression, t-test, ANOVA and non-parametric statistical analysis to determine relationships between occurrence of ADHD and different school-age groups, genders, and co-occurring disorders of depression/bipolar (grouped together as mood); oppositional defiant disorder (ODD) and learning/pervasive developmental disorder (PDD).

**Results:** After an initial review of the data, we were expecting to see a positive relationship between the presence of ADHD and an underlying mood disorder. Based on the data overall, males seem more likely to be diagnosed with ADHD than females at 55% and have a higher percentage of underlying mood disorders associated with ADHD at 70% with females coming in at 30%. In addition, in the comparison of females to males, the age range is also deemed an important factor. The prevalence of the average age an elementary child will develop ADHD is at a 27%, middle school child at 20%, and a high school student at an alarming 51%. The earliest onset of symptoms was at the age of 4 with 5 patients at a 29% chance of diagnosis in that age range. But 11 being the average age being still present in the elementary age range. The linear regression showcases that the presence of other symptoms on setting ADHD is quite high at an average of 51% will have a mood symptom, 17% will have a ODD symptom, and 20% will have a learning d/o PDD symptom.

**Conclusion:** The study provided an insight into the possibility of the patients with ADHD being prone to an underlying mood disorder. Moreover, it is easy to see the disease prevalence of the disease increases as a child progresses through the schooling years, possibly due to increase academic demands and the likelihood of being referred by their parents or teachers and diagnosed by patient's mental health provider. One of the limitations of the study includes the sample pool affecting the power of the study. In addition, one has to account for the possibility of observer error on the clinician's part in making an incorrect or overstated diagnosis. This relationship can be further explored by collecting the data about the socioeconomic conditions and also the genetic makeup of the environment of the patient, thus being a limitation in this study. By this study, we hope that it would lead into a larger project where treatment options and efficacy are compared for children with ADHD with an underlying mood disorder using mood stabilizers and appropriate ADHD medications.

**Title:** A presentation of alpha anti trypsin deficiency in chronic obstructive pulmonary disease  
**Authors:** Hasan Khan, DO, PGY 3  
**Program:** Family Medicine Residency Program - St. Petersburg General Hospital

**Introduction:** Alpha anti trypsin deficiency is a rare disease process occurring in approximately 80,000-100,000 individuals in the United States and 3 million people worldwide. This disease pathology effects lung, liver, and in rare cases the skin. Presentation is very similar to Chronic Obstructive Pulmonary Disease (COPD) which is why this diagnosis can be missed. Dyspnea is the most common symptom, along with cough, phlegm production, and wheezing, either chronically or with an upper respiratory infection. This is a case involving a presentation of alpha anti-trypsin deficiency in a patient with a concurrent COPD exacerbation.

**Case Description:** A 51 year old white male with history of hypertension (HTN), COPD, anxiety and Diabetes type II (DM II) presented to the emergency department with shortness of breath (SOB) and complaints of anxiety. Patient denied any chest pain, cough, swelling in the extremities, or skin lesions. Patient was diagnosed with COPD ten years ago and stated that he is on inhaled steroids and a rescue inhaler. He has had multiple visits to the emergency department over the past year for the same complaints. His SOB and frequency of the episodes is getting worse, despite using his medications.

On physical exam patient had slight tachypnea, diffuse wheezing bilaterally, and appears very anxious. Labs showed a slightly elevated white blood cell (WBC) count of 13.5, lactic acid was within normal limits at 1.2. Arterial blood gas (ABG) showed a decreased pH of 7.15 and an elevated carbon dioxide of 95 with an oxygenation of 52 percent and bicarbonate of 29. Chest x-ray showed hyper expansion of the lungs, but no infiltrates or edema. His Liver enzymes were also elevated with AST 190 and ALT 200, but the patient denied any alcohol use or history of hepatitis. Patient was consequently admitted to the ICU and started on BIPAP, IV steroids, and nebulizer treatments with albuterol/ipratropium. Pulmonology was consulted and recommended testing for alpha anti-trypsin deficiency (AAT deficiency). According to Pulmonology, there have been patients with similar symptoms and lab values who have tested positive for this deficiency. Patient's condition improved over the next three days and he was discharged to home. Patient was positive for AAT deficiency with a level of 19; which was significant but not severe. Patient was informed of this and advised to seek treatment options with his primary care physician.

**Discussion:** This case will discuss AAT deficiency in COPD patients, with examination of lab values and symptoms to pay attention to in order to make the correct diagnosis in the primary care setting. This case is unique in that it involves a patient with a history of COPD, but is also AAT deficiency. This slowly made his SOB worse, and increased his frequency of hospital visits. On follow up with the patient, he was referred to pulmonology and is being treated with IV infusions of alpha anti-trypsin (AAT) every month. Although there are other treatments for treating this condition, such as gene therapy and enhancement of endogenous AAT production, there is less evidence present for their success in these patients.

**Title:** Diffuse Large B-cell Lymphoma Relapse Presenting Cutaneously in a Patient with No Previous Skin Involvement  
**Authors:** Angela Y. Kim, OMS-3; Logan Vander Woude, OMS-3; Indrek Miidla, MD; Jacqueline Thomas, DO; David L. Thomas, M.D., J.D., Ed.D.  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Diffuse Large B-cell Lymphoma(DLBCL) is the most common histologic subtype of non-Hodgkin Lymphoma (NHL)<sup>1</sup>. Relapses of DLBCL commonly occur in the lymph nodes since majority of first primary DLBCL involve the lymph nodes (68%). Diffuse Large B-Cell Lymphoma relapses are frequent with 43% relapsing within 3 months of completing first line therapy<sup>3</sup>. However, only 4% of overall relapses involve the skin<sup>4</sup>(Figure 1). In our unique case, we report a case of a DLBCL relapse presenting cutaneously in a patient with no previous skin involvement in the past.

**Case Presentation:** A 54-year-old Hispanic female presented to our office in September 2015 with a 4-week history of erythematous-violaceous, nodular skin lesions on her left anterior chest that extended from the left infraclavicular region down to the left breast region. Patient was asymptomatic and feeling well at the time of presentation, except for the new skin complaint. Prior medical history included DLBCL stage IVB with cervical, supraclavicular, and axillary lymphadenopathy and treatment with 6 cycles of R-CHOP (Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, Prednisone) chemotherapy that started on 04/06/2015 and ended on 08/20/2015. The PET scan in June 2015 after 5 cycles showed excellent response with resolving of all affected areas. Due to patient's insurance change, the 6<sup>th</sup> cycle was delayed by couple weeks, at which time the patient noticed the growth of her new skin lesions on her left chest area. An incisional biopsy was done on the new cutaneous lesion, and the pathology report confirmed diffuse large B-cell lymphoma, with a recommendation for re-staging to rule out systemic involvement. The PET/CT on 9/25/2015 showed systemic involvement of old and new sites, including the new cutaneous and subcutaneous areas. The patient was referred to an oncologist for second line therapy and evaluation for hematopoietic cell transplantation (HCT).

**Discussion:** Relapses of DLBCL usually occur in the same sites that were involved in the first DLBCL. In our unique case, the patient never had any previous skin involvement with her first DLBCL, and her relapse uniquely presented only with the large skin lesions after undergoing 6 cycles of R-CHOP. The addition of Rituximab in the current first line therapy of DLBCL has improved the prognosis of DLBCL patients. However, recent studies have found that patients who fail Rituximab containing first line therapies are also more likely to fail second line, salvage therapy with HCT. As early detection and prompt treatment improve the patient's survival, we emphasize the importance of close follow-ups and non-delayed, continuous treatments with patients with a history of DLBCL and efficient communication between all health care providers involved in the patient care.

**Title:** Mind, Body...and Spirit? Spiritual Well-being in End of Life Care  
**Authors:** Dorothy Klingmeyer, DO, PGY-3  
**Program:** Family Medicine Residency Program - St. Petersburg General Hospital

**Introduction:** One of the best attributes of family medicine is that we are able to care for and treat patients from the first day of life to their last. Still most physicians are uncomfortable discussing death with their patients. Avoidance of end of life discussions is detrimental to quality of life in those with terminal illness. Osteopathic medicine has always rested on 3 pillars of health: Mind, Body, and Spirit. In the last 30 years the medical community has increased its awareness and understanding of mental health and doors have been opened for those struggling with psychological conditions. Still, the spirit is often ignored and questions about death are avoided. All people have thoughts on what their exit from this life should be regardless of religion or education. Open and honest conversation of a patient's wishes and prognosis is the first step needed to enhance the spiritual health and well being.

**Case Description:** JM is a 59 year old female who presents to the ED complaining of increasing shortness of breath and sharp thoracic back pain. She was released from the hospital 3 weeks ago after undergoing conservative treatment for a small bowel obstruction and a right lower extremity DVT. She has been compliant with ruvarixaban treatment since her release. She originally felt better with minimal discomfort in her lower extremity but thoracic pain and dyspnea became progressive and unbearable leading her to call EMS after her husband went to work. Considering her DVT history, JM had a CTA done quickly which revealed bilateral pulmonary emboli and hilar adenopathy. Labwork drawn on arrival returned and showed that JM's hemoglobin was shockingly low at 5.7, decreased from 10.0 on her discharge 3 weeks ago. Further probing of the patient revealed that she had been having melonous stool for the last 1-2 months that had been unchanged as well as a 40lb weight loss in the last 5 months without effort. Since JM could not be anticoagulated due to active GI bleeding she received an IVC filter placed by interventional radiology within hours of hospital arrival. She also was given 2 units of packed RBCs soon after returning to the ICU. When JM's husband and daughter were at bedside they were told in detail about what condition their loved one was in. Without infectious attributes MJ was thought to have a very extensive and aggressive cancer however until more stable, more testing could not be performed. JM and family made it very clear that she did not want any intubation or CPR under any circumstances. JM was a DNR from the start.

Over the next few days, several specialists reviewed the patients chart and imaging. Thrombectomy was not an option as clots no longer seemed to be coming from the lower extremity. Radiology suggested getting a tissue sample from a suspected esophageal mass that was crushing the right bronchus. Pulmonology thought that a bronchoscopy would kill the patient. Gastroenterology was willing to do an EGD however intubation was needed due to MJs rapidly declining lung function. The thought of intubation made the patient completely unnerved and worsened mental state, pain and anxiety levels. As MJ began to tire of the work of breathing her daughter asked, "What is the point in finding a diagnosis if my mother is miserable and in pain in her last days?" With that, the focus shifted to treat comfort and peace of spirit rather than diagnose and treat the disease process. MJ was given morphine and benzodiazepines for pain control, respiratory support with non-rebreather mask, and a trip to hospice care. MJs only last wish was to not die in a hospital room. She left this life in peace and without pain surrounded by family, not in the hospital.

**Discussion:** Often physicians feel like failures when the patients we treat don't live to see the next birthday. However, finding peace in terminal illness is also an essential part of osteopathic medicine and spiritual health. Hospice care is often underutilized and most of the stress and financial burden of healthcare are occurred in a person's last months living. Many family members often feel that they are never given a real idea of how sick their family member actually may be. Medicare is now offering compensation to physicians to meet with their patients to discuss advance directives. Open and honest communication of beliefs, wishes, prognosis, and goals will truly complete the triad of osteopathic health and help heal the spirit of our patients.

**Title:** A Small Bowel Perforation as a Rare Post-Operative Complication from a Laminectomy

**Authors:** Robert H. Krieger, OMS-4; Ann Monardo, OMS-3; Warren Reuther III, MD; Nicholas Peluso, DO, PGY-3; Roma Vora, OMS-4; Paul Poulakos, OMS-4; Andrew Berry, DO, Kendrick McArthur, DO

**Program:** Kansas City University of Medicine and Biosciences

**Introduction:** Approximately 250,000-500,000 people in the United States have symptoms of spinal stenosis, and although many patients remain asymptomatic to mildly symptomatic, the prevalence of symptomatic back pain is significant enough to warrant neurosurgical intervention and case volume will remain steady. As with any procedure, surgery to the vertebral column comes with risk. Our case discusses an exceptionally rare complication of a lumbar laminectomy in which the small bowel is perforated.

**Case Description:** A 37-year-old female presented with unrelenting abdominal pain 10 hours after lumbar laminectomy procedure. The patient's physical exam was unremarkable except that her abdomen was exquisitely tender to palpation without any distension and there was significant tympany upon percussion. Computed tomography (CT) of the abdomen and pelvis showed evidence of retroperitoneal air. The patient was initially treated expectantly with intravenous antibiotics and observation. On hospital course days two and three the patient began to spike and maintain fevers, with air continuing to appear in the psoas muscles and significant air within the peritoneal cavity. The patient was taken to the operating room for emergent laparoscopic exploration, where an area of perforation was identified at the proximal ileum and jejunum.

**Discussion:** Based on thorough literature search, this is believed to be only the 2<sup>nd</sup> reported case of small bowel injury after a laminectomy. When considering the anatomy of the vertebral column, specifically the annulus fibrosus and the anterior longitudinal ligament, it seems logical that ventral perforation is a rather rare complication of laminectomy. In addition, when comparing the incidence of ventral perforation during lumbar discectomies with laminectomies, it seems valid that the laminectomies would be an even more infrequent cause of ventral perforation as the lamina is located dorsally on the vertebral body and the bowel lies anterior to the vertebral body. The most likely mechanism by which the small bowel may be penetrated is due to the root of the mesentery arising from the anterior vertebral column at approximately L2, traveling obliquely and terminating at the right sacroiliac joint. When the patient is prone during the operation, segments of the small bowel may appear anterior to the lumbar vertebral column. While it is not a common complication, perforation of the small bowel is associated with high mortality and the surgeon must maintain a high index of suspicion when a patient presents with an acute abdomen after lumbar spinal surgery.

**Title:** Rare Case of Fournier's Gangrene in a Female Patient  
**Authors:** Neha Mahajan, OMS-3; Matthew Dorman, OMS-3  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Fournier's Gangrene is a rare and life threatening polymicrobial necrotizing fasciitis which predominantly affects the superficial and deep fascial planes of the perineum. Fournier's Gangrene is predominantly seen in male patients and has been estimated to have an overall incidence of 1.6/100,000 males (Sorensen et al., 2009) and studies have reported that the male to female ratio is roughly 10:1 (Kim, 2011). Because studies focusing on the disease course in women are sparse, new cases that arise need to be evaluated to potentially aid in future diagnosis and treatment.

**Case Description:** A 75 year old Creole speaking Haitian female with a past medical history of uncontrolled Type 2 Diabetes Mellitus and uncontrolled hypertension presented to the emergency room with abdominal and buttock pain. The patient stated that the pain began a week prior and has been progressively getting worse. The patient denied any fever, nausea, vomiting, or diarrhea. Vital signs showed an oral temperature of 96.3°F, a blood pressure of 175/71 mmHg, a heart rate of 66 beats per minute, a respiratory rate of 18, and an O2 saturation of 97% on room air. Physical exam revealed a tender left gluteal mass which extended into the perineal area, foul smelling discharge, and some necrotic tissue. Laboratory analysis showed a WBC of  $59.50 \times 10^3/\mu\text{L}$  with 7% bands, hemoglobin of 10.6 g/dL, hematocrit of 28.9%, MCV of 72.6 fl, RDW of 15.5%, an Alkaline Phosphatase of 619 units/L, an AST of 73 units/L, an ALT of 111 units/L, a total bilirubin of 5.5 mg/dL, creatinine of 3.7 mg/dL, a BUN of 80 mg/dL, and a lactic acid of 4.9 mmol/L.

The patient underwent a stat CT abdomen/pelvis without contrast which revealed extensive subcutaneous gas visualized within the subcutaneous tissues overlying the left gluteal musculature extending into the perineum and subcutaneous tissues anterior to the pubic bone. Based on the radiographic findings, laboratory results, and physical exam, the patient was diagnosed with Fournier's Gangrene of the left perineum and was admitted to the ICU at which time infectious disease as well as surgery was consulted. The patient was taken to the operating room after being seen by surgery for extensive debridement of the subcutaneous tissues overlying the left gluteal musculature extending into the perineum and subcutaneous tissues anterior to the pubic bone. Subsequent debridements occurred throughout the patient's treatment. Wound cultures revealed polymicrobial growth of three different species which is consistent with Fournier's Gangrene.

**Discussion:** Fournier's gangrene is a debilitating disease seen most commonly amongst males. However, when presented in females this condition can rapidly progress and the female gender has been identified as an additional risk factor due to the higher incidence of inflammation and more aggressive spread of infection to the retro peritoneum. Due to the high mortality rate and more aggressive nature of Fournier's gangrene in females, it is important for health care professionals to identify and aggressively treat patients to decrease the high mortality rate.

Fournier's gangrene is commonly caused by facultative organisms such as E.coli, Klebsiella, and Enterococi as well as by anaerobes such as Bacteroides, Fusobacterium, and Clostridium. Risk factors which can predispose patients to Fournier's Gangrene comprise diabetes mellitus, hypertension, alcoholism, and advanced age. Patients who are suffering from Fournier's Gangrene must be aggressively treated with surgical debridement, antibiotic treatment, and possibly hyperbaric oxygen.

**Title:** Hemorrhagic Stroke Due To Hyperleukocytosis in Acute Myeloid Leukemia  
**Authors:** Henry Mainor, DO, PGY-3  
**Program:** Family Medicine Residency Program - St. Petersburg General Hospital

**Introduction:** Hyperleukocytosis is defined as a white blood cell count greater than 100,000 microliters. It is often associated with increased morbidity and mortality in leukemia. In this case, a Caucasian male with newly diagnosed Acute Myeloid Leukemia (AML) suffers a hemorrhagic stroke secondary to hyperleukocytosis. In a literature review, hyperleukocytosis was only seen in 5%-13% of adult AML.

**Case Description:** A 70-year-old Caucasian male presented to outpatient clinic with a three week history of flu-like symptoms; fatigue, fever and body aches. Physical examination was unremarkable other than diffuse petechiae on trunk and bilateral lower extremities. The following day the patient called the clinic complaining of bone pain. He was immediately advised to go the emergency room, but declined. Later that afternoon, the outpatient labs attained previously that week revealed thrombocytopenia, anemia and hyperleukocytosis. The patient was contacted a second time and again instructed to report the emergency room. He was admitted to the hospital via the emergency room that day. Hematology was consulted and the appropriate diagnostic work-up and treatment was initiated. That evening a stroke alert was called. A stat CT scan of his brain revealed a hemorrhagic stroke with mass effect causing midline shift. The patient expired in the morning of hospital admit day two.

**Discussion:** This case is unique due to the low incidence of hyperleukocytosis in adult AML. Of the few studies reviewed, hyperleukocytosis has a poor prognosis and is associated with early mortality. This case raises the question of possibly a different outcome had the patient sought medical attention sooner.

**Title:**                    **Something's Fishy: Delayed Onset Angioedema with Gangrenous Necrosis of the Small Bowel**  
**Authors:**                Dominic Marino, OMS-3; Blake Guillory, OMS-3  
**Program:**                Lake Erie College of Osteopathic Medicine – Bradenton Campus

Patients with angioedema due to an allergic response frequently present to the emergency department with involvement of the lips and tongue, but less commonly involve the gastrointestinal tract. Allergic angioedema is caused by foods (shellfish, nuts, fruits), environmental factors, medications, and insect bites with degranulation of mast cells and release of histamine.<sup>1</sup> Allergic angioedema is rare syndrome due to the increased catabolism of the C1 esterase inhibitor and over activation of the classical complement pathway. Abdominal involvement in angioedema is a difficult diagnosis to make and typically presents with colicky abdominal pain, vomiting and diarrhea.<sup>1</sup> Most episodes self remit one to three days after ceasing contact with the allergen.<sup>2</sup> With such vague presenting symptoms, our case report illustrates the clinical necessity for a familiarity with the common types and presentations of angioedema, thorough personal and family histories, and a careful physical examination in order to make an accurate diagnosis. Our case report will be presenting a rare and progressive case of gastrointestinal angioedema. CA is a 59 year old male who presented to the hospital with four day's duration of intermittent achy pain of the mid epigastric region, diffusely distended abdomen, vomiting, and loose stool after eating shrimp. Initially after ingestion, CA had a mild systemic response that included some shortness of breath and trouble breathing, but denied any trouble swallowing, gastrointestinal abnormalities, or a cutaneous rash. CA has a family history significant for a shellfish allergy in which other family members have become anaphylactic. Initial laboratory data showed up-trending leukocytosis with a normocytic anemia. CA had an extensive radiologic workup that showed signs of either an infectious or inflammatory bowel process without obstruction. CA's worsening abdominal pain and leukocytosis warranted an exploratory laparotomy from general surgery. Surgical inspection and pathology revealed gangrenous necrosis of the jejunum that resulted in subsequent resection of the infected small bowel. CA's hospital course was complicated by infection and sequelae of nutritional deficiencies. CA's symptomology continued, leading to a referral to the University of Miami for a small bowel transplant. This case represents a rare case with an unusual presentation due to the delayed presentation of severe angioedema mostly affecting the small bowel following only a mild systemic reaction.

**Title:** Shingles Recurrence After Zostavax Administration in a Patient with Depression; The Importance of Screening for Depression  
**Authors:** Taraneh Matin OMS-3; Daniel Leiva, OMS-4; Elizabeth Hames, DO; Kenya Rivas, MD  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Varicella-zoster virus (VZV) presents as varicella during primary infection and herpes zoster (shingles) during reactivation after dormancy in the sensory ganglia<sup>1</sup>. Symptoms of reactivation typically begin with pain along a dermatome followed by vesicular eruption 2-3 days later. Many patients experience chronic pain for months to years after reactivation due to nerve damage sustained from viral reactivation—a condition known as postherpetic neuralgia. In those who contract VZV, a strong cell-mediated immunity is correlated with reduced disease severity and a decreased risk of developing postherpetic neuralgia. Conversely, decreased cell-mediated immunity is a significant risk-factor for viral reactivation<sup>2,3</sup>. Because of this, boosting t-cell immunity using the live zoster vaccine has been shown to decrease the risk of developing herpes zoster among individuals  $\geq 60$  years of age<sup>3</sup> and is recommended for routine consideration by the Advisory Committee on Immunization Practices. Common side effects of the vaccine include injection site irritation, headache, diarrhea, joint or muscle pain, or skin rash.

**Case Presentation:** We present a case of a 57-year-old white female who arrived at Memorial Hospital Pembroke Emergency Department for evaluation of a painful vesicular rash along her right T5 dermatome. The patient received the herpes zoster vaccine one week prior and one hour after vaccination she began to experience flu-like symptoms. The following morning the patient reported having a max temperature of 101 °F, a sore throat, and non-bloody diarrhea. Five days later the patient began to experience pain, burning, itching and two “zit” like blisters beneath her right breast prompting her to visit the ER. The patient was diagnosed with a shingles eruption and prescribed 1,000 mg of valacyclovir three times daily. At her one-week follow-up visit the patient complained of little improvement. Skin examination demonstrated old, slightly crusted lesions along her right T5 dermatome, an erythematous macular rash along her lower sternum, and three new <1cm serous vesicles beneath both her right and left breasts. The patient described an 8/10 burning sensation along both her left and right T5 dermatomes. The patient admitted to five prior shingles reactivations with the same right sided distribution from 2010-2013. This is the first time it has affected her left side. The patient has a past medical history of hypothyroidism, depression, and anxiety. The patient was noted to cry at multiple instances during the examination and reported to often feeling “down”, anxious, and without the desire to perform activities. The patient’s CBC was within normal limits and a peripheral smear showed no pathological findings. The patient was started on an anxiolytic, referred to immunology for a workup, and offered an HIV screen which she deferred.

**Discussion:** Studies have previously shown that depressed patients have a lower VZV-specific cell-mediated immune response following zoster vaccination but that the response was preserved in depressed individuals who were being successfully treated. This case demonstrates the importance of screening patients with reoccurring outbreaks for depression as well as screening patients prior to receiving the zoster vaccine. In those with comorbid depression, consideration should be taken towards managing depression before vaccine administration.

**Title:** ObamaCare & Physician Compensation  
**Authors:** Ann S. Monardo, OMS-3; Warren L. Reuther III, MD; Robert H. Krieger, OMS-4  
**Program:** Kansas City University of Medicine and Biosciences

**Background:** The Affordable Care Act (ACA) was passed in 2010 with goals to expand Americans’ access to healthcare, improve the quality of care, and to make healthcare more cost-effective. In 2012, the Supreme Court rendered final decision to uphold the healthcare law, including installation of an “individual mandate” requiring all Americans to purchase health insurance or pay a “shared responsibility payment” to the government. One of the most significant components of the Affordable Care Act is the expansion of Medicaid to provide health coverage to all individuals in families with incomes below 138 percent of the federal poverty level. The Congressional Budget Office (CBO) estimates that these provisions will lead to about 32 million individuals gaining health coverage by 2019. As a result, the demand for primary care physicians will be significantly increased to provide for this expanded patient population. In addition, the ACA’s increased emphasis on preventive medicine, cost-effectiveness and quality assessment of care, has driven many physicians to implement alternative payment models such as Accountable Care Organizations (ACOs), or to shift their practices into hospitals rather than private practice.

This report discusses essential changes in the medical field that have occurred since the passing of the ACA, and will continue to occur that ultimately impact physician reimbursement.

**Objective:** To report the changes related to physician compensation after passage of the Affordable Care Act.

**Methods:** The Medical Expenditure Panel Survey (MEPS) was used to calculate the population of adults with health insurance coverage between 2012 and 2014. Medscape Physician Compensation Reports between 2012 and 2015 were used to assess physician salaries among different specialties, as well as physician participation in various payment models. The main outcomes were the change in number of insured adults between 2012-2014, in addition to change in payment model and average physician salary, particularly in primary care.

**Results:** Due to the Affordable Care Act, particularly after June of 2012, the percentage of adults (up to age 65) obtaining health insurance increased from 24.6 percent in 2012-2013 to 30.2 percent in 2013-2014. As a result of the insurance expansion, physician participation in Accountable Care Organizations (ACOs) largely increased from only 3 percent in 2011 to 30 percent in 2015. When evaluating the Medscape Physician Compensation Reports beginning in 2011, there is an overall increase in physician compensation each year with many primary care specialties being of highest increase. Of interest, family medicine physicians had an average salary increase of 10% between 2014 and 2015.

**Conclusions:** Health insurance expansion, as a result of the Affordable Care Act, has led to a significant amount of change in healthcare. While extending health coverage to tens of millions of United States citizens, the Affordable Care Act has also provided primary care physicians considerable increase in compensation.

**Title:** Dermoscopy Use among Family Physicians in the U.S.  
**Authors:** Jeffrey Morris, OMS-2; Sarah Alfonso, B.S.; Nilda Hernandez, A.A.; M. Isabel Fernández, Ph.D.  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Background:** Malignancies of the skin, like many other cancers, are more treatable when diagnosed early. As the initial point of contact, family physicians can play a critical role in early detection of skin cancers. The primary way most family physicians screen for skin cancer is through visual inspection, which is not highly sensitive. Dermoscopy is a non-invasive in vivo technique that allows visualization of subsurface structures of the skin that are not visible by the naked eye or by simple magnification. Convincing evidence from other countries suggests that primary care physicians can increase their ability to diagnose skin cancers by using the dermascope, yet our literature search yielded no studies examining its use among family physicians in the U.S.

**Objective:** The aims are: 1) to report the prevalence of dermoscopy use in our sample; and 2) to examine physician and practice characteristics associated with ever having used a dermascope.

**Methods:** From September to November of 2015 we recruited 604 family physicians to complete an anonymous 22 item survey to assess knowledge and use of dermoscopy, physician characteristics (e.g., type of medical degree, age, gender, confidence differentiating cancerous and non-cancerous skin lesions) and practice characteristics (e.g., type, location). We conducted bivariate analysis to examine the relationship between key factors and use of dermoscopy and entered the significant predictors in a logistic regression to develop the final model. These analyses are based on the 591 participants with complete data on all variables of interest.

**Results:** Twenty percent (119/597) of participants had ever used a dermascope and 8.4% (50/597) were currently using it. At the bivariate level, age, type of practice and confidence level were associated with ever having used a dermascope. We found no association with gender, ethnicity, type of medical degree (DO vs MD), type or location of practice. Factors significantly associated with use of dermoscopy at the multivariate level were: younger age (OR=8.42, CI 4.08-17.35) and having higher level of confidence differentiating skin lesions (OR=1.58, CI 1.24-2.02). The model was highly significant and correctly classified 80% of participants.

**Conclusion:** Use of dermoscopy in our sample was low. Given primary care physicians role as the initial point of contact with the health care system, promoting use of the dermascope in primary care settings will contribute significantly to improving early detection of skin cancer and better patient outcomes. Efforts to do this are sorely needed.

**Title:** Importance of Initiating Treatment for Presumptive Diagnosis of Acquired Thrombotic Thrombocytopenic Purpura  
**Authors:** Patricia Narciso, OMS-3; Esther Son, OMS-3; David Vuong, OMS-2  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Acquired thrombotic thrombocytopenic purpura (TTP) is a medical emergency with an incidence of 4-5 cases per million people per year. TTP is characterized by microangiopathic thrombi due to decreased ADAMTS13 enzyme activity, leading to clinical manifestations such as microangiopathic hemolytic anemia, thrombocytopenia and neurological abnormalities. Diagnosis of TTP is based on clinical features and laboratory testing such as: CBC with platelet count, peripheral blood smear, serum chemistries and creatinine, serum lactate dehydrogenase (LDH), serum bilirubin levels, coagulation testing, direct anti-globulin (Coombs) test, and ADAMTS13 activity levels. Historically, untreated TTP had mortality rates of 100%, but with advances in treatment options, survival rates have risen to 80-90%. Thus, prompt recognition and initiation of treatment is of the utmost importance.

**Case Description:** A 34-year-old previously healthy African American male with no significant past medical history presented to the emergency department with a chief complaint of nausea, vomiting, and blood in his urine that started within the past 24 hours. He reported 5 episodes of non-bloody vomiting and 2 episodes of dark, bloody urine. He also stated that his urine stream had decreased “to a trickle” since the start of his symptoms. The patient also admitted to having chills, headache, dizziness, shortness of breath, right low back pain, and unintentional weight-loss (15 pounds within the past two months). He denied having fever, abdominal pain, diarrhea, constipation, penile discharge, sick contacts, new dietary changes, and new or recent travel. Family history was significant for SLE diagnosed in his sister a few weeks prior.

The patient was admitted and further workup started. Initial exam showed a fatigued male in no acute distress. Physical exam was unremarkable except for right CVA tenderness. Labs were suspicious for hemolytic anemia and decreased renal function. Imaging was negative for obstruction and hydronephrosis. Peripheral blood smear demonstrated schistocytes. Clinical suspicion for TTP was high and plasmapheresis was started the day of admission, before receiving results of the ADAMTS13 activity levels. A total of 7 plasma exchange treatments were given to the patient. The patient’s anemia and renal function improved. A renal biopsy was taken and showed IgA nephropathy. The patient was discharged on prednisone taper with follow-up with hematology and nephrology.

**Discussion:** This case demonstrated the prompt recognition and presumptive diagnosis of TTP that led to early treatment and optimal patient outcome. Further studies are needed to evaluate cost-effectiveness of early versus late treatment of TTP. Furthermore, guidelines for initiating TTP treatment need to be established.

**Title:** Brand versus Generic Warfarin: A Case Report  
**Authors:** Christopher T. Neagra, DO, PGY-1; Karan Gupta, DO, PGY-1; Uri Shoshan, DO, PGY-3  
**Program:** Internal Medicine Residency Program, Palmetto General Hospital

**Introduction:** The increasing use of generic drugs is a phenomenon driven in part by the affordability factor these “copy-cat” medicines provide. The issue of bioequivalence of brand versus generic medicine becomes especially important when discussing medicines with a narrow therapeutic index, such as warfarin. Clinical studies that compare brand name and generic warfarin are scarce in the literature and provide conflicting results. There are to date no studies, which investigate such differences in patients with antiphospholipid antibody syndrome.

**Case Description:** Our patient is a 46-year-old uninsured male with a past medical history of primary antiphospholipid antibody syndrome (PAPS), nine past episodes of pulmonary embolisms (PE) and five past episodes of deep vein thrombosis (DVT). The patient was being treated at an outpatient free clinic with oral anticoagulation therapy. He was noted to have numerous episodes of therapy non-compliance and hospital re-admissions. He presented to our hospital with atypical, centrally localized chest pain and no other associated symptoms. Upon presentation he admitted to skipping several doses of his Coumadin due to increased demands in work schedule. INR measurement was obtained in the emergency department and was found to be 1.07 at the time of admission.

Upon admission, our patient was started on generic form Warfarin for a period of 27 days. His INR did not increase to therapeutic range until being switched to brand Coumadin, 28 days later. In this article we present a novel case of increased sensitivity to brand name Coumadin over generic warfarin as evidenced by INR measurements documented over a 62 day period in a patient with antiphospholipid antibody syndrome.

**Discussion:** As was the case in our institution, brand name Coumadin was not immediately available. Only after several days did the brand form become available. This left our patient with a sub-therapeutic INR during this interval. Our patient was at first adamant about receiving the brand form Coumadin. This request was for the most part overlooked by hospital staff and physicians. In order to increase awareness of physicians and staff to the possible difference of brand versus generic warfarin in individuals with known Antiphospholipid Syndrome, we propose further investigative efforts into this phenomenon.

**Title:** Flakka Induced Delusional Parasitosis  
**Authors:** Justin Nepa, DO, PGY-2; Sachin Singh, DO  
**Program:** Psychiatry Residency Program - University Hospital, PBCGME

**Introduction:** Designer drugs are synthetic derivatives of federally controlled substances, created by slightly altering the molecular structure of existing drugs and are produced illegally in laboratories for illicit use. Most common synthetic drug analogs include cocaine, ecstasy, methamphetamine, phencyclidine, bath salts (MDPV), and opioids. “Flakka” is a new synthetic drug that recently has become more prominent in South Florida over the past years and reported by some to be mini-epidemic. Individual taking this drug experience euphoria, anxiety, tachycardia, agitation, paranoia, violent aggression, self-injurious behaviors, elevated body temperatures, elevated creatine kinase and hallucinations.

**Case Description:** Patient is a 43 y/o black female with past medical history for bipolar disorder and polysubstance abuse present to UHMC ED with psychotic features secondary to smoking flakka believing that worms are coming out of her body. She presented to the hospital with chief complaint of increasing depression, anxiety, paranoia, and somatically preoccupied picking at her skin and itching. Patient admitted to smoking “Flakka” over the previous four days. Patient states that she has been seeing cockroaches around her house and was unsure if maybe one of the cockroaches had laid eggs or crawled into her ear. Mother states that patient picks at her body creating visible lesions when she is under the influence and appears to be missing portions of her hair. Patient presents with a chronic ganglion cyst to her right wrist, and states that "things" are going to come out of it. Patient during her hospital stay was stabilized medically and psychiatrically. Patient upon discharge no longer endorses any delusions about bugs coming out of her skin and was motivated to attend substance abuse rehabilitation at Broward Addiction Recovery Center.

**Discussion:** “Flakka” is a type of synthetic cathinone similar to bath salts that has become increasing common in Broward County and increasingly rural communities and small towns. Diagnostic testing is limited due to many of these synthetic drugs not appearing on standard urine drug screen. “Flakka” is a new synthetic drug that recently has become more prominent in South Florida over the past year and has resulted in numerous admissions to psychiatric facilities locally. Relatively inexpensive, “Flakka” also known as alpha-pyrrolidinovalerophenone (a-PVP) or sold as street name “gravel”, is believed to act similarly to the designer drug MDPV as a norepinephrine-dopamine reuptake inhibitor and acts as a stimulant. This case study will focus on common lab and vital sign abnormalities as well as adverse and withdrawal side effects.

**Title:** The assessment of pulmonary function with osteopathic manipulative treatments versus standard respiratory therapy in a healthy population  
**Authors:** Cassandra Nicotra, OMS-2; Akshay Mentreddy, OMS-2; Hiral Padia, OMS-2; Derek Stewart, OMS-2; Thomas Quinn, DO; Mohamed Hussein, DVM, PhD  
**Program:** Lake Erie College of Osteopathic Medicine – Bradenton Campus

**Background:** Health care professionals spanning numerous professions have long utilized various respiratory therapies to improve lung function. Pulmonary function tests are most commonly conducted via spirometry to measure lung volume and speed at which air can be expired. Spirometry is utilized to diagnose diseases that affect breathing, such as COPDs, as well as assess changes in pulmonary function as a result of various therapies. Respiration makes use of the body's musculoskeletal system to move air in and out of the lungs to sustain normal human metabolism and function. Osteopathic manipulative treatments (OMT) can play a crucial role in maintaining and alleviating dysfunctions of these muscles that ultimately lead to disease.

**Objective:** The purpose of this study is to analyze the effects of various osteopathic manipulative treatments (OMT) and standard pulmonary rehabilitation (SPR) on pulmonary function of healthy individuals as determined by forced vital capacity (FVC) and forced expiratory volume in one second (FEV1). Given that this is a healthy population, we do not expect major improvements in pulmonary function following any treatment; however, we do expect some statistically significant results utilizing combination therapy (OMT and SPR).

**Methods:** Fifty-three healthy participants (age range 21-38, median 25, 60% male) participated in this study. The participants were randomly assigned to either the OMT or SPR group. FVC and FEV1 were measured before and after each treatment for six weeks. For the first four weeks, each participant in the OMT group received one OMT per week (rib raising, thoracic lymphatic pump, thoracic HVLA, and diaphragmatic release) while each participant in the SPR group received one SPR treatment (rest, saline via nebulizer, pursed lip breathing, and tapotement) per week. By the end of the four weeks, each participant received all treatments in his or her group once. Using the data gathered, treatments were ranked based on their ability to improve pulmonary function (best positive change in FVC and FEV1). During the fifth week, the OMT group will receive the two highest ranked OMT, and the SPR group will receive the two highest ranked SPR treatments. During the sixth week, the OMT group will receive the highest ranked OMT followed by the highest ranked SPR treatment. Similarly, the SPR group will receive the same two treatments but with the SPR treatment first followed by the OMT.

**Results:** After the first four weeks, the changes in FVC and FEV1 before and after treatments were calculated. The two treatments with the most positive changes were determined for each group ( $\Delta FEV1 + \Delta FVC$ ). Within the OMT group, rib raising yielded the highest positive change of 0.218 L followed by lymphatic pump, which had a positive change of 0.082 L. For the SPR group, pursed lip breathing yielded the highest positive change of 0.088 L followed by tapotement, which had a positive change of 0.075 L. After the sixth week, the data will be analyzed using paired t-tests.

**Conclusions:** Based on the results from the first four weeks, the OMT group had a greater positive change in lung function post-treatment compared to the SPR group. From this point forward, we plan to analyze more aspects of the data to reach more complete conclusions, as well as conduct and analyze combination treatments from the fifth and sixth weeks. It is our hope that we may use the results from this study to gear further studies towards individuals with various pulmonary diseases, such as COPDs.

**Title:** Traumatic Hemipelvectomy Case Report  
**Authors:** Joseph Palmer OMS-2, Roger Walker DO, PGY-5; Leighann Panico OMS-2  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Traumatic hemipelvectomy is a rare injury with extremely high mortality and only a few reported cases in the literature. Survival relies on efficient and precise execution of advanced trauma life support tactics and a multidisciplinary approach to patient care. This case reports on a young male pedestrian hit by car (PHBC) sustaining this violent high energy injury.

**Case Description:** The patient is a 28 year old male PHBC presenting to Broward Health Medical Center as a level 1 trauma alert. On arrival the patient is assessed as a Glasgow coma scale (GCS) 14 and undergoes ATLS evaluation. Transfusion and resuscitation is initiated for hypovolemic shock.

There were massive soft tissue injuries to the right lower extremity with a traumatic below the knee amputation (BKA), and large inguinal wound delivering abdominal contents. A CT scan reveals avulsion with diastasis of the right hemipelvis consistent with a hemipelvectomy. Emergent exploratory laparotomy is performed finding no solid organ injury. The hemipelvis was attached by only a small soft tissue bridge to the abdomen. Avulsion of the sacral plexus and external iliac artery were noted. The hemipelvis could not be reduced to its sacral and contralateral pelvis attachments. An intraoperative decision was made to complete the hemipelvectomy. Surgical and medical services including critical care, infectious disease, and psychiatric are employed to form a multidisciplinary care plan.

**Discussion:** Traumatic hemipelvectomy accounts for 0.6% of all pelvic fractures with a mortality ranging from 60% to 100% making this a rare and devastating injury. There are relatively few literature reports with a total of 52 cases reported in the literature through 2010. A traumatic hemipelvectomy is defined as disruption of the pubic symphysis anteriorly and sacroiliac joint posteriorly resulting in complete dislocation of the hemipelvis with concomitant rupture of the iliac vessels and sacral plexus. The mechanism of these injuries has been described as extreme abduction with external rotation. These forces can be generated during motorcycle collisions which have been reported in up to 80% of cases.

In approximately 50% of these injuries the extremity is connected to the torso after the trauma. Genitourinary system injuries are highly associated with these traumas, wounds within the perineum put the distal urinary and gastrointestinal tract structures at risk.

The most common cause of early fatality is hypovolemic shock. Massive transfusion protocols are necessary to manage resuscitation. Authors reporting on this type of injury advocate for life saving completion of the hemipelvectomy surgically and avoid pursuing limb salvage techniques.

Traumatic hemipelvectomy are rare injuries that require efficient ATLS protocols to survive the initial insult followed by a multidisciplinary effort. These injuries are underreported in the literature. Case reports provide a body of evidence to utilize for the care of future patients that may present with this devastating injury.

**Title:** Traumatic Anterior Dislocation of the Hip: A Review of the Literature with Case Report  
**Authors:** Leighann Panico, OMS-2; Joseph Palmer, OMS-2; William Kunkle, DO  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Traumatic dislocation of the hip is an emergent situation that requires prompt diagnosis and treatment. In adults, the majority of traumatic hip dislocations typically occur secondary to motor vehicle accidents. High energy trauma is required to disrupt the large surrounding ligamentous capsule and supporting musculature that provide inherent stability to the hip joint. The majority of traumatic hip dislocations are posterior. Anterior hip dislocations occur in approximately 10% of dislocations. There are two types of anterior hip dislocations: superior and inferior. Anterior, superior hip dislocations are highly infrequent and comprise less than 10% of all anterior hip dislocation cases. After an extensive literature review, only six cases of an adult open anterior hip dislocation have been reported. Due to the extremely rare occurrence of this injury and small number of cases, a standard of care has not been developed. We present the seventh case of adult open anterior hip dislocation and a review of the literature.

**Case Description:** A 40-year-old unhelmeted African American male, with no past medical history, presented as a Level I trauma after being struck by a motor vehicle while riding his motor scooter. The patient's estimated speed was 40 miles per hour. Physical exam found obvious deformity to his left lower extremity, with an open wound to the medial aspect of his left groin. Prophylactic antibiotics were given immediately. Examination of the AP pelvic film demonstrated a left anterior superior hip dislocation and ipsilateral avulsion fracture of the left ischial tuberosity. Upon CT of the pelvis a non-displaced right anterior wall acetabulum fracture and a sacral fracture were noted. The patient remained neurovascularly intact in bilateral upper and lower extremities. The left hip underwent emergent reduction with the orthopedic team in the trauma bay. The patient was then taken to the OR for formal irrigation, debridement and exploration of the groin wound. Thorough inspection revealed an intact femoral artery and vein with mild contusion of the femoral nerve. Stabilization of the left femoral neck was accomplished with a Synthes hip screw. Over the next two years, the patient was followed regularly in the outpatient orthopedic clinic. The patient's hip remained stable and complete union of his femoral neck fracture was achieved. The patient is able to complete all activities of daily living and only experiences occasional mild left hip pain after prolonged ambulation.

**Discussion:** The diagnosis of anterior hip dislocation includes analysis of the injury mechanism, a thorough physical exam, and proper interpretation of radiologic findings. Anterior hip dislocations are associated with forced abduction, external rotation, and extension of the femur. Patients will most often present with external rotation of the thigh, which distinguishes it from a posterior dislocation that is adducted and internally rotated. Due to marked external rotation, a prominent lesser trochanter is often visible on an AP pelvic X-ray and can aid in distinguishing an anterior from a posterior dislocation. Anterior hip dislocations have the potential for serious post-operative complications. Due to the high energy mechanism of injury, the femoral head ruptures through the anterior capsule and can result in damage to the surrounding soft tissues and the adjacent femoral artery, nerve and vein. As with any hip dislocation, AVN and infection are always possible. Delayed reduction of an anterior dislocation has been associated with a high incidence of AVN of the femoral head. Open joint injuries are also considered orthopedic urgencies best managed with early irrigation, debridement and antibiotics. The authors recommend taking extra precautions while treating comparable traumatic injuries to help reduce the risk of AVN, infection and other potentially unfavorable outcomes.

**Title:** Tracheal Amyloidosis: Insoluble But Solvable  
**Authors:** Hetain Patel, DO, PGY-3; Marc Iskandar, OMS-3  
**Program:** Internal Medicine Residency Program - Palmetto General Hospital

**Introduction:** Amyloidosis is a rare infiltrative condition characterized by disposition of abnormal protein in extra cellular tissue. Amyloid deposition in the tracheobronchial tree is rare, accounting for around 1% of benign tumors in this area. Amyloidosis is usually not a consideration in the differential diagnosis of someone presenting with respiratory symptoms and due to its non-specific symptomatology, a high degree of clinical suspicion is required. We describe a case of localized tracheal amyloidosis that was successfully treated by extensive debulking of the mass via bronchoscopy.

**Case Description:** 41 year old female with PMHx of hyperlipidemia and Osgood-Schlatter disease presented with progressive shortness of breath for the past several months. Symptoms were worse upon exertion and positional changes. She had undergone multiple courses of treatment with antibiotics and steroids with no relief. Upon development of dysphagia to solids and liquids, she decided to seek further medical treatment. Upon arrival, vitals were stable with spO<sub>2</sub> of 94% on room air and physical examination revealed bilateral pulmonary rales and ronchi. A CT chest without contrast revealed soft tissue opacities in the wall of the trachea anteriorly and left lateral at midthoracic trachea and at the distal trachea abutting the carina. CT soft tissue of the neck revealed dysmorphic appearance of trachea with moderate narrowing of the lumen of the trachea. She was placed on intravenous steroids to decrease inflammation and empiric antibiotics for possible post-obstructive pneumonia. She underwent bronchoscopy with extensive debulking performed in the anterior and distal trachea where disease involvement had caused luminal narrowing. Biopsies taken of the mass were stained positive with Congo-red and revealed classic apple green birefringence consistent with amyloidosis. The patient's tracheal lumen improved to an approximately 20% stenosis. On her one-month follow-up, the patient had improvement in dyspnea and hoarseness.

**Discussion:** Lower respiratory tract amyloidosis is classified according to site of involvement (tracheobronchial or pulmonary parenchymal) and presence or absence of systemic amyloidosis. Although, approximately 150 cases of tracheobronchial amyloidosis have been reported, less than 20 cases of isolated tracheal involvement present in literature. Isolated tracheal amyloidosis has a variety of manifestations, including dyspnea, cough, dysphagia and hemoptysis and found most commonly in middle-aged males with a 2:1 predilection versus females. Diseases such as pulmonary TB, malignancy, and multiple myeloma need to be ruled out in order to avoid delay in treatment. Definitive diagnosis can be obtained only with bronchoscopy and tissue biopsies. After confirming diagnosis of tracheal amyloidosis, it is of great importance to rule out systemic amyloidosis. Due to the variability of amyloid involvement in the pulmonary system, the treatment for respiratory amyloidosis ranges from observation to bronchoscopic or surgical resection based on severity and symptomatology. Although anti-neoplastic agents (melphalan) along with corticosteroids and colchicine have been successful in patients with systemic amyloidosis, their role in patients with pulmonary involvement is not yet proven. Prognosis of patients with isolated tracheal amyloidosis is variable.

**Title:** When Good Bacteria Go Wrong  
**Authors:** Janki Patel, OMS-3; Jody Ritter, DO, PGY-2; Zuleikha Muzaffarr  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Esophageal perforation is a deadly injury if not treated in a timely manner.

**Case Presentation:**

52 year old HIV- positive male (CD4 count 440) with a PMH of poly-substance abuse, DM type 2, and CKD III who presented with sharp, nonradiating 10/10 back pain for one day. He had associated progressive shortness of breath with cough and diaphoresis. Vitals on initial presentation were 101.8F, 122 bpm, 23 breaths/min, and 118/69 mmHg. On physical exam he was ill appearing, tachycardic and diaphoretic with coarse breath sounds and rhonchi in the right lower lobe. CBC was pertinent for leukocytosis of 22k with 77% neutrophils and a bandemia of 5%. Pan cultures were negative. CT of the chest, abdomen and pelvis revealed a multiloculated right pleural effusion (without any parenchymal lung disease) with collection that seemed to be in connection with the mediastinum. The patient was empirically started on Vancomycin 1g IV BID and Ceftriaxone 1g IV QD.

A diagnostic thoracentesis was performed and a right pigtail catheter was placed which drained minimal clear serous fluid. A 2D Echo was performed for the persistent tachycardia and demonstrated anterior MV leaflet mobile echodensity/vegetation with an EF of 65-70%. The patient's history of recent retching and NBNB emesis with associated back pain led to a suspicion of an esophageal tear with subsequent leakage into the pleura which was confirmed when an esophagram revealed a mediastinal abscess with connection to the esophagus. The patient then had an emergent thoracotomy with decortication and drainage of the abscess. Wound cultures from the abscess grew Group D Strep/Lactobacillus and the patient was initially started on Unasyn 3g IV Q6/Flagyl 500mg PO Q8 which was then modified to a 4 week course including 2 weeks of Unasyn and Fagyl followed by 2 weeks of oral Augmentin and Flagyl to cover for his endocarditis.

**Discussion:**

Our case is a relatively typical presentation of a rare cause of endocarditis. Unlike the typical causes of endocarditis, the most common being Staph aureus, Viridans group strep, Enterococcus, or HACEK species, Lactobacillus and Strep bovis are uncommon etiologies for acute endocarditis. In the literature Strep bovis is not as uncommon as lactobacillus however without colon cancer or recent gastrointestinal surgery there are very few discussed cases. We are attributing the seeding of the heart valve with these rare etiologies to the yogurt that he was served early in his hospital stay. It is assumed that due to his pre-existing esophageal tear a direct route to the mediastinum as well as to the bloodstream was present allowing a transient bacteremia, which likely seeded the valve. If this is the case, this would have been the first iatrogenically caused endocarditis due to Lactobacillus and Strep bovis in the literature.

**Title:** Interventricular Septal Wall Rupture following ST Elevation Myocardial Infarction Without Thrombolytic Use  
**Authors:** Vivak Patel, DO, PGY-2; Daryoosh Derakhshan, DO, PGY-3; Pinal Chokshi, DO, PGY-1  
**Program:** Internal Medicine Residency Program - Palmetto General Hospital

**Introduction:** Acute myocardial infarction is a life-threatening event that requires significant monitoring postinfarction as patients are at high risk for several fatal complications. The most common include arrhythmias, pericarditis, pericardial effusion, postcardiac injury syndrome, left ventricular free wall rupture, mitral regurgitation, and interventricular septal wall rupture. Of these, mechanical complications are the most rare and lethal. Ventricular septal wall rupture (VSR) has an incidence of 1-2% in all acute myocardial infarctions. Patients with VSR face an in-hospital mortality of nearly 45% with surgery and approximately 90% with only medical management. The landmark trial, Global Utilization of Streptokinase and tPA for Occluded Coronary Arteries, (GUSTO), explored the use of thrombolytics in acute MI and also tracked VSR complications. Previous data and data from the GUSTO trial can be extrapolated to conclude the incidence of VSR in patients that do and do not receive thrombolytics; this data is applied to the subsequent case.

**Case Description:** This patient is a 90 year old Hispanic female with PMHx of HTN, NIDDM, hypercholesterolemia, hypothyroidism, and remote smoking history who presented to PGH complaining of nausea, vomiting, and back pain. She also complained of associated SOB. Initial EKG showed acute ST elevations in anterior-lateral leads, without any other remarkable findings on labs. STEMI was diagnosed and she underwent emergent cardiac cath. Intervention performed included balloon angioplasty of a complete occlusion of the proximal LAD, along with placement of 1 drug eluting stent. Close to 24 hours after symptoms onset, she became severely hypotensive with SOB. Physical exam revealed a pansystolic murmur with bilateral wheezing and rales. Through further testing, she was diagnosed with cardiogenic shock requiring multiple vasopressors, and flash pulmonary edema consistent with acute CHF. A stat 2D transthoracic echocardiogram was performed which revealed a dropout on the interventricular septum secondary to a VSD. The decision was made to place an intraaortic balloon pump prior to surgery for hemodynamic stability. However, patient succumbed to her multiple conditions and was pronounced deceased on hospital day 2.

**Discussion:** This case illustrates an interesting finding when considering thrombolytics for STEMI. While they are usually reserved for patients presenting with MI not at a PCI facility and facing increased transport times, data collected from the GUSTO trial shows patients are at an increased risk for VSR formation when undergoing the standard of care. The GUSTO trial showed patients treated with thrombolytics had VSR in 0.2% of cases versus 1-2% incidence in PCI patients. However, onset time of VSR with thrombolytic use is approximately 24 hrs compared to 3-5 days without. While newer trials comparing thrombolytics to PCI do not monitor for VSR complications, PCI remains the standard of care due to improved mortality and reduced reinfarction rates. Future studies comparing thrombolytics vs PCI head on may monitor for VSR and show that thrombolytic use decreases their incidence.

**Title:** The Association between Osteopathic Medical Students' Sex, Professional Career Choice, and Intent to Work with Underserved Patients  
**Authors:** Zaid Rana, OMS-3; Hassan Iqbal, M.S., OMS-3; Arif M. Rana, Ph.D., Ed.S., M.S.; Robin J. Jacobs, Ph.D., M.S.W., M.S.  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Objective:** We explored the association of medical student's sex and choice for future medical practice specialty with intent to work with underserved patients.

**Background:** Fewer medical students are moving into primary care and the retention of physicians in medically underserved communities is declining. While the osteopathic medical school curricula is promotes primary care practice, most medical students desire to be in esteemed specialties.

**Methods:** A cross-sectional, correlational research design was used to determine the association of student's sex and choice of future specialty on intentions to provide care to underserved groups. Data were collected from 239 first-year OMS. Participants completed the Medical Student Attitudes toward the Underserved (MSATU) questionnaire via a pen-and-paper. Chi-square tests were performed using SPSS.

**Results:** Roughly half the sample were men. Chi-square tests showed that higher intentions to work with the underserved was associated with being female,  $\chi^2(1, N = 237) = 12.07, p < .01$ . Also, a relationship between sex and future medical specialty practice choices: women chose pediatrics  $\chi^2(1, N = 237) = 21.1, p < .01$ ; men chose surgical medicine  $\chi^2(1, N = 237) = 5.42, p < .01$ . Choice of pediatrics was associated with more intent to treat the underserved; surgical medicine was associated with less intent.

**Conclusion:** Medical students' sex might influence future career choice and intentions to work in medically underserved communities. Findings from this study could help guide academic programming efforts that encourage all students to pursue primary care medicine in underserved areas where the need is great.

**Title:** An Unusual Case of Leiomyosarcoma: Suspected Splenic Origin  
**Authors:** Meredith Riddle, DO, MS, PGY-3; LaRae Brown, MD  
**Program:** Family Medicine Residency Program - St. Vincent's Medical Center

**Introduction:** Leiomyosarcomas are rare, aggressive malignant tumors that originate in the smooth muscle of any organ. Leiomyosarcomas account for 10-20% of soft tissue sarcomas and most often affect adult females. They primarily arise from the stomach, small intestine and retroperitoneal organs such as the uterus. Splenic origin of this malignancy is extremely rare, with literature review revealing only two cases in the past 15 years. The tumors are often present for extended periods of time before producing symptoms. Unfortunately, this commonly leads to a late diagnosis and poor prognosis. If there are no metastases, surgery can be attempted. With advanced disease, patients are managed with chemotherapy, radiation or palliative measures.

**Case Description:** An 80 year-old previously independent African American female presented to the ED with weakness, decreased appetite and LUQ abdominal pain for 3 weeks. She also lost 13 pounds in the previous month. Initial workup revealed severe anemia and mild leukocytosis. An abdominal CT scan showed a large mass in the LUQ measuring 20.1 x 10.5 x 17.9 cm. It was noted to “completely obliterate the spleen, pancreas and left adrenal gland.” It had mixed densities, most consistent with internal hemorrhage of the mass. Among other findings, the tumor surrounded the splenic artery, the superior mesenteric artery and vein and caused significant mass effect on the stomach. There was no evidence of disease in the pelvis, most specifically the uterus was unremarkable. Additional laboratory studies to classify the tumor were all within normal limits: CEA, 19.9, bilirubin, LFTs and peripheral blood smear. A biopsy of the mass ultimately revealed the diagnosis of leiomyosarcoma. Oncology and surgery were consulted, but due to the extensive spread and the unresectable nature of the tumor, the patient decided to pursue home hospice with outpatient oncology follow-up.

Unfortunately, 3 weeks after her initial presentation the patient returned to the hospital after being found unresponsive by home hospice. She was noted to be in SIRS with acute renal failure. A follow-up CT scan of the abdomen revealed metastasis to the liver. The patient’s family chose to transition the patient to inpatient hospice at that time, and it is unknown how long the patient survived after transfer.

**Discussion:** Although most leiomyosarcomas originate in the gastrointestinal tract or retroperitoneally, the case presented has suspected origin in the spleen. Uterine origin was initially assumed, but imaging showed a normal uterus. Stomach and pancreas origin were also considered. However, on imaging the mass did not appear to invade the stomach, but simply pressed upon it. The pancreas was thought to have been obliterated in the initial CT, but the repeat CT noted mass effect on the pancreas as well without invasion. Other markers for pancreatic involvement were normal including CA 19.9 and lipase. Upon further evaluation, the spleen was suspected to be the primary origin of this patient’s leiomyosarcoma. Both CT images showed complete destruction of the organ, which could be consistent with heavy involvement and possible origination. As this patient was not a surgical candidate and quickly became terminal, the suspected splenic origin of her leiomyosarcoma could not be proven but was highly suggestive given the clinical information that was ascertained.

**Title:** Amyloidosis with Cardiac Manifestations: A Pair of Cases and Literature Review  
**Authors:** Jody Ritter, DO, PGY-2; Chelsea Chapkin, DO, PGY-2; Jessica Hughes, DO, PGY-2; Paul Sojo, DO, PGY-2  
**Program:** Internal Medicine Residency Program - Mt. Sinai Medical Center

**Background:** Amyloidosis is a rare disease that results from the accumulation of insoluble, mis-folded proteins known as amyloid proteins. There is much variability amongst clinical presentation of this disease as the type of amyloid and the origin in which these proteins are deposited determines the clinical presentation. In this poster we will describe a case of amyloidosis diagnosed due to the patient's cardiac manifestations and compare this with other cases via a systematic literature review.

**Case 1 Description:** The patient is a 36 year old male with a past medical history significant for hypertension, coronary artery disease, chronic kidney disease, and ischemic cardiomyopathy who presented to our emergency department with moderate intensity, non-radiating, crampy chest pain. Labs drawn in the ER demonstrated a troponin elevation of 0.154 and a normal voltage EKG with no ST deviations. He was started on full dose heparin and aspirin per hospital protocol. The patient was also found to have an elevated BUN to Creatinine ratio of 28:2. A transthoracic echocardiogram (TTE) was performed the following day, and demonstrated a reduced ejection fraction (30%), with dilated cardiomyopathy as well as severe concentric LVH. A cardiac catheterization was performed revealing non-obstructive disease. Due to the TTE findings and the negative LHC a cardiac MRI was performed which demonstrated diffuse concentric left ventricular wall thickening from the base to the apex, up to 2.4cm, with suggestion of diastolic dysfunction. It was also noted that there was incomplete myocardial nulling most pronounced at the lateral wall. These findings along with the patient's history of CKD were suggestive of amyloidosis with cardiac manifestations. The patient underwent a fat pad biopsy and a Congo red stain of that tissue demonstrated apple-red birefringence in polarized light supporting the diagnosis of cardiac amyloidosis. The patient was scheduled for follow up with a cardiologist one week after discharge to follow up results of further testing including Kappa Lambda light chains, and immunofixations.

**Case 2 Description:** The patient is a 78 year old male with a past medical history significant for hypertension, hyperlipidemia, diabetes, and non- ischemic cardiomyopathy with a previous TTE demonstrating an ejection fraction of 25% who presented to our emergency department with progressively worsening exertional dyspnea and abdominal ascities over the past three weeks. In the emergency department an EKG was done which demonstrated no ST elevations and a low voltage pattern (figure 3). He was admitted for a likely heart failure exacerbation and a TTE was performed which demonstrated moderate concentric left ventricular hypertrophy with a preserved ejection fraction of 55-60% with a restrictive LV filling pattern. A cardiac MRI was performed which demonstrated diffuse mild concentric wall thickening up to 1.7cm with suboptimal nulling of the myocardium suggestive of diffuse infiltration. After clinical improvement the patient was discharged with plans for follow up with his PCP and primary cardiologist as an outpatient where he would be scheduled to have an abdominal fat pad biopsy to confirm the diagnosis of amyloidosis.

**Discussion:** Cardiac amyloidosis is an uncommon disease with non-specific symptoms which leads to difficulty in early diagnosis. This increases the importance of identifying the features of the disease history and findings on basic cardiac testing so that there is not delay in the diagnosis and eventual treatment of these patients. We demonstrated two patients that arrived to our hospital with non-specific cardiac symptoms and were diagnosed in a timely manner with cardiac amyloidosis. Our literature review shows that one cannot rely solely on the "pathognomonic" features of cardiac amyloidosis with less than half of the patients in our literature review being described with either "speckled" TEE pattern or low voltage EKG.

**Title:** The Destruction of the Circle of Willis: An Adult Presenting With Moyamoya Syndrome  
**Authors:** Amin Rmeileh, DO, PGY-2; Ariol Labrada, MD  
**Program:** Internal Medicine Residency Program - Palmetto General Hospital

**Introduction:** Moyamoya disease (MMD) is a chronic progressive cerebral arteriopathy that is characterized by bilateral intracranial internal carotid artery (ICA) stenosis.<sup>1, 2</sup> The collateral vessels noted on cerebral angiography give an appearance of a “puff of smoke,” called moyamoya in Japanese. The disease is prevalent in children of Asian descent and is rarely encountered in the U.S.<sup>3</sup> Moyamoya syndrome (MMS) is a variant of this disease process and it usually presents in an idiopathic unilateral fashion.<sup>4</sup> MMS has been identified in adult patients who present with recurrent strokes or transient ischemic attacks (TIAs).<sup>2</sup>

**Case Description:** A 67 year-old Hispanic female with past medical history of TIA was admitted to our hospital for a sudden onset of right sided weakness. She was assessed in the Emergency Department as a “code neuro” and was found to have an initial National Institute of Health Stroke Scale (NIHSS) of 22 for a full left middle cerebral artery (MCA) syndrome. A stat head computed tomography (CT) did not reveal any hemorrhagic findings and she subsequently received intravenous (IV) tissue plasminogen activator (tPA). Due to her fluctuating symptoms she was taken to the interventional suite for cerebral angiography with the intent to treat the underlying stenotic lesion.

Cerebral angiography revealed complete occlusion of the right ICA at its origin and a high-grade stenosis of the supraclinoid segment of the left ICA that measured over 90%. The right MCA was absent and the right anterior cerebral artery (ACA) appeared to fill from the left circulation. The whole right hemisphere filled entirely either from left to right collaterals or from collaterals stemming from the posterior circulation. These posterior collaterals had characteristics resembling a moyamoya pattern. The patient underwent successful recanalization of the left MCA with improved neurologic status.

Follow up magnetic resonance imaging (MRI) without contrast revealed bilateral frontal lobe acute lacunar infarcts. The patient was doing well until she developed melena and hypotension secondary to a bleeding gastric ulcer. Concurrently, her neurologic status deteriorated acutely with the need for intubation and blood pressure support. A repeat MRI without contrast revealed an evolution of the lacunar lesions to large bilateral coalescent cortical infarcts. The patient remained ventilator dependent ultimately receiving tracheostomy and a percutaneous gastrostomy tube.

**Discussion:** This case represents an unusual form of adult moyamoya syndrome in which the patient eventually succumbed to the disease’s natural course. We recommend that medical treatment consist of intensive care unit monitoring and maintenance of blood pressure. Medical therapy has not been found to reverse the natural course of this disease process; however, early recognition and surgical referral has been proven to be the cornerstone for a definite treatment.<sup>5</sup>

**Title:** Flakka Induced Psychosis in Adolescents – A Case Report  
**Authors:** Vanderbilt W. Robison, DO, PGY-1; Stephen Moskowitz, MD  
**Program:** Psychiatry Residency Program - University Hospital, PBCGME

Flakka is a newly developed designer drug that is gaining popularity among drug users across the country due to the low cost, lack of drug testing, and ability to easily obtain. It is a drug that causes a similar high to crystal meth or PCP. Users can experience super-human strength and feelings of euphoria while using the drug. It is a stimulant with the active ingredient alpha-PVP, which is a labeled schedule I drug by the DEA in 2014. Alpha-PVP is a chemical cousin to cathinone, an amphetamine-like chemical found in bath salts. The drug can be inhaled, snorted, and orally ingested. The drug's adverse psychotic effects have become more prevalent within emergency departments across the country but it has rarely been seen among adolescent populations. There is no urine drug test currently for flakka, making it difficult to detect. It has been found that users will possess an elevated creatine kinase level.

This case report examines a 17-year-old biracial female with no previous psychiatric history that presented voluntarily with her mother to Northwest Medical Center following several days of bizarre, unusual, and aggressive behavior at home by the patient. Per mother's report, the patient is an honor role student, taking advanced courses in high school that has no previous psychiatric history. At the time of presentation, the patient was not oriented to time or place. It was unknown at this time of her recent Flakka ingestion. The patient had a complete lab work-up completed as well as CT-brain in order to rule out organic causes of psychosis. An elevated creatine kinase level was noted, suggesting possible flakka use; however this is typically rare for the adolescent population. She was placed under Baker Act and transferred into the care of UHMC Pavilion. Standard care for adolescents with psychosis was initiated. As the patient's condition improved she revealed that a friend at school has been encouraging her to try flakka. She stated that during lunch her friend put flakka into her food at which point she began to feel unusual and was unable to recall the events that occurred after this. During the patient's stay, she became sexually and religiously preoccupied as well as possessing aggressive behavior. The patient has stabilized over the course of a week and was discharged home but returned within 24 hours voluntarily once again by her mother because of illogical and bizarre behavior by the patient. Antipsychotic medication was changed and improvement in behavior and psychosis was quickly noted. Upon her second hospitalization the patient elicited to a potential history of bipolar disorder which further complicated the patient's already unusual case. She expressed having numerous occasions where she was up for 3-4 nights without sleep, participating in hypersexual and impulsive activity. At this time the patient appeared severely depressed possessing several depressive mood symptoms. Her treatment course was directed towards this new discovery, and medication to treat her mood disorder was added to her medication agenda. The patient became psychiatrically stable and was discharged home.

Flakka induced psychosis is becoming more common within psychiatric inpatient units, but remains a rarity among the adolescent population. A high-index of suspicion must be used even in the pediatric population. As acute use of antipsychotic medication is the standard of care in adult flakka induced psychosis, this can be difficult in the adolescent population as not all antipsychotics have been approved for pediatric use; therefore further investigation of the effects of flakka in this population needs to be conducted.

**Title:** An Unexpected Presentation of Sclerosing Mucoepidermoid Thyroid Carcinoma with Eosinophilia  
**Authors:** Adam L. Rosenblum, OMS-3; Shawn J. Sethi, OMS-3; Monica Shah, OMS-3  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Sclerosing mucoepidermoid carcinoma of the thyroid with eosinophilia (SMECE) is a rare Mucoepidermoid Carcinoma (MEC) reported in roughly fifty published cases. The neoplasm presents predominantly in females (17 ♀: 1 ♂) with established Hashimoto's Thyroiditis. SMECE tumors histologically demonstrate variably keratinized squamous hyperplasia and mucin accumulation, against a background of eosinophilic infiltration and sclerosed stroma. CK19 and galectin 3 tumor markers indicate ultimobranchial body derivation, while a positive p63 protein indicates malignancy. Additional testing indicates thyroglobulin positive and calcitonin negative results. Metastases extend to the pharynx, adjacent lymph nodes, the trachea, and the esophagus. Tumor aggressiveness is variable, lacking a literature consensus, mandating close patient follow-ups with shortened imaging schedules to prevent metastasis.

**Case Description:** A 64-year-old, Caucasian male presented with a left thyroid mass on physical exam. The left lobular mass measured 5.2cm x 2.7cm x 3cm on ultrasound. Additional ultrasound findings included a 1cm x 0.6cm x 0.9cm right lobular thyroid nodule, and prominent cervical lymph nodes. Medical history was positive for controlled chronic obstructive pulmonary disease, renal cell carcinoma in remission, and controlled Hashimoto's Thyroiditis. Past surgical history was positive for nephrectomy in 2012. Review of systems was negative and the family history and social history was noncontributory. Medications included DuoNeb, Percocet, Levothyroxine, Proair, and Advair. Physical exam demonstrated an awake, aware, oriented patient in no apparent distress. Vital signs, including BP, HR, RR, and Temperature, were stable and within normal limits. The remaining physical exam was normal. The patient underwent left total thyroidectomy and right subtotal thyroidectomy with intraoperative recurrent laryngeal nerve monitoring. The left lobe mass, right lobe nodule, and three adjacent lymph nodes were excised for frozen section biopsy. Lymph node histology demonstrated benign reactivity. Right lobe nodule histology demonstrated "florid" Hashimoto's Thyroiditis. Left lobe mass histology demonstrated sclerosed stroma, mucinous, keratinized squamous hyperplasia, and eosinophilic infiltration, consistent with a SMECE diagnosis. The tumor did not extend beyond the thyroid gland and no vascular invasion was identified.

**Discussion:** SMECE is a rare presentation of thyroid malignancy. Though surgical excision is the definite curative treatment, its growth pattern is unpredictable when compared to common forms of thyroid cancer. Health care professionals are encouraged to be familiar with SMECE, how it differs from other thyroid cancers, and how it differs from other thyroid cancers, and screen patients with longstanding Hashimoto's Thyroiditis accordingly to ensure that malignant transformation is identified before metastatic disease develops.

**Title:** A bad colon cleanse  
**Authors:** Joseph Sarbu, PGY-3; Stephen Graves Fromang, DO; Thomas Matese, DO  
**Program:** Emergency Medicine Residency Program - St. Lucie Medical Center, PBCGME

**Introduction:** Cerebral edema with tonsillar herniation and seizure is probably the last thing anyone would think of when it comes to colon cleansing herbal supplements, but unfortunately, that is exactly what happened in this case. Cerebral edema can occur for any number of reasons, one of which is hyponatremia. Approximately 30% of all hospitalized patients experience hyponatremia, with increasing mortality as the sodium level falls further below 135meq/L. As the sodium level in the blood decreases, water moves out of the vasculature and into the tissues where the concentration of sodium is greater. When this occurs within the brain it causes cerebral edema, which eventually leads to seizures, altered mentation, and ultimately herniation. Unfortunately, that is exactly what happened in the following case report.

**Case Description:** A 33yo female presented to the emergency department by private vehicle for vomiting and decreased responsiveness. She was altered and had vomit all over the front of her shirt. Her husband was in the corner of the room with a large bag of herbal supplements stating “she has been taking this stuff to cleanse her colon”, and reported that the patient had been having diarrhea for the past week and vomiting multiple times for the past few hours. The patient remained stuporous with GCS of 12 but was protecting her airway and was stable. She was given 1L NS bolus with Zofran for vomiting, and appeared to be more comfortable with some improvement in mentation. A short time later the lab called with an abnormal sodium of 120, at which point, the patient began seizing. The patient was given Ativan, and hypertonic saline was ordered from the pharmacy. I quickly intubated the patient to protect her airway, and hypertonic saline was started. Once the patient was stabilized, a CT scan of the brain was done which showed “caudal displacement of the cerebellar tonsils through the foramen magnum with cerebral edema”. After conferring with nephrology on call, the patient was given Mannitol for the cerebral edema along with continued hypertonic saline at 30ml/hr. She was later transferred to the ICU for continued care. The sodium level was slowly normalized and the patient was successfully extubated 3 days later. Luckily, she did not have any neurologic deficits and was discharged home. The patient’s husband later sent us a thank you card and informed us that the patient was doing well, and was completely back to normal a few weeks after discharge.

**Discussion:** A common cause of hypotonic hypovolemic hyponatremia is profuse vomiting and diarrhea, which is exactly what this patient had. As a result of volume depletion, the patient increased her oral intake of water, which worsened the dilution effect on the serum sodium and caused an acute drop in her sodium level. Unfortunately the hyponatremia caused cerebral edema with subsequent seizure and tonsillar herniation. Amazingly, she was extubated and walked out of the hospital three days later neurologically intact. And to think that all of this was because of a bad colon cleanse...

**Title:** A case of oral candidiasis and erythema multiforme in an immunocompetent male  
**Authors:** Nuzhat Sayyida, OMS-3; Nicole Ross, OMS-3  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Erythema Multiforme (EM) is an acute self limited, mild and recurrent mucocutaneous syndrome. It is most commonly associated with HSV infection and mycoplasma pneumonia infections. It is diagnosed by its clinical characteristics including targetoid-shaped plaques with or without central blistering, occurring on the face an extensor surfaces. EM most frequently affects adolescent and teen males and is recurrent in 30% of cases. There are four distinct subtypes of erythema multiforme including erythema multiforme minor, which excludes mucous membranes, erythema multiforme major, which includes mucous membranes, herpes associated erythema mutiforme and mucosal erythema multiforme, which does not include cutaneous lesions. Knowledge about EM is very limited and diagnostic criteria and guidelines are not universally in accordance. Diagnosis is thus made as diagnosis of exclusion and clinical history.

**Case Description:** 33 y/o otherwise healthy, Spanish speaking male landscaper presented to the ED with dysphagia, oral lesions and a diffuse, painful, pruritic rash on his B/L upper and lower extremities, genitals, and abdomen for 3 days. He reported spontaneous bleeding from his oral lesions, subjective fever, productive cough with a blood-tinged yellow sputum, dysuria, and night sweats. He denied any recent travel, ill contacts, any immunodeficiency of which he was aware, history of STDs and reported vaccines were current. On admission he was febrile, remaining vital signs were stable. Examination was significant for multiple small erythematous lesions, 0.5-1cm in diameter. They appeared flat, circular and blanching with central scabbing and were present on the B/L upper and lower extremities, abdomen, penis and testicles. The palms and soles were devoid of these lesions. Purulent discharge was present in the right eye. Oral mucosa was positive for thrush and bled on examination, the pharynx was markedly inflamed with exudate. There was a solitary white hypo-pigmented, raised lesion present on the right buccal mucosa. There was no cervical or supraclavicular lymphadenopathy. The remainder of the exam was unremarkable. Labs revealed a leukocytosis and thrombocytosis. CXR was negative. He was admitted, and further work-up including a viral respiratory panel, HIV screen, gonococcal and chlamydial probes, and rapid strep were negative. Following consultation with dermatology and infectious diseases, he was started on IV fluconazole and acyclovir with subsequent improvement in his symptoms.

**Discussion:** Erythema multiforme is a self-limited, mucocutaneous condition, most commonly associated with HSV infection. It is classified as a type IV hypersensitivity reaction, more commonly seen in males in the 3<sup>rd</sup> to 4<sup>th</sup> decades. In this case, we had an immunocompetent male with a questionable vaccine status that presented with atypical cutaneous lesions and thrush. Given his history and presentation, our initial impression was that the lesions were related to either a state of immunodeficiency, a viral exanthem, or a cutaneous manifestation of an STD or autoimmune disease. However, following systematic exclusion of the above, and a dermatologic consult, he was diagnosed with and treated for erythema multiforme and oral candidiasis. There are no routine laboratory or imaging studies that are used to make the diagnosis of erythema multiforme. As in this case, the diagnosis is typically made based on the presence of the pathognomonic targetoid lesions or the exclusion of other possible causes of the mucocutaneous lesions.

**Title:** Emphysematous Cholecystitis: A Case Report  
**Authors:** Jonathan D Settle, DO, PGY-3  
**Program:** Family Medicine Residency Program - St. Petersburg General Hospital

**Introduction:** Emphysematous cholecystitis is a rare variant of acute cholecystitis; most commonly affecting elderly diabetic males. Patients often present similarly to those with uncomplicated acute cholecystitis, making the two difficult to distinguish. This patient did not present with typical symptoms for gallbladder pathology, thus making the diagnosis especially challenging. Diagnosis is made when imaging demonstrates intraluminal or intramural gallbladder gas, with CT being the most sensitive modality for these findings. Gas producing anaerobes are the microorganisms most often responsible and can cause complications; gangrene of the gallbladder and septic shock, both of which were seen in this patient. Emergent surgery and prompt administration of intravenous antibiotics are important aspects of management to reduce mortality.

**Case Description:** A 78 year old previously healthy male presented to the hospital via Emergency Medical Services (EMS) complaining of generalized weakness and a four-day history of copious diarrhea. The patient denied fever or abdominal pain, but called EMS because he was too weak to get out of bed. Initial vital signs were within normal limits, except a pulse of 101. There was no significant abdominal tenderness on exam. Laboratory evaluation was significant for an elevated WBC of 21 with a left shift and a procalcitonin of 4.88. An abdominal xray revealed a 12 cm colonic dilation. Subsequent abdominal CT showed gallbladder dilation and gas within the gallbladder wall. The patient was started on IV Piperacillin/Tazobactam and had an emergent cholecystectomy with a gangrenous gallbladder removed. Fluid cultures were positive for *Clostridium perfringens*. Post operatively the patient was transferred to the ICU and later developed septic shock. After a ten-day course of intravenous antibiotics the patient made a full recovery and was discharged home.

**Discussion:** Multiple case reports have been published on emphysematous cholecystitis with classic presentations for gallbladder pathology. This patient had an atypical presentation. Apart from age and gender, he had no predisposing factors for the disease. This case demonstrates the importance of administering early antibiotic therapy and having a broad differential during the evaluation of an ill appearing patient.

**Title:** Rapid Development of Autoimmune Diabetes After Initiation of Anti-PD-1 Therapy: A Case Report  
**Authors:** Muneeb Shah, OMS-3; Rehan Feroz, OMS-3; Kevin Donohue, DO PGY-1  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Programmed death protein 1 (PD-1) is a receptor on immune cells that serves as an immune checkpoint and plays an important role in preventing the activation of T-lymphocytes. Malignant cells are known to activate this receptor, allowing them to evade immune surveillance. Programmed death 1 immune-checkpoint inhibitor antibodies (anti-PD-1), such as nivolumab, act to revamp the immune response against tumor cells by preventing activation of this PD-1 receptor. This dysregulation of the immune system has been proven to be beneficial in the treatment of advanced cancers but can potentially precipitate life-threatening autoimmune conditions. We report a case of rapidly developing autoimmune diabetes within 2-weeks of beginning treatment with nivolumab.

**Case Description:** A 77-year-old Caucasian woman presented to the emergency room complaining of abdominal pain and progressive weakness. Her symptoms started one-week prior with fatigue, lightheadedness, polyuria, and polydipsia. Initial laboratory testing showed a blood glucose of 504 mg/dL, beta-hydroxybutyric acid of 3.5 mMoles/L, hemoglobin A1c (HbA1c) of 10.2%, and elevated lipase. She denied any previous personal or family history of diabetes. HbA1c on record from one-year prior was 5.6%. She was diagnosed with new onset insulin-dependent diabetes and diabetic ketoacidosis treatment protocol was initiated. Further questioning revealed that the patient began treatment with anti-PD-1 agent, nivolumab, for stage IV squamous cell lung cancer 10-days before presenting to the hospital. C-peptide levels were inappropriately low in response to her blood glucose levels and continued to downtrend despite persistent hyperglycemia. She was discharged from the hospital on a long-acting insulin with additional prandial control. She continues to receive nivolumab infusions every two weeks but remains insulin-dependent at this time.

**Discussion:** Nivolumab was first approved by the Food and Drug Administration (FDA) for the treatment of advanced melanoma in December of 2014 and received expanded approval for the treatment of non-small cell lung cancer (NSCLC) in March of 2015. The use of anti-PD-1 medications in the treatment of malignancies is becoming more common among clinicians and preliminary trials continue to show improved overall survival using these medications. Although a single case of diabetes was reported as a side effect to nivolumab therapy during initial clinical trials, an autoimmune mechanism was not elucidated until recently. Since their introduction to the market, seven cases of autoimmune diabetes due to anti-PD-1 therapy have been documented. A recent study suggests a relationship between the HLA-A2 and HLA-DR4 haplotypes and susceptibility to autoimmune diabetes after starting anti-PD-1 therapy. Due to lack of prescriber awareness, many cases likely go undocumented or misdiagnosed. It is important to recognize this side effect once it occurs in order to initiate proper hormone replacement and monitor for other organ systems becoming subsequently affected, as development of autoimmune thyroiditis and adrenalitis has been identified in select patients. While considering the risk-benefit ratio, clinicians must be made aware of the possible autoimmune side effects of these medications, screen patients for susceptibility, and routinely monitor for adverse events.

**Title:** Skin Water Changes Induced by Local Heating  
**Authors:** Anita Singh, OMS-2; Kevin Rechcigl, OMS2; Shalaka Akolkar, OMS-3; Harvey Mayrovitz, PhD  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Background:** Skin water content and distribution are important determinants of skin physiology and are affected by multiple dermatological and cardiovascular conditions. Early water increases may herald later edema and low values may portend reduced skin integrity. Although little is known about acute skin water dynamic changes we speculated that localized heat induced vasodilation increases capillary filtration causing increased interstitial fluid that is measurable as an increase in skin water. Based on this concept, we hypothesized that there should be a significant positive correlation between skin water parameters and the magnitude of hyperemic blood flow.

**Objective:** Our goal was to test this hypothesis by assessing skin water changes subsequent to localized hyperemia that is used as a model of early skin water changes.

**Methods:** All data is expressed as mean  $\pm$  SD. Skin water was assessed by stratum corneum (SC) capacitance and by tissue dielectric constant measurements (TDC) at 300 MHz to skin depths of 1.5 mm (TDC15) and 2.5 mm (TDC25) on forearm skin of 32 healthy subjects ( $24.8 \pm 1.7$  years, 16 female) before and after localized skin heating from a baseline of  $29.5 \pm 1.2^\circ\text{C}$  to  $39.0 \pm 2.7^\circ\text{C}$  for 12 minutes. Skin water loss was determined prior to and after heating by transepidermal water loss (TEWL) measurements. Hyperemia was assessed by laser Doppler blood perfusion (LDP) in perfusion units (pu) before and during heating. Skin temperature (TSK) was assessed via IR. All subjects signed IRB approved consents. Preheat TDC values for males were greater than for females ( $p < 0.001$ ) at 1.5 mm ( $32.5 \pm 2.3$  vs.  $28.7 \pm 2.6$ ) and at 2.5 mm ( $30.5 \pm 3.2$  vs.  $25.5 \pm 2.1$ ) with no significant difference in any other parameter.

**Results:** Immediate post-heat peak perfusion assessed via LDP measurements increased from a baseline ( $35^\circ\text{C}$ ) value of  $2.8 \pm 1.6$  pu to  $23.6 \pm 9.7$  pu. The hyperemia ratio ( $10.5 \pm 6.3$ ) was accompanied by significant ( $p < 0.001$ ) increases in all measured skin parameters with the following post-heat/pre-heat ratios; TEWL ( $4.3 \pm 2.4$ ), SC ( $9.0 \pm 11.0$ ), and TDC25 ( $1.10 \pm 0.11$ ) and TDC15 ( $1.08 \pm 0.07$ ). Male pre-and-post heating TDC values were significantly greater ( $p < 0.01$ ) than female values but all other skin parameters and changes were similar between genders. After an initial post-heat peak, skin water parameters declined but remained above baseline ( $p < 0.001$ ) for at least 15 minutes after heat removal. Regression analysis of post-heat data showed significant correlations between SC and TEWL ( $r = 0.516$ ,  $p = 0.002$ ), LDP and TSK ( $r = 0.585$ ,  $p < 0.001$ ). A moderate correlation between post-to-pre heat ratios of TDC25 and LDP values was also observed ( $r = 0.366$ ,  $p = 0.04$ ) but there was no other significant relationship between the hyperemic response magnitude and any other measured skin water parameter.

**Conclusion:** Although the present results show major changes in skin water parameters accompanying heat-induced hyperemia and a small correlation between the hyperemia and the 2.5 mm depth TDC value, the absence of a significant correlation between the hyperemia and the other skin water parameter causes us to tentatively reject our initial hypothesis and conclude that processes associated with altering skin water parameters are not importantly dependent on heat-induced vasodilation in healthy young adults. However, the role of vascular components in this process in aged persons and persons with compromised circulations should not be ruled out. These possibilities represent areas needing further investigation that will be aided by using the present data for reference comparisons.

**Title:** Livedoid Vasculopathy: Fascinating Cutaneous Manifestations  
**Authors:** Kathryn Smith, DO, MPH, PGY-1; Jurate Duffy, MD  
**Program:** Family Medicine Residency Program - St. Lucie Medical Center, PBCGME

**Introduction:** Livedoid vasculopathy is a rare thrombo-occlusive disorder of the cutaneous microvasculature. It most often presents in females in the fifth decade of life and is characterized by a triad of clinical manifestations: livedo racemosa of the skin, episodic painful ulcerations most often of the distal lower extremities, and a process of healing and scars known as atrophie blanche. The exact underlying mechanism for the disorder is not entirely known but it has been associated with other conditions such as hyperhomocysteinemia, protein C deficiency and factor V Leiden mutation, which can all further add to its clinical manifestations.

**Case Description:** A 69-year-old female presented to the Emergency Department with bilateral leg and left foot pain resulting from extensive ulcerations and atrophie blanche of the both the left and right lower extremities. Her history is significant for livedo vasculitis, diagnosed on pathology after a debridement of her left lower extremity two months prior to presentation. On physical examination the patient had areas of pearly white rounded plaque-like lesions extending the entirety of the anterolateral portion of the left lower extremity and a similar smaller area on the anterolateral aspect of the right lower extremity. The patient was admitted to the hospital and underwent two separate bilateral debridements of the lower extremities. She was also started on anticoagulation therapy while inpatient and switched to antiplatelet therapy upon discharge.

**Discussion:** Consensus on management of livedoid vasculopathy does not currently exist. Debridement of the dead tissue areas, coupled with long-term anti-thrombosis therapy, is the standard of treatment, since the disorder is thrombo-occlusive, but which anti-thrombotic to choose is highly debatable. There is evidence supporting both the use of antiplatelet agents and anticoagulation in doses similar to those used for deep vein thrombosis; however, the evidence is limited. In this case, anticoagulation with warfarin was chosen in the hospital due the ease of monitoring INR levels inpatient and antiplatelet therapy was chosen outpatient due to unreliable patient follow-up. More research is needed concerning the superior treatment modality, but it is evident that early detection and treatment is imperative in preventing further progression of the cutaneous manifestations of the disorder.

**Title:** A unique presentation of metastatic melanoma appearing ten years after the primary lesion that highlights the usefulness of SOX-10 in identifying melanomas of metastatic origin

**Authors:** Natalie Steinhoff, DO, PGY-2; Gabriela Maloney, DO, PGY-1; Richard Miller, DO, FAOCD

**Program:** Dermatology Residency Program - Largo Medical Center

**Introduction:** Melanoma is the most common cancer in adults 25-29 years old and the rates are increasing faster in young women 15-29 years old compared to men of the same age. Risk factors consist of sun exposure, family and/or personal history, multiple nevi, skin type and immunosuppression. Metastatic melanoma has a 15-20% 5-year survival rate. The clinical presentation and histopathology may vary and may make diagnosis difficult. In this instance, immunohistochemical markers can lend significant help in identifying metastatic melanoma.

**Case Report:** A 45 year old female with a past medical history of melanoma on the right triceps treated with Mohs and skin graft, and one year of interferon therapy in 2005 presented with an enlarging right upper quadrant cutaneous nodule. The lesion appeared approximately one month prior and there were no inciting events prior to the appearance of the nodule. The patient had no systemic symptoms, pain, pruritus, perilesional ecchymosis or bleeding. The lesion was bullous, violaceous, and measured 5x5x3cm. A CT scan of the abdomen was performed and demonstrated a 5.8 x 6.2 cm lesion with well-defined and enhancing rims in the skin and subcutaneous fat of the upper right abdominal wall, appearing to minimally infiltrate the underlying rectus abdominus musculature without intraperitoneal communication. After surgical excision, the lesion was found to have an abnormal appearing capsule and was sent to pathology for further evaluation. Preliminary pathological findings were consistent with invasive high grade undifferentiated malignant neoplasm. Further immunohistochemical testing revealed that the tumor cells were positive for SOX-10, Vimentin, EMA, Ki-67, and negative for Mart1, HMB45, Pancytokeratin, Desmin, smooth muscle actin, CD31, CD34, ERG and tyrosinase. Given the clinical history, the morphologic and immunophenotypic findings were found consistent with malignant melanoma of metastatic origin. Further testing revealed positivity for BRAF VE1 and BRAF V600E, further confirming the diagnosis.

**Discussion/Conclusion:** A variety of immunohistochemical markers that help characterize malignant melanoma of metastatic origin now exist. This is a unique presentation of metastatic melanoma that appeared ten years after the primary lesion was treated with Mohs and interferon therapy. Even though the lesion appeared vascular in nature, both clinically and surgically, the positivity for the SOX-10 marker and the clinical history helped hone the diagnosis of malignant melanoma of metastatic origin.

**Title:** Colon Cancer in a 47-Year Old Female  
**Authors:** William Tate, DO, CPA, PGY-3  
**Program:** Family Medicine Residency Program - St. Lucie Medical Center, PBCGME

**Introduction:** This case represents a common complaint, particularly in pre-menopausal females. Normally, the workup is rather benign and the outcomes uneventful. This patient received no workup at her initial presentation however and by the time a proper workup was

**Case Presentation:** This case is a 47 year old Hispanic female who presented to the ED for a chief complaint of anemia on lab-work done at a different facility. The patient had fatigue and “feeling tired” for the last year, but received no workup from her PCP. At one point, with low Hemoglobin on a routine lab, she was sent to a different hospital and received a transfusion of 2 units of PRBC’s. While at this hospital she received no workup for a possible cause of her anemia. She was then discharged. After more time passed without resolution of her fatigue, she sought a different PCP, routine labs again revealed anemia and she was sent to the ED. On Presentation to the ED her vital signs were stable. Routine labwork revealed a hemoglobin of 6.3. The patient was transfused with 3 units PRBC’s and admitted to the hospital. (Repeat hemoglobin the following morning of 11.0).

A CT-abdomen/pelvis obtained in the ED (without contrast) was negative. An FOBT was positive and a GI consult was immediately obtained. A repeat CT-abdomen with contrast showed an irregular mass within the cecum suspicious for neoplasm. The patient was prepped for a colonoscopy and EGD the following morning. During colonoscopy a large friable ulcerated mass was found in the cecum eroding through the cecal valve and penetrating the wall of the colon suspicious for malignancy.

The patient was prepared for surgery and received an open laparotomy with R hemi-colectomy with side-to-side anastomosis. Post-operatively, the patient did well with only mild abdominal pain (incisional) and no other complaints. Initial Pathology reported Invasive Colonic Adenocarcinoma. Final Pathology revealed Invasive Adenocarcinoma pT3 N2a tumor invades through muscularis propia, 6 of 14 lymph nodes positive. Patient is to follow up as outpatient with oncology for adjuvant therapy.

**Discussion:** This case represents a serious outcome for an otherwise healthy individual and illustrates how easily anemia can be overlooked, particularly in pre-menopausal females. Colorectal cancer is the third-most common cancer in men and women and the second leading cause of cancer deaths in the United States. The incidence and mortality rate of this disease has been steadily declining over the last two decades as routine colon cancer screening has become more common.

**Title:** Cuckoo for flakka puffs  
**Authors:** Rege Turner, DO, PGY-3; Thomas Matese, DO  
**Program:** Emergency Medicine Residency Program - St. Lucie Medical Center, PBCGME

**Introduction:** An emerging synthetic drug, known as "flakka" is beginning to sweep South Florida. This drug, also known as "gravel or flocka" is an inexpensive synthetic drug akin to bath salts. Users typically describe a feeling of euphoria, energy, and adrenaline but often times will also experience "excited delirium". This excited delirium is usually what will lead the patient to a hospital or an emergency department near you, as patients can experience extreme paranoia, delirium with vivid hallucinations, and an aggressive/violent behavior. Most users can find the drug for less than \$5 and even purchase it at gas stations or over the internet. There have been reports of users ripping off clothes and running in streets, attacking random individuals, or even attacking cars on the highway. Often times, the diagnosis of flakka ingestion is not made until after the patient sobers up and is able to tell you what they took. If healthcare providers are more knowledgeable to flakka's increasing popularity (especially in South Florida), clinical presentation, and dangers, they can recognize the diagnosis and treat faster, leading to more favorable outcomes.

**Case Description:** In our patient's case, he believed he was a chicken being chased by wolves. Unfortunately, the patient was driving a car during this hallucination, which eventually led to a two-car collision. The patient attempted to flee the scene, but was restrained by witnesses to the accident and eventually handcuffed by police. On arrival to the ED, performing an adequate primary and secondary survey was complicated by his aggressive behavior, his loud "clucking", and his multiple efforts to bite the ED staff.

Despite the entertaining stories you might gain from a flakka patient, it is important to realize the dangers that can arise including hyperthermia, rhabdomyolysis, and being at an increased risk for MI and CVA. This patient's course was complicated by his motor vehicle accident and the need to determine if his encephalopathy was simply secondary to drug ingestion, or if he suffered traumatic brain injury, or if he was in the beginning stages of hemorrhagic shock. The patient's course and treatment will be described in detail in the poster presentation.

**Discussion:** Treatment is typically aimed at controlling body temperature, protecting the patient and your staff, monitoring for rhabdomyolysis, aggressive IVF management, and assessing for any secondary injury sustained during the "excited delirium" phase. There is also little known about the long term effects of flakka and many rehab centers across South Florida are still trying to figure out exactly how to approach detox for these patients. Often times, the diagnosis will be missed on initial presentation, but knowing how flakka users present and how to manage them, can make the difference between that patient being a flying chicken....or a fried chicken.

**Title:** Inoperable Tetralogy of Fallot in a 9 year old Panamanian male living with irreversible compensations  
**Authors:** Ashley Van Putten, OMS-2; Kristina Gemayel, OMS-2  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** In 2011 the Children's Heart Center of Nevada joined forces with World Pediatric Project in order to develop pediatric cardiac services in Panama. Congenital heart defects are among the most common birth defects, and in Panama it is estimated that over 400 children are born every year with potentially fatal heart malformations. Over the years, the doctors from the U.S. continue to see cases in Panama that they have not seen in America. Children with heart malformations in Panama usually are not treated until they are at least three months old due to the tremendous costs and the long waiting list, which often leads to many other complications.

**Case Presentation:** We present a case of a 9 year-old male with a past medical history of Tetralogy of Fallot with a right aortic arch, discontinuous pulmonary arteries, and a double chamber right ventricle. The patient underwent surgery in the summer of 2010 for a Tetralogy of Fallot repair, in which the discontinuous pulmonary arteries were found. A vessel from the ascending aorta was ligated. In post-op, the patient's recovery required beta-blockers due to infundibular pulmonary stenosis or obstruction of outflow from the right ventricle within the body of the right ventricle. Although ventricular septal defects normally create a left to right shunt the pressure in this patient's pulmonary circuit have exceeded systemic pressures. This patient presents with Eisenmenger syndrome where there has been a reversal of blood flow from the right side of the circulation to the left side. The patient presents with slight cyanosis, and clubbing. He is active and plays sports, stating the need to squat down whenever he feels short of breath to help with blood flow. The patient has been currently doing well with oxygen saturations in the high 80's to low 90's. In the summer of 2015, the patient underwent cardiac catheterization to be assessed for possible follow up surgery. Cardiac catheterization showed that there is a ridge of tissue within the patient's right ventricle that represents right ventricular outflow stenosis and also creates a right ventricular double chamber. Arterial pressure evaluations showed the right pulmonary artery from the main pulmonary artery have pressures within normal limits. However, due to the patient's anatomical congenital malformation, the left pulmonary artery is coming off of the descending aorta and has systemic pressures. The surgeons did not elect this patient for surgery due to the uncertainty of reversibility of the vessel architecture, and long-term stability of the patient.

**Discussion:** This case illustrates the importance of early intervention in patients with congenital cardiac abnormalities to prevent the formation of irreversible compensations, and to ensure the optimal patient outcome and function.

**Title:** The Use of an Unna Boot to Heal a Skin Ulcer as an Alternate to a Skin Graft.  
**Authors:** Irina Volosko, OMS-3; Elizabeth Mukherjee, MS-3; Paul S. Glassman, DO  
**Program:** Nova Southeastern University College of Osteopathic Medicine

Considering the variety of options available, management of skin ulcers, especially in the lower extremity, is still challenging due to inflammation, infection and reactive edema. In healing of lesions associated with venous stasis ulcers and burn sites, Unna's boot, wrap bandage impregnated with both calamine and zinc oxide, has been used to increase blood flow to the area and facilitate healing. When area of skin loss is too big to be closed using local skin and stitches alone, skin grafts have been a commonly employed method for a treatment of wounds. A novel approach in using Unna's boot for lesions other than venous stasis ulcers or burn sites has yielded substantial results in a patient that was a good candidate for skin graft, but who never received one.

We present a case of a 75 year old Haitian male, who came into the hospital because of a left lower leg lesion that has been getting worse. The patient is a poor historian as to a detailed timeline, however, he recalls a stone hitting his leg when a car was passing by him on gravel, almost seven months before he sought assistance for the growing lesion. When he came into emergency room, the lesion had grown and become tender and foul smelling. On admission to the hospital the lesion was described as round hard mass, with a superficial skin covering, about 6 cm x 4 cm on the medial aspect of the left lower extremity adjacent to the distal tibia. Pathology showed organized hematoma, with calcifications. As per the hospital note, a split-thickness skin graft would be needed after an excision. However, the patient never followed up to get the graft. The patient was seen as an outpatient at a private family practice office. The size of the initial wound was 8 cm x 6 cm, 24 cm<sup>2</sup>, and it was located on the left distal shin.

At the initial visit the wound was cleaned with hydrogen peroxide, and the Unna boot zinc oxide wrap was applied. The patient was seen weekly for wound debridement and to change the Unna boot. He received 12 treatments. The ulcer appeared well moisturized without any signs of infection. The weekly treatment was tolerated well, and the patient was able to perform activities of daily living.

Even though grafts are often utilized to permanently replace damaged or missing skin, multiple factors play a role in skin graft healing, such as graft size, location, age of the patient, immune status, BMI and other factors, and on average can take couple months. Graft failure is also commonly seen due insufficient vascularity, infections, and other factors with skin grafts in lower limbs having even greater failure rates. Lastly, skin grafts can be expensive, and heavily relies on patient compliance.

Unna boot has been previously used to facilitate the healing of a skin graft, with up to 95% success rate. Unna boot serves a compressive purpose as well as having occlusive properties, keeping the surface moist, and allowing for a better rate of re-epithelization, keratinocyte migration, and growth factor proliferation of granulation tissue, and a reduced inflammation phase. Zinc oxide has shown to promote wound healing, decreasing wound debris, and increasing epithelialization, by preferentially accumulating in mitotically active keratinocytes and up regulating intracellular mitogenic signaling, while possessing antimicrobial properties.

Use of Unna boot significantly improved healing process, and minimized wound care; it is easy to use, and this method is very cost effective, with Unna's boots' prices well below \$10 per treatment. The lifestyle adjustments are minor, and our patient's experience was very positive, experiencing less pain, less manipulation of the wound, thus decreasing the chance of infection. Lastly it utilizes the principle that our bodies are capable of self-healing, following closely with the four principles of Osteopathic medicine.

**Title:** An Unusual Duo: Cardiac Anomalies in a Patient with Niemann Pick Type A  
**Authors:** Chelsea Wells OMS-4, Patricia Camino OMS-3, Ashley Van Putten OMS-2  
**Program:** Nova Southeastern University College of Osteopathic Medicine

**Introduction:** Niemann-Pick disease is a rare autosomal recessive metabolic disorder caused by deficiency in the enzyme acid sphingomyelinase, which leads to accumulation of sphingomyelin in lysosomes. The overall prevalence of acid sphingomyelinase deficiency (types A and B combined) is estimated to be 1:250,000. Patients often present within the first few months of life with hepatosplenomegaly, feeding difficulties, and loss of early motor skills. Storage of sphingomyelin in pulmonary macrophages leads to interstitial lung disease, frequent respiratory infections, as seen in our patient, and often to respiratory failure. Loss of neurologic function is rapid and progressive. Death typically occurs by two to three years of age. Bicuspid aortic valve is a relatively common abnormality. Most children with congenital valvar aortic stenosis (AS), even to moderate degrees, are relatively asymptomatic. Patients with bicommissural valves and no stenosis still require long-term follow-up, because progressive stenosis develops in approximately 75 percent of adults. Thickening and focal calcification of the bicommissural valve can be detected pathologically and on echocardiography as early as the second decade of life. Yearly echocardiography, MRI, or CT is recommended for patients with bicuspid aortic valves and dilation of the aortic root or ascending aorta.

**Case:** An 18 month old male presented to the pediatric cardiology clinic for significant hepatomegaly concerning for a cardiac cause vs storage disease. The patient's past medical history consisted of recurrent sinusitis, rhinitis, and ear infections, restless sleep, and balance problems. Past surgical history included adenoidectomy for adenoid hypertrophy at 15 months of age. At the time of the surgery, the anesthesiologist noted the patient to have an enlarged liver and referred follow up. Labs ordered by the PCP included BUN 15, K 5.7, CO2 14, AST 190, ALT 114, and total bilirubin 0.4. The patient's symptoms at time of presentation at the cardiology office included fussiness, restless sleep, enlarged liver x 3 months, and severe itching for 2 months. The patient's parents relayed that he was developmentally delayed, was not walking independently, had balance issues, and had limited vocabulary. Upon exam, he was noted to have firm liver 10 cm below the right costal margin, spleen passed the umbilicus, and a click at the upper left sternal border upon cardiac auscultation. An echocardiogram was ordered and revealed bicuspid aortic valve with mild aortic root dilation without aortic stenosis. Following his visit with cardiology, he was seen at the pediatric genetics department. A lysosomal enzyme panel revealed low acid sphingomyelinase indicating Niemann-Pick disease type A. This finding was confirmed with DNA analysis testing of SMPD1 enzyme deficiency.

**Discussion:** This patient had an unusual presentation of Niemann Pick disease type A along with bicuspid aortic valve and aortic root dilation. While Niemann Pick disease type A is a condition fatal in childhood, there is no current recommendation on management of aortic valve disease in these types of patients.

**Title:** Novel iPhone Device Useful for Monitoring of QT Interval  
**Authors:** Philip Wiener, DO, PGY-1; Rami Heart, DO, PGY-7; Maram Bishawi, OMS-3  
**Program:** Internal Medicine Program - Largo Medical Center

**Background:** There are few portable, inexpensive, and readily available options for monitoring EKG parameters, including QT interval. The Alivecor device is a novel commercial device that potentially could allow wide spread, low-cost access to surface EKG monitoring. Alivecor consists of an iPhone case with two integrated metal electrodes that are used by an iPhone application to obtain an EKG recording when held by the patient, or when placed on the patient's chest. The software is capable of storing the information remotely permitting secure physician access for interpretation.

**Objective:** The literature lacks studies assessing the accuracy of this device especially with measurements such as QT interval. This is a study to assess the accuracy of the Alivecor device in a variety of patients. The measurements we obtained from the Alivecor device are compared to those from a standard 12-lead surface EKG.

**Methods:** Part 1, Lead I: Measurement of Lead I is obtained by having the patient hold the smartphone & case/device in both hands. The device should be oriented with the home button/bottom of the phone in the right hand, corresponding with the negative electrode, and with the ear piece/top of the phone in the patient's left hand, corresponding with the positive electrode. Part 2, Surface EKG: A standard 12-lead surface EKG is obtained using the standard arrangement of leads. Part 3, Measurement of QT interval: This is performed manually for all recordings obtained from the Alivecor device. Measurement of QT interval is performed manually in lead I on surface EKG. Measurements obtained from the standard 12-lead are compared to those obtained from the Alivecor device for correlation.

**Results:** The comparison of QT/QTc interval measurements in 35 patients without atrial fibrillation by the Alivecor device and 12-lead EKG showed the QT average by Alivecor was 420.9 +/- (39.3) and by EKG was 414.8 +/- (38.8) with a p-value of 0.034. The QTc for this group showed the average by Alivecor of 439.3 +/- (48.9) and by EKG 427.8 +/- (45.1) with a p-value of 0.04. The comparison of QT/QTc interval measurements in 6 patients with atrial fibrillation by the Alivecor device and 12-lead EKG showed the QT average by Alivecor was 404 +/- (17.9) and by EKG was 334.3 +/- (165.1) with a p-value of 0.37. The QTc for this group showed the average by Alivecor of 457.8 +/- (26.6) and by EKG 374.7 +/- (184.9) with a p-value of 0.32.

**Conclusions:** There is a statistical difference when measuring QT interval using the Alivecor device, when compared to stand surface 12-lead EKG of 6 milliseconds. Although there is a statistical difference, the difference is not clinically relevant. The Alivecor device can be used to accurately monitor the QT interval of patients clinically, including patients started on new medications with potential QT effects. Atrial Fibrillation causes significant artifact making QT measurement difficult. However, there is less variance among measurements with the Alivecor in patients with atrial fibrillation. There is no statistical difference in measurement of QT interval using the Alivecor device compared to standard surface 12-lead EKG in patients with paced rhythms.

**Title:** Understanding the Amygdala: A Case of Co-occurring Autism Spectrum Disorder and Antisocial Personality Disorder  
**Authors:** Jessica Wilbur, DO, PGY-2; Dimy Fluyau, MD  
**Program:** Psychiatry Residency Program - University Hospital, PBCGME

**Introduction:** Autism Spectrum Disorders (ASD) are developmental disabilities characterized, in part, by an inability to appropriately engage in social situations. Individuals with ASD may also exhibit callous or unemotional traits, which are thought to be caused by impaired brain development, specifically concerning the amygdala. Similarly, Antisocial Personality Disorder (ASPD) is defined by symptoms that manifest secondary to a lack of empathy in individuals. Those with a diagnosis of ASPD tend to be antagonistic and manipulative, treating others harshly and showing no guilt or remorse. The emergence of these personality traits has been linked to disruption in amygdala activity, much like the symptoms that present in ASD. In this case, an 18-year-old male with a diagnosis of ASD presented complaining of the urge to kill animals and expressed the desire to begin harming people, as well. Upon further interview, the patient was determined to meet criteria for ASPD. It is possible that the co-occurrence of these diagnoses was related to the disease process, namely the impaired development of the amygdala, resulting in the inability to display empathy and practice appropriate moral reasoning.

**Case Description:** An 18-year-old African American male with a history of ASD presented to the ED with his mother, who was concerned regarding recent behaviors. The patient had begun killing small animals and had expressed the desire to kill a person, as well. During interview, the patient stated that he had “taken an interest in blood” and admitted to killing frogs and ducks over the last two years. He explained that he felt pleasure while doing so and adamantly denied feeling remorseful for his actions. He provided very graphic details regarding the nature of his killings and proudly stated that he displayed them on social media. The patient did not feel his actions were wrong or immoral, and he was adamant that he would continue to act on his urges because it gave him pleasure and he did not feel remorse. Prior to discharge, the patient was diagnosed with ASPD and was started on aripiprazole and oxcarbazepine, and given a referral for outpatient therapy.

**Discussion:** Research has shown that impaired development and functioning of the amygdala is implicated in both ASD and ASPD, potentially resulting in the manifestation of a lack of empathy in both patient populations. Specifically, reduced amygdala activation in response to triggers that should elicit empathy and altruism has been associated with the callous-unemotional traits that can present in both ASD and ASPD. While the involved neurological pathways are undoubtedly numerous and interrelated, and the presence of callous-unemotional traits only represents a subset of those diagnosed with ASD, the role of the amygdala and the rate of co-occurrence of ASD and ASPD deserves further research.

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