A DISSECTION TO REMEMBER: A RARE CAUSE OF ACS IN A YOUNG HEALTHY FEMALE
Sabrina Barata, MD; Amal Ashraf, MD

Introduction:
Spontaneous coronary artery dissection (SCAD) is a rare cause of chest pain and acute coronary syndrome that most commonly presents in young women and in those with fibromuscular dysplasia. Here we present a case of a young female with chest pain who was ultimately diagnosed with SCAD. Presentation, management, and outcomes are described, along with a literature review.

Case Summary:
A 37-year-old healthy female with no known medical history, surgical history, or pertinent risk factors such as oral contraception, smoking, or obesity presented with chest pain of one-week duration. Her pain was sharp, constant, substernal, non-radiating, and severe. Her pain was exacerbated with activity and was relieved with rest. She denied associated nausea, vomiting, syncope, dizziness, or diaphoresis. Upon presentation, vitals were stable, however ECG demonstrated T-wave inversions in the anterolateral leads and a peak troponin of 0.23. Further workup included echocardiography and stress testing which were consistent with ischemia of the left ventricular apex. She was diagnosed with a non-ST elevation myocardial infarction and underwent subsequent cardiac catheterization, which demonstrated dissection of the left anterior descending artery. Interventional Cardiology deferred intervention and recommended medical management with heparin drip, aspirin, Plavix, and atorvastatin. The remainder of her hospital course was unremarkable and she was discharged after resolution of her symptoms on dual antiplatelet therapy and atorvastatin.

Discussion:
The incidence of SCAD is between 0.1%-4% of patients that present with an acute coronary syndrome, and approximately 20% of those cases will have multiple affected coronary vessels. Previous literature highlights not only two distinct types of SCAD—non-atherosclerotic and atherosclerotic, but also multiple SCAD-associated risk factors: age (< 50), female gender, and an underlying connective tissue disorder (e.g. fibromuscular dysplasia). Although definitive management is lacking, and varied strategies exist (e.g. conservative management, percutaneous intervention, bypass grafting, fibrinolysis), it is recognized that endovascular intervention may increase morbidity due to vessel fragility and conservative management is considered to be standard of care.
ALL UP IN SMOKE? VAPING-ASSOCIATED LUNG INJURY

Introduction: Electronic cigarettes (EC) produce an aerosol by heating liquid that contains a glycerin and polyethylene glycol base along with additives such as nicotine, flavorings, tetrahydrocannabinol (THC), or cannabidiols (CBD). This process, known as ‘vaping’, was introduced as an alternative to conventional cigarette smoking. In recent years, vaping has increased in popularity; however, the short- and long-term effects of vaping are not well known. While initially touted as a safe alternative to smoking, a number of reports have suggested that vaping my not be as harmless as originally reported. At present, over 2000 Vaping-Associated Lung Injury VALI cases have been reported in the United States, with a spectrum of clinical severity ranging from mild dyspnea to overt respiratory failure. Of these cases, EC liquids containing THC/CBD additives and vitamin E acetate have recently been suggested as likely culprits.

Case presentation: Three patients presented with dyspnea and a variety of non-specific constitutional symptoms (fever, headache, nausea, vomiting, and diarrhea), with a duration of five days to two months. All patients reported a history of vaping with THC-only or THC/Nicotine-containing liquids (length of time ranging from four months to two years). Lab workup demonstrated neutrophil-predominant leukocytosis and elevated inflammatory markers. Diagnostic imaging demonstrated bilateral reticular infiltrates and ground-glass opacities with occasional lymphadenopathy. Empiric antibiotics were administered for sepsis of presumed pulmonary etiology. Workup for bacterial, viral, and fungal etiologies were negative. One patient underwent bronchoscopy with bronchoalveolar lavage and biopsy that showed no acute pathology. Antibiotic therapy was discontinued in the setting of lack of clinical improvement and high-dose steroids were initiated, ultimately leading to clinical and radiological improvement.

Discussion: VALI may initially present with non-specific symptoms but all patients must demonstrate respiratory involvement characterized by shortness of breath or dyspnea on exertion. Radiographically, bilateral ground-glass opacities are often seen, though these are a non-specific. As in previous reports, our patients reported exposure to EC liquids containing THC/CBD additives, suggesting Vitamin E acetate as the potentially harmful constituent. Nevertheless, it remains unclear as to whether Vitamin E acetate is exclusive to vaping products containing THC/CBD or if it may be found in other commercially available or illicit EC liquids. VALI remains a significant public health concern and clinicians must maintain a high index of suspicion for this novel phenomenon. High dose steroids have been associated not only with radiographic improvement but also clinical recovery.

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BREAKOUT ROOM 4
UNDIAGNOSED PHEOCHROMOCYTOMA LEADING TO LIFE THREATENING COMPLICATIONS DURING ANESTHESIA
Sumit Chhetri, MD, Carlos Isales, MD

Introduction: Pheochromocytomas are catecholamine-secreting tumors originating from chromaffin cells of the adrenal medulla. Approximately 40 percent of cases are familial and inherited in autosomal dominant fashion and generally cluster with syndromes including multiple endocrine neoplasia type 2 and von Hippel-Lindau syndrome.

Case Report: A 27-year-old female with a history of neurofibromatosis type 1 presented with two weeks of nausea and vomiting after ventriculostomy performed for thalamic astrocytoma. Head CT scan showed markedly increased ventricle size prompting ventriculoperitoneal shunting. On induction of general anesthesia, she developed unstable supraventricular tachycardia and marked hypertension, requiring synchronized cardioversion, intravenous amiodarone, and procedural transition to an external ventricular drain. Intriguingly, she was noted to have a history of cardiac arrest with anesthesia induction and had experienced episodic palpitations, sweating, and elevated blood pressure, raising suspicion for pheochromocytoma. Abdominal CT scan revealed a 3.9 x 3.4 x 3.7 cm heterogeneous left adrenal mass. Alpha blockade with prazosin was started. Low dose dexamethasone suppression test was positive, but the serum cortisol level was suppressed on 2-day low dose dexamethasone suppression test. Urine and serum metanephrines, urine and serum normetanephrine, serum chromogranin A, and urine dopamine were elevated. Renin and plasma aldosterone levels were normal. Gallium-68 Dotatate PET/CT scan showed a left adrenal gland mass with intense radiotracer uptake. She was taken for surgical resection where hypertensive urgency occurred with induction of anesthesia again. After treatment with esmolol, left adrenalectomy was successfully completed. No further episodic sympathomimetic symptoms were noted after the surgery.

Discussion: Pheochromocytoma should be suspected in a young patient with a predisposing genetic disorder such as neurofibromatosis type 1 and intermittent symptoms of sympathetic overdrive. Anesthesia can exacerbate the cardiovascular effects of excess catecholamines secreted by pheochromocytomas by promoting presynaptic release or inhibiting reuptake while tracheal intubation provokes catecholamine release. Treating preoperatively with alpha-adrenergic blockade minimizes these complications.
UNCOMMON PRESENTATION OF PARAGANGLIOMA.
Alharthy, H, MBBS, Alghsoon, S, MBBS. The University of Maryland School of Medicine and VA Medical Center, Baltimore, MD.

Catecholamine-secreting tumors are rare neuroendocrine tumors that originate from chromaffin cells of the sympathetic nervous system. Pheochromocytoma (PCC) is 90% of the time found in the medulla of the adrenal gland. It can also be found throughout the paraganglion system mainly in between diaphragm and renal poles, which is then called Paraganglioma (PGL) "extra-adrenal PCC". This case highlights an uncommon presentation and anatomical location of PGL.

A 37-year-old female with no known past medical history presented to an outside hospital in 11/2017 with abdominal and back pain. She had a CT abdomen and pelvis with contrast which showed an enhancing mass of 1.4x1.9 cm at the level of the inferior mesenteric artery (IMA) take off with no surrounding lymphadenopathy. The patient was discharged from the Emergency Department with plan to repeat imaging in few months. The patient presented in 11/2019 with severe right sided abdominal and back pain. She denied continuous or episodic headache, diaphoresis, or palpitations. A CT scan with contrast demonstrated increase in mass size to 2x3.5 cm. An MRI showed the mass with restricted diffusion concerning for PGL. Workup showed normetanephrine levels of 998 pg/mL (normal range:18-111), metanephrine of 23 pg/mL (normal range:12-60). CEA, AFP, CA-19-9, chromogranin A were all non-significant. A CT-guided biopsy of the mass was pursued, and pathology showed tumor cells staining for chromogranin, synaptophysin and vimentin. The morphology and immunophenotype were most compatible with PCC or PGL. Patient’s pain was controlled symptomatically. An MIBG scan was planned and patient was started on doxazosin in preparation for excision.

This case illustrates an uncommon presentation of PGL. While catecholamine-secreting tumors usually present with symptoms of catecholamine excess such as palpitations, diaphoresis, and headache, this patient presented with abdominal pain only, which can make the diagnosis challenging given the ambiguity of the complaint. The location of this patient’s tumor at the Organ of Zuckerkandl, a chromaffin cell mass located anywhere between the bifurcation of the aorta and the origin of the IMA. These cells are derived from the neural crest and are considered part of the sympathetic paraganglia. Patients with PGL usually have elevated normetanephrine with normal metanephrine because the enzyme required for the formation of epinephrine, the precursor of metanephrine, is only found in the adrenal medulla.
NEUROSARCOIDOSIS PRESENTING WITH PROGRESSIVE EXTREMITY WEAKNESS, Hoy A, MD, Musisi S, MD. The University of Maryland School of Medicine and VA Medical Center, Baltimore, MD.

Spinal neurosarcoidosis (NS) is a rare manifestation of sarcoidosis that can be challenging to diagnose given the difficulty of obtaining a direct tissue biopsy and nonspecific neurological symptoms.

The patient was a 43-year-old African American woman with a past medical history of hypertension who was admitted from her hematologist for further evaluation of 6 months of progressive back pain, lower extremity weakness, paresthesias, weight loss, and dyspnea on exertion. A month prior to admission, she required a cane to ambulate. She initially had pressure-like pain that developed a burning quality in the previous 3 weeks. She had received a steroid taper with improvement in symptoms but had resumption of symptoms after completion. On exam, patient had 4/5 strength in her upper and lower extremities, right foot drop, and allodynia in her lower extremities. Prior imaging was notable for an MRI with enhancement and edema from C3-C7 with a smaller area of enhancement at T4. It also suggested mediastinal and hilar adenopathy measuring up to 17mm in the aortopulmonary window. PET/CT scan showed hypermetabolic lymph nodes in the mediastinal and bilateral hilar regions with focal area of increased radiotracer activity at the C4-5 level.

During her admission an extensive panel of labs were sent, a lumbar puncture was performed, and endobronchial sampling of the mediastinal lymph nodes were done. Pathology of the biopsy samples was unremarkable for malignancy but was noted to have rare granulomas. CSF cytology was remarkable for increased mature appearing lymphocytes. An infectious panel was unremarkable. Given biopsy results, lack of infectious symptoms and labs not concerning for infection, patient was diagnosed with probable NS. She was started on methylprednisolone 1g IV for 3 days before transitioning to 85mg of PO prednisone (1mg/kg). The patient had improvement in her strength and allodynia following initiation of treatment. Subsequent MRI 3 months later showed near-complete resolution of the C-spine hyperintensity and an unremarkable T-spine.

Latest diagnostic criteria from the Neurosarcoidosis Consortium Consensus Group in 2016 recommend diagnosing NS as possible, probable, and definite based on level of histological evidence of disease. For patients with a primary complaint of progressive lower extremity weakness and hilar adenopathy, it is important to consider the diagnosis of spinal NS, while ruling out infectious and malignant etiologies.

First Author Information:
Name: Alexander Hoy, MD
Institution: University of Maryland Medical Center and Baltimore VA Medical Center
Daytime Phone: 804-852-5260
Co-Author(s) Associates: Stephen Musisi, MD

Program Director’s Name: Susan D. Wolfishal

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BREAKOUT ROOM 4
NODULAR LYMPHOID HYPERPLASIA AS A PRESENTING FINDING OF COMMON VARIABLE IMMUNODEFICIENCY. 
Stoleru G, MD. The University of Maryland School of Medicine and VA Medical Center, Baltimore, MD.

Common variable immunodeficiency (CVID) is a heterogeneous syndrome characterized by hypogammaglobulinemia, recurrent sinopulmonary infections, and gastrointestinal disorders. There is a high prevalence of gastrointestinal complaints associated with CVID, posing high morbidity. In patients with CVID, there has been previously described difficulty eradicating H. pylori due to decreased bactericidal activity which is complement mediated. Because macroscopic assessment by endoscopy correlates poorly with histopathology, microscopic assessment by biopsy is often necessary for diagnosis of CVID findings in the bowel. Nodular lymphoid hyperplasia (NLH) occurs in approximately 20% of patients with CVID, most commonly in the small intestine, and is a rare presenting finding of CVID. NLH is a lymphoproliferative disorder of unknown etiology that is associated with a number of diseases including giardiasis, H. pylori infection, immunoglobulin deficiency syndromes, HIV, and celiac disease.

A 40-year-old otherwise healthy woman presented for evaluation of several months of diarrhea. Her symptoms acutely worsened over one week, with nocturnal awakenings and increased frequency. She had mild cramping and urgency with each stool. She had no abdominal tenderness or distention on exam. The patient was initially managed on seven days of Ciprofloxacin and Metronidazole therapy for suspected infectious diarrhea. The patient had persistence of symptoms after antibiotic therapy, and assessment with endoscopy was pursued.

Upper endoscopy revealed severe mucosal changes characterized by cobble-stoning in the duodenal bulb and distal duodenum. Pathology of the duodenal bulb demonstrated scalloped mucosa with villous blunting, NLH, intraepithelial lymphocytosis, and villous architectural alteration. Gastric biopsy was positive for H. pylori. Serologic evaluation revealed pan-hypogammaglobulinemia (IgG 62 mg/dL, IgA <5 mg/dL, IgM 5 mg/dL, IgE < 2 mg/dL), low total protein and an elevated serum albumin:globulin ratio of 2.9. Further history revealed absence of titer formation following vaccinations, prompting referral to an immunologist. A formal diagnosis of CVID was made.

In summary, CVID should be considered when endoscopic findings of NLH are identified though this is a rare presenting finding. The clinical significance of NLH relies not only on the associated conditions but also on the possible complications, most concerning of which is intestinal lymphoma.
A RARE CASE OF HYPERAMMONEMIC ENCEPHALOPATHY SECONDARY TO VALPROIC ACID, TOPIRAMATE, AND BIOPSYCHOSOCIAL FACTORS

Adult hyperammonemia is associated with severe liver disease in 90% of cases. Clinician awareness of non-cirrhotic hyperammonemic encephalopathy (NCHE) can contribute to early diagnosis and initiation of life-saving treatment [1].

Case description: A 27-year-old woman presented to the emergency room (ER) with agitation, aggression, and combativeness of three days duration. Three months prior, she moved from a group home back to her mother’s house which improved medication compliance. Her past medical history includes cerebral palsy, intellectual disability, seizure disorder, bipolar disorder, borderline schizophrenia, and obsessive-compulsive disorder. Medications include gabapentin, levetiracetam, lithium, risperidone, topiramate, and valproic acid (VPA). Her initial physical exam was unrevealing with mental status exam significant for anxious mood, labile affect, delayed and non-communicative speech, and cognitive impairment with impulsive judgment. She denied suicidal ideation. CBC and CMP were unremarkable, 6-panel urine drug screen, and serum acetaminophen and salicylates were all negative.

Eight days after initial presentation to the ER, she developed command hallucinations and suicidal ideation. Her physical exam was remarkable for new-onset fine tremor with outstretched hands and no asterixis. Labs included lithium 0.44 mmol/L (ref 0.6-1.2 mmol/L), total valproic acid 80.1 µg/mL (ref 50-125 µg/mL), ammonia 103 µg/dL (ref 9-549 µg/dL), AST 14 U/L, and ALT 10 U/L. CT Head was negative for acute pathology with findings similar to four years prior. She was diagnosed with VPA associated hyperammonemic encephalopathy (VHE) and managed by stopping VPA, decreasing topiramate, and starting levocarnitine. Within 24 hours her command hallucinations and suicidal ideation ceased and ammonia decreased to 39 µg/dL. She was thought to develop VHE because of improved medication compliance. She was discharged home with outpatient psychiatry follow-up.

Prevalence of asymptomatic hyperammonemia with VPA is estimated between 35-50% [1,2,3]. However, VPA associated hyperammonemic encephalopathy (VHE) is a rare but serious differential in patients with behavioral change on VPA with one reported fatality secondary to cerebral edema [4,5,6,8]. VHE is more common in patients simultaneously being treated with topiramate, phenytoin, phenobarbital, risperidone, and those with underlying urea cycle disorders or carnitine deficiency [6,9-15]. The treatment of VHE is withdrawal of VPA and supplementation with levocarnitine to facilitate excretion of toxic VPA metabolites via the urea cycle [16]. Prognosis is excellent and symptoms usually resolve within 1-3 days [1,8].
Typical presentation of an atypical pneumonia
Alicia Liendo, MD, Immad Munawar MD, Shehryar Masood MD, Sahib Singh MD, Kanwal Razzaq MD
Sinai Hospital of Baltimore – Baltimore, MD
Introduction: Mycoplasma pneumoniae (M. pneumoniae) causes a variety of infections, including upper respiratory tract infections, acute bronchitis, pneumonia, and in rare instances encephalitis, hemolytic anemia, and carditis. The pneumonia is termed ‘atypical’ which likely refers to its mild nature or alternatively its resistance to penicillin. We present such a case of an extensive pneumonia caused by M. pneumoniae with striking response to antibiotic therapy.
Case: The patient is a 23-year-old man with a history of hypothyroidism, bipolar disorder, developmental delay, and autism spectrum disorder who presented with 1 week of nonproductive cough, malaise, low grade fever, & nausea in early December 2019. No history of vaping, smoking, drug use, chronic bird exposure or tuberculosis exposure. Physical exam revealed tachycardia, low grade fever, and bilateral diffuse coarse breath sounds on room air. Initial labs only showed absolute lymphopenia, mild elevation of alanine aminotransferase (ALT), lactate dehydrogenase (LDH), and haptoglobin. Initial chest x-ray reported mentioned right upper lobe infiltrate. For better evaluation, chest computed tomography (CT) showed diffuse ground-glass nodules throughout both lungs, most marked in the upper lobes. Blood culture, urine antigens for streptococcus and legionella and sputum culture were negative which prompted ordering a respiratory atypical panel which was positive for M. pneumoniae. Pulmonology was consulted and recommended treatment with Levofloxacin for 10 days. Outpatient follow up at the sixth week mark showed resolution of symptoms and radiographic opacities.
Discussion M. pneumoniae may be responsible for about 4 to 8% of community-acquired bacterial pneumonias (CABP). Usual workup for hospitalized patients with CABP includes blood culture, urine antigens for streptococcus and legionella, and sputum culture, if possible. Occasionally viral/atypical respiratory panel can assist in diagnosis, like in this case. The chest CT findings were very impressive and diffuse even though the patient was comparatively stable with paucity of symptoms as seen in atypical pneumonias. Treatments for M. pneumoniae pneumonia include macrolides, tetracyclines and respiratory fluoroquinolones. For most patients, the course is mild and recovery is full. Although this patient has lymphopenia, elevated ALT and LDH, which could be suggestive of SARS-CoV2 pneumonia, the lack of progression and rapid resolution with antimicrobial therapy makes this condition unlikely.
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( ) Evidence based medicine review
( ) Quality/Safety
( ) Clinical Research

Indicate your participation in research process (4 sentences or less):

First Author Information:
Name: Zhou Meng, MD PhD
mz8610@gmail.com

Institution: University of Maryland Medical Center Midtown Campus

Daytime Phone: 215-688-6661

Co-Author(s) Associates:
Wei Cui MD, Lois Arend MD, PhD, Nicola Bravo MD, Robert Chow MD, Jamal Mikdashi MD

Program Director’s Name: Robert Chow, MD

(indicating review of abstract)

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 ( ) Quality/Safety
 ( ) Clinical Research

Indicate your participation in research process (4 sentences or less): N/A

First Author Information:

Name: Patrick Bagley DO
Institution: WRNMMC
Email Address: Patrick.h.bagley.mil@mail.mil
Cell Phone: (781) 929-5284

Co-Author(s) Associates:
Benjamin Goldenberg MD
Scott Snyder MD

IF IT AIN'T BROKE, FIX IT? BILATERAL PELVIC INSUFFICIENCY FRACTURES FOLLOWING EXTERNAL BEAM RADIATION AND THE ROLE OF BISPHOSPHONATE THERAPY, Pat Bagley DO, Ben Goldenberg MD, Scott Snyder, MD. ACP
Members Walter Reed National Military Medical Center: Maryland, MD

INTRODUCTION: Prostate cancer is one of the most commonly diagnosed cancers in American. Most non-metastatic prostate cancers are treated with external beam radiation therapy (EBRT) with great therapeutic efficacy. Over the past decade, pelvic insufficiency fractures (PIF) were recognized as a complication of EBRT. Currently, bisphosphonates are started only after a patient has suffered a PIF, however prophylactic bisphosphonate therapy prior to EBRT is emerging. Imaging such as multiparametric (mp) MRI prior to EBRT may help predict who would benefit the most from prophylactic bisphosphonates.

CASE: A robust 73 year-old man with a history of intermediate risk, non-metastatic prostate adenocarcinoma status-post EBRT in 2016 was referred to geriatric clinic due to bilateral pelvic fractures. One year prior, the patient sustained a ground-level fall while walking his dog. Subsequent imaging showed a non-displaced stress fracture of the left femoral neck requiring surgical repair, with consideration that fracture may have existed before the fall. The patient was placed on calcium and vitamin D, but no bisphosphonates. Ten months later, the patient developed spontaneous pain in his contralateral (right) hip while working in his woodshop without a provoking incident. Plain films showed a non-displaced transcortical right femoral neck fracture. Subsequent DEXA imaging showed normal bone density, however the patient was started on bisphosphonates due to his fractures.

DISCUSSION: Our case demonstrates a potentially preventable bilateral pelvic insufficiency fractures following EBRT for non-metastatic prostate cancer emphasizing two major points. The first is the importance of discerning the cause of a pelvic fracture, as the patient should have been placed on bisphosphonate therapy following his first insufficiency fracture. The second is the importance of further research in the primary prevention of insufficiency fractures, including further examination of imaging modalities in detection of those at high risk and further examination of the potential benefit of prophylactic bisphosphonates.

Program Director’s Name: Josh Hartzell
(indicating review of abstract)

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