Poster Competition

April 22, 2022

ACHE Research Institute
Health & Wellness Center

1000 Fianna Way, Fort Smith, AR

Agenda

10:00 am – 10:15 am	Welcome and serve hors d'oeuvres
10:15 am – 2:00 pm	Poster Review & Presentations
2:00 pm – 2:15 pm	Award Presentation

Judges

Melissa Kuehl, D.O., Faculty, Mercy Fort Smith, Internal Medicine Residency, Fort Smith, AR

Sai Koka, Ph.D., Faculty, Arkansas College of Osteopathic Medicine, Fort Smith, AR

Paul Bean, MD, Chief of Medical Affairs, Mercy Fort Smith, AR

Jennifer Naylor, Ph.D. Faculty, Baptist Health Little Rock, Transitional Year Residency, Little Rock, AR

Case Presentation

Naturally occurring trans-jugular intra-hepatic porto-systemic shunt (TIPS) in a patient with cirrhosis.

Matthew Riffle M.D., Program Director, Arkansas College of Osteopathic Medicine/Poplar Bluff Regional Medical Center Program.
Patrick Keating, M.D., Faculty, Poplar Bluff Regional Medical Center.
Sheryar Khan, D.O. PGY-1, Resident, Internal Medicine, Arkansas College of Osteopathic Medicine/Poplar Bluff Regional Medical Center Program.

Introduction:
The TIPS procedure is usually performed by an interventional radiologist to reduce the symptoms associated with portal hypertension a cirrhotic patient may have. Although there are notable adverse outcomes that can develop in a patient who is status post TIPS, decrease incidence in bleeding secondary to esophageal varices and a lesser severity/incidence of ascites are few of the major benefits a cirrhotic patient may experience after undergoing TIPS (1). Presented here is an elderly patient whose body naturally developed collaterals that mimic TIPS.

Clinical Case:
72-year-old female with past medical history of thrombocytopenia, nonalcoholic fatty liver disease, essential hypertension, chronic lymphedema and osteoarthritis came to the ED with progressively worsening hematochezia that began two days ago. Small amounts of bright red blood per rectum were initially being evacuated by the patient; immediately prior to arrival to the ED, however, patient evacuated approximately 1300 mL of blood while she was having bright red blood per rectum. She also endorses non-radiating 6/10, continuous, sharp right upper quadrant abdominal pain, along with slight nausea.
VITALS: afebrile, BP 142/72, HR 83, RR of 16, SpO2 100% RA.
PE: dry oral mucosa, decreased skin turgor, pale complexion. Bilateral ankles, upto the calf region, have +2 non pitting edema. Otherwise, exam is normal. LABS: Initial CBC at admission: Hemoglobin 11.3
Initial CMP at admission: Albumin of 2.3
Fecal occult blood was positive at admission as well.

Clinical Course:

During the 10 days patient was hospitalized, serial H&H every 6 hours were obtained. Hemoglobin values on these labs indicated transfusion. Therefore, patient received 7 units of packed RBCs during the course of her hospitalization. Patient also continued to have edema, as described in the physical exam, with minimal improvement while being hospitalized.

WORK-UP: An endoscopy was performed, with the major finding being three non-bleeding ulcers in the duodenal bulb that measured 8 mm, 10 mm and 7 mm, respectively. These ulcers had a clean base, with a Forrest classification of 3, indicating possible rebleeding rate of 5%, with 2% mortality. After this procedure, patient also underwent a colonoscopy, which showed non-bleeding/non-thrombosed small internal hemorrhoids. A moderate amount of both bright red and dark blood was noted throughout the colon, including the terminal ileum. Diverticulosis without diverticulitis or either bleeding was noted in the sigmoid region. It was hoped that the bleeding would stop after this procedure. However, serial H & H when the pt was status post colonoscopy showed declining Hb. Appropriate transfusion of packed red blood cells was done.

The patient then underwent a tagged RBC scan, whose notable finding indicated that there was accumulation of activity in the mid abdomen. More specifically, at the level of aortic bifurcation and to the right of this bifurcation, nucleic acid continued to accumulate. A triple phase CT abdomen/pelvis was performed thereafter. It showed huge meso-caval varicosities forming a collateral connection between the superior mesenteric vein and the inferior vena cava near the right renal vein. IR consult recommended against embolizing these varicosities, as there was a possibility that these collaterals were the reason this patient with severe cirrhosis was not experiencing esophageal varices and at least moderate ascites.

However, the patient's hemoglobin continued to decline, necessitating further packed RBC transfusion. Patient was discharged to a tertiary care hospital for further work-up of her ongoing upper GI bleed.

Discussion:

Presented above is a cirrhotic patient whose body developed collaterals approximating the connection interventional radiologists create between the portal and systemic circulation (2). Although this allowed the patient

to enjoy the advantages of having undergone a TIPS procedure, that is, she did not have esophageal varices or at least moderate ascites, these collaterals might also be the reason she was constantly bleeding, requiring seven units of packed red blood cells to be transfused during the ten days she was hospitalized. She left the hospital as a transfer to a tertiary care hospital.

A Case of Osmotic Demyelination Syndrome Despite Adequate Correction of Hyponatremia.

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Amita Heaser MD, Faculty, Mercy Medical Center

Introduction:
Osmotic Demyelination Syndrome (ODS) is an umbrella term encompassing Central Pontine Myelinolysis (CPM) and Extra Pontine Myelinolysis (EPM). These syndromes describe changes that occur in brain cells when they get dehydrated due to rapid correction of hyponatremia. The incidence is not well known because it is under-diagnosed. However, some studies report that ODS accounts for 0.4% to 0.56% of neurological admissions and in atrisk populations, incidence is as high as 9.5%.

Case report:
This is the case of a 67 YO male who was seen in our ED for altered mental status. Patient was found to be severely hyponatremic with initial sodium level of 108mEq/L. This was corrected using 3% hypertonic saline with a correction goal of 4-6mEq/L. After 18 days in the hospital, the patient was deemed stable and discharged home. Patient subsequently developed ODS within two weeks of discharge and expired.

Discussion:
Clinicians should consider ODS in a patient who has failed to recover as expected after a severe illness requiring intravenous fluids. It is important to recognize that Na+ rise need not be in excess of the 6-8mEq/L for this condition to develop. In fact, there may be no “safe” limit for the rate of Na+ correction. Prevention of ODS is important and all effort should be targeted at prevention of this devastating condition. Management is challenging and in fact, there is currently no evidence-based treatment for overt ODS.

The Rising Burden of Maternal and Neonatal Syphilis

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Stephen F. Lefler MD., FACOG, Faculty, Mercy Medical Center

Syphilis primarily affects men who have sex with men; however, the rate amongst women has increased substantially in recent years. While there is no specific surveillance of syphilis during pregnancy, rates of neonatal syphilis have also been on the rise. There has been a 291.1% increase in reported cases of congenital syphilis since 2015, per the CDC. Transmission from mother to newborn occurs vertically during pregnancy. Despite routine screening in the prenatal period and timely diagnosis, lack of adequate treatment has been the primary contributor to the rising rates amongst newborns. An important step in disease reduction is identification of care gaps that occur in the prenatal period contributing to congenital syphilis. A forty-two-year old female G7P6001 presented to the office for routine prenatal care. Despite routine appointments and screenings, there was a three-month gap between diagnosis and treatment of the patient's syphilis. Eventually she was treated with Benzathine Penicillin G at the health department. There was also a delay between treatment and receipt of treatment records. Subsequently, the newborn was prophylactically treated for neonatal syphilis prior to discharge from the hospital. This case highlights the gaps in care and steps taken to bridge said gaps. With rising rates there is a need for epidemiologic surveillance of syphilis in the prenatal period, knowledge and compliance with updated care guidelines, and risk-stratified management of disease to improve health outcomes and reduce disease burden.

A Case of Overt Primary Hypothyroidism Presenting as Shock

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This case explores a unique presentation in an acute hospital setting for a chronic medical condition. The patient had overt primary hypothyroidism without myxedema coma presenting with shock. Patient is in her 70's, with a history of thyroid cancer status post thyroidectomy, hypertension, uncontrolled diabetes mellitus type 2 and diastolic heart failure. Patient presented to the emergency room with complaint of intermittent episodes of chest pressure and right arm pain for 1 day. The patient became puffy and swollen over the last month and has also noticed a change in her voice. She endorsed nausea, vomiting and diarrhea. Her vital signs on admission showed blood pressure 87/55 mmHG, heart rate 57 beats per minute, and respiratory rate 20 breath per minute. Patient was started on dopamine and dobutamine drips. Later an echocardiogram showed moderate concentric left ventricular hypertrophy with left ventricular ejection fraction of 65%. TSH was found to be 980 mIU/L. Patient was started on oral levothyroxine and stress dose steroids. Patient's hypotension and bradycardia resolved after which dopamine and dobutamine drips were discontinued.

Overt hypothyroidism in an acute setting may not present as the typical presentation for myxedema coma. Rarely it can present as shock. The recognition of this type of shock is important in the treatment. A thorough investigation of the patient's history and compliance to medication is important.

Biventricular Thrombus Found in Acute on Chronic Decompensated Heart Failure in the Setting of Ischemic Cardiomyopathy and Chronic Atrial Fibrillation

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Background:
Ventricular thrombus is a potentially life-threatening condition that places the patient at a high risk of cardioembolic events. Isolated left ventricular thrombus (LVT) is a common complication of acute anterior myocardial infarction (MI) with left ventricular aneurysm, as well as ischemic or non-ischemic dilated cardiomyopathy (DCM). While isolated right heart thrombi are relatively uncommon, most right-sided cardiac thrombi originate from deep venous thromboembolism (DVT). Rarely, biventricular thrombi can be found in patients with hypercoagulable states. Here, we report a case of biventricular apical thrombi in a patient with ischemic cardiomyopathy with acute on chronic systolic heart failure (CHF).

Case presentation:
A 66-year-old male with a history of coronary artery disease status post coronary artery bypass grafting in 1994 and stents in 1999, was diagnosed with non-ST-elevation MI, new-onset acute decompensated heart failure, and new-onset atrial fibrillation in Nov 2020. 2D echocardiogram showed severe global left ventricular systolic dysfunction with EF 20% and mildly enlarged four chambers (Figure 1). Patient received percutaneous transluminal coronary angioplasty (PTCA) of the saphenous vein graft and was discharged on atorvastatin, clopidogrel, apixaban, amiodarone, metoprolol succinate, lisinopril, and LifeVest with future ICD plan. However, nine months later, in Aug 2021, the patient presented to ER again with increasing chest pressure, exertional dyspnea orthopnea, and worsening bilateral lower extremity swellings over several weeks. Patient had not followed up with PCP or Cardiology and stopped his medications 6 months ago due to insurance issues. Physical examination revealed jugular venous distention, irregularly irregular heart rhythm with S3 gallop, and significant bilateral lower extremity edema up to mid-thighs. Troponin was negative, beta natriuretic peptide (BNP) elevated to 1620 pg/mL. Repeat 2D echocardiogram demonstrated severe biventricular

enlargement with a left ventricular ejection fraction of 17%, severe biventricular hypokinesis, and definite biventricular thrombi.

Discussion:

Ventricular thrombi mostly impact the left ventricle and have been recorded in up to 20% of patients with significant left ventricular systolic dysfunction (EF < 35%). Deep vein thrombosis (DVT) is the most common cause of right ventricle thrombi, which lodge in the RV temporality. Biventricular thrombi are extremely rare but more dangerous because they can lead to both pulmonary and systemic embolization. There are only a few case reports describing biventricular thrombi in peripartum cardiomyopathy, nonischemic DCM, myocarditis, HIV CM, and patients with underlying hypercoagulability. In our case, the biventricular thrombi were most likely owing to deteriorating systolic congestive failure and severe ischemic dilated cardiomyopathy, creating biventricular hypokinesis and apical akinesis. His uncontrolled atrial fibrillation may have hastened the progression of DCM but it is unlikely to be the cause of biventricular thrombi because 90% of atrial fibrillation-related thrombi are found in the left atrial appendage. Long-term anticoagulation is the mainstay treatment for patients with atrial fibrillation and/or ventricular thrombus to reduce cardioembolic events. Biventricular thrombi in this case emphasize the importance of compliance to the use of anticoagulation when indicated and close follow-up with cardiac imaging in patients with cardiomyopathy.

Working Hands: Effects of Osteopathic Manipulative Treatment on a Patient with Carpal Tunnel Syndrome

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Introduction:
Carpal tunnel syndrome (CTS) is the most common entrapment neuropathy affecting more than eight million people each year. Surgery for CTS is the second most common type of musculoskeletal surgery with over 230,000 procedures performed annually. Physical exam tests, such as Tinel's sign and Phalen's maneuver, are useful in making the diagnosis, whereas nerve conduction velocity/electromyography (NCV/EMG) can confirm the diagnosis and classify disease severity.

Case Presentation:
A 51-year-old Caucasian female presents to the Osteopathic Manipulative Medicine (OMM) Clinic complaining of approximately 15 years of neck pain with numbness and tingling in both hands. She admits to occasionally dropping items. She works as a horse trainer which requires intensive use of her hands and often leads to her getting "jostled" around. MRI of her cervical spine revealed spondylosis without evidence of stenosis. NCV/EMG was unremarkable. Due to symptom duration, she was recommended surgical release of the carpal tunnel but opted to seek alternative treatment. Physical exam found positive Tinel's and Phalen's tests bilaterally with minimal muscle wasting of the thenar eminence bilaterally. On osteopathic structural exam, tissue texture abnormalities and tenderness were found around both transverse carpal ligaments. The cervical region revealed a significant dysfunction at C6. After 5 sessions of OMT over a 12-week period, the patient stated significant improvement of symptoms at the end of each encounter with relief lasting longer between visits.

Discussion:
This case illustrates the difficulty and complexity that comes with diagnosing carpal tunnel syndrome and how symptoms can be alleviated using OMT.

Polymyositis and SARS-CoV-2 Vaccine

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Polymyositis (PM) is an idiopathic inflammatory myopathy characterized by proximal skeletal muscle weakness and inflammation. PM appears predominantly in females between 40 - 50 years-old. Symptoms include insidious onset of symmetrical muscle weakness. Primary patient complaints consist of difficulty climbing stairs, standing from a chair, or lifting arms over the head. Lab values and pathology reports commonly reveal elevated creatinine kinase, Anti-Jo-1 autoantibodies in serum, and endomysial inflammation on muscle biopsy. The COVID-19 pandemic caused by severe acute respiratory coronavirus 2 (SARS-CoV-2) led to the quick development of vaccinations approved in December 2020. Common side effects of the mRNA vaccination against SARS-CoV-2 include injection site reactions, fatigue, muscle aches, fever, and chills; rare side effects reported thrombotic thrombocytopenia, rhabdomyolysis, and fasciitis in young adults. We present a case of a 20 – year – old woman who developed polymyositis after her first dose of the Moderna SARS-CoV-2 vaccine. The patient reported symptoms of progressive muscle weakness starting 6 days after receiving the vaccine. Relevant lab findings included elevated plasma creatine kinase of 6,783 U/L (normal 26-192) and antinuclear antibodies (titer of 1:640) with a speckled pattern. EMG showed signs of necrotizing myositis involving proximal upper limb and paraspinal muscles. Left deltoid muscle biopsy showed reinnervation and type 1 fiber smallness. Whole body MRI scan was consistent with polymyositis. The patient received IV Rituximab every six months with PO high dose steroids reduced to 7.5 with plan to taper every four weeks. Muscle weakness resolved after five months of therapy.

Challenges in Diagnosing Rheumatologic Disease in the Acute Setting

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Sydney DeSpain, OMS III, Arkansas College of Osteopathic Medicine

Introduction:
Systemic sclerosis is a rare, autoimmune connective tissue disease. It has an annual incidence of 1-2:100,000 in the United States, more common in women than men, and more common in African Americans with age of peak onset from 30-501 . This disease presents with a variety of skin, vascular, renal, GI, MSK, cardiac, and pulmonary manifestations. Patient's can have acute, life-threatening complications such as renal crisis or cardiopulmonary failure, taking priority over rheumatologic workup. Diagnostic criteria is based on these clinical manifestations as well as autoantibodies (ANA, Scl70, RNA-Poly III, centromere, and RF.)

Case Presentation:
We present the case of a 60-year-old African American male who presented to the ED with complaints of dyspnea. The patient's labs revealed unexplained anemia, acute kidney injury, worsening heart failure, and acute liver failure. History, physical exam, and hospital workup revealed skin tightening, GERD, Raynaud's, and pulmonary fibrosis began an investigation of an underlying rheumatologic pathology. The patient's physical exam findings in conjunction with positive anti-Scl 70 were suggestive of systemic sclerosis.

Discussion:
This case illustrates an episode of severe acute on chronic heart failure in a patient with an undiagnosed rheumatologic disorder. The patient comorbidities are highly suggestive of systemic sclerosis, but patient compliance and lack of access to a rheumatologist limit his diagnosis and treatment. Further research about the cardiopulmonary manifestations of systemic sclerosis is needed in this under researched field.

Severe Recurrent Catatonia Refractory to High Dose Ativan

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Sarah Bowen, OMS III, Arkansas College of Osteopathic Medicine

Introduction:
Catatonia is a non-specific psychomotor condition symptoms that can be described as either excitatory or retarded. The pathophysiology of catatonia is not well elucidated; however, it has been most notably associated with bipolar I and unipolar depression. The first line treatments for catatonia are benzodiazepines and electroconvulsive therapy (ECT). These treatments have shown great efficacy, though Lorazepam is known to be most reliable. After one week of pharmacotherapy, if there are no improvements, the recommendation is to initiate ECT. Recovery and prognosis is generally favorable. Recurrence may occur though it is not well studied.

Case Presentation:
Patient is a 66-year-old female with history of Bipolar I, depression, and a previous bout of catatonia, reportedly lasting 4 months. She presented to the emergency department from an assisted living facility for progressively decreasing responsiveness. She was admitted for further evaluation. Her work-up was negative, leading to a presumptive diagnosis of retarded catatonia. Patient was given increasing doses of Lorazepam, up to 5mg TID with minimal to no improvement. ECT was not available at the facility, and she was maintained on high-dose benzodiazepines for approximately 2.5 weeks while waiting for transfer to an academic center.

Discussion:
This case illustrates an episode of severe, recurrent, refractory catatonia in a patient with history of psychiatric disease. The patient did not respond appropriately to initial therapies, and 2nd line therapy was unavailable, leaving patient at the end of the current recommended treatment algorithm and no other options to pursue.

AL amyloidosis of the tongue associated with fixed digital contractures: A rare clinical presentation

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Introduction:
Amyloidosis is an uncommon disorder with unknown exact incidence. Light chain (AL) amyloidosis is due to plasma cell disorder originating in the bone marrow in which abnormal cells produce immunoglobulin light chains. These form insoluble fibrils and deposit in multiple tissues leading to wide spectrum of clinical manifestations. Musculoskeletal manifestations are uncommon, although the disease is known to affect various organs. We report the case of a patient with a diagnosis of amyloidosis of the tongue associated with fixed digital contractures. Laboratory work up revealed light chain (AL) amyloidosis.

Observation:
A 71-year-old gentleman presented to our ENT clinic with 6 months history of burning sensation of tongue with nodules, tongue crevices for > 6 months, unintentional weight loss and fatigue. Past medical history includes COPD emphysema, essential hypertension, hyperlipidemia, tobacco dependence, bilateral hand contractures, cervical spine surgery more than 20 years ago. Patient presented to rheumatology clinic 3 years ago for bilateral hand joint pain, contractures and unable to extended fingers. On exam, patient was a thin, frail gentleman with flexion contractures of the fingers with stiffness bilaterally. He reported recent weight loss of >6 lbs. No skin lesions or submandibular mass/tenderness noted. His tongue was enlarged, nodular, with crevices and whitish nodule noted in the central dorsal tongue. Neck was supple. Shoulder pad sign present. Respiratory exam decreased breath sounds. Rest of the physical exam findings were normal. Standard lab tests show WBC 9.9 K/mL, 63.3% neutrophils, 29 % lymphocytes, 6 % monocytes, 1.2% eosinophils, 0.3% basophils, RBC 4.15 million/mL, Hemoglobin 13 g/dL, Hematocrit 38.2 %, MCV 92.0 fL, MCH 31.3 pg, MCHC 34 g/dL, RDW 45.3 fL,

platelet count 296 K/mm3. Metabolic panel showed electrolytes in normal range, creatinine 1.6, ALT 11, AST 10, protein 8.4. Patient was taken to the operating room and a biopsy specimen was obtained from the dorsal tongue. Tongue biopsy specimen under H&E stain revealed Amyloid (Figure 2). , (Figure 3). Congo red stain showed apple green birefringence positive for amyloid deposits (Figure 4). Liquid chromatography tandem mass spectrometry (LC MS/MS) detected a peptide profile consistent with AL (kappa)-type amyloid deposition. Serum SPEP with immunofixation showed IgG kappa monoclonal band. Free light chains assay showed Kappa 1030.4 mg/L, Free Lambda 12.4 mg/L, Free Kappa/Lambda ratio 83.10. Albumin 3.8, alpha-1-globulin 0.3, alpha-2-globulin 0.6, beta 1 globulin 0.3, Interpreted as restricted band (M-spike) migrating in the gamma region. Immunoglobulin G 2796 mg/dL (high), Immunoglobulin M 67 mg/dL, Immunoglobulin A 64 mg/dL (Low), beta 2 microglobulin 2.50 mg/dL. Rheumatology work up showed negative Rheumatoid factor, CCP Ab IgG

Discussion:

Amyloidosis refers to extracellular deposition of insoluble fibrils as a result of protein misfolding. These fibrils have antiparallel beta pleated sheet configuration and can be identified on biopsy specimens by their characteristic pattern on electron microscopy, and by their ability to bind to Congo red giving an apple green birefringence under polarized light parent and thioflavin T producing an intense yellow green fluorescence. Several forms of amyloidosis with distinct clinical patterns are recognized based on the nature of the Precursor protein. Primary amyloidosis refers specifically to the form of amyloidosis in which the precursor proteins are monoclonal immunoglobulin light chains produced by an underlying clonal plasma cell proliferative disorder. Immunohistochemistry is typically used to identify the specific type of amyloid. AL amyloidosis is characterized by the accumulation of light chains kappa or lambda or their fragments in the form of fibrils that deposit in different tissues. Other forms of amyloidosis include serum amyloid A protein in reactive (secondary, AA) amyloidosis, Mutated forms of transthyretin (TTR; Prealbumin) in age related amyloidosis, beta 2 microglobulin in dialysis-related amyloidosis, immunoglobulin heavy chain (AH) amyloidosis in monoclonal plasma cell proliferation. All forms of amyloidosis are characterized by co-deposition of other substances including serum amyloid P component (SAP), a protein member of pentraxin family that includes C-reactive protein, glycosaminoglycans, certain apolipoproteins

(E and J). Amyloidosis affecting the head and neck has been previously reported although rare and occurs mostly as localized formation. The clinical presentation with tongue nodules, associated with burning sensation in the oral cavity, provided the initial diagnostic key to establish his diagnosis. Musculoskeletal involvement has been reported in patients with AL amyloidosis, but it is relatively rare (2-5%) The symptoms are caused by the amyloid deposition within intraarticular tissues, tendons and surrounding soft tissues and can mimic rheumatological conditions. The rheumatological work up in our patient was negative. Although this patient had a remote history of cervical spine surgery more than 20 years ago with exact indication unknown, patient did not develop hand contractures until recently 2-3 years ago. Additionally, he did not show cardiac, renal or other multisystem involvement on standard routine lab tests and echocardiogram. Treatment includes chemotherapy regimens for multiple myeloma including Daritimumab, cyclophosphamide and dexamethasone. This case report emphasizes the importance of including Amyloidosis in the differentials when digital contractures is the presenting symptom. We should further investigate for underlying plasma cell disorders.

Acute Vision Loss in a Renal Transplant Patient: A Pressing Matter!

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Introduction:
Posterior reversible encephalopathy syndrome is a rare acute clinical radiographic syndrome that can present with various unusual clinical features such as impairment of consciousness, seizures, headache and visual abnormalities including blurred vision, visual neglect, homonymous hemianopsia, cortical blindness and visual hallucinations mimicking different neurological conditions such as stroke, meningitis, PML etc.

Case Description:
A 43-year-old male presented with severe, holo-cephalic, sudden-onset, persistent, throbbing headache associated with nausea, vomiting, bilateral blurred vision and incoherent speech. The patient had a past medical history significant for renal transplant, CKD, and uncontrolled hypertension. The patient's medications included Tacrolimus and Mycophenolate sodium. When he presented, he was hypertensive with blood pressure 226/133 mm Hg and on presentation had decreased visual acuity bilaterally. Initial head CT was suspicious for stroke but emergent brain MRI revealed bilateral parieto-occipital white matter edema and the diagnosis of posterior reversible encephalopathy syndrome with hypertensive emergency was made. The patient was started on Nicardipine drip; Tacrolimus and Mycophenolate were held. The patient's headache resolved, speech returned to baseline and blurred vision improved partially.

Discussion:
Posterior reversible encephalopathy syndrome can have unusual presentation mimicking common CNS pathologies. It is becoming an increasingly recognized disorder with an association with immunosuppressant/cytotoxic drugs, autoimmune disorders, renal disease, and solid organ, bone marrow or stem cell transplantation.

Conclusion:
Physicians should have high clinical suspicion to promptly recognize and treat this reversible condition to prevent permanent damage.

Effects of Osteopathic Manipulative Therapy on Temporomandibular Joint Disorders

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Introduction:
Temporomandibular disorder (TMD) causes pain and discomfort at the joint connecting the mandible to the skull. Various nonsurgical interventions have been used for the management of patients with TMD, but the efficacy of these interventions remain unclear. This case study aims to provide insight into how osteopathic manipulative treatment (OMT) can be used to improve the symptoms and function of the temporomandibular joint (TMJ).

Case:
A 52-year-old female presented with a 16-year history of TMD starting after orthodontic treatment. She has never received OMT for TMD. Baseline measurements were gathered using the TheraBite scale, Joint Vibration Analysis (JVA) and T-Scan Novus. JVA data was analyzed using Piper classification, which is an analysis of TMJ disk alignment. These measurements were repeated immediately following a 15-minute OMT treatment session focused on the head and neck regions.

Results:
Following OMT, maximum opening increased from 39mm to 44mm. Pre-treatment bite force distribution was 44.6% on the left and 55.4% on the right. Post-treatment bite force was 47.8% on the left and 52.2% on the right. Piper classification improved from 4B to 4A.

Discussion:
This case provides a quantitative demonstration of how OMT improves function of the TMJ. Treatment provided and measurements obtained are dependent on operator skill. More research is needed to confirm the above findings

Fetal Tuberous Sclerosis: A Case Report and Discussion of Diagnostics and Management

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Cardiac rhabdomyomas are the most prevalent form of fetal intracardiac tumors. Such tumors may be detectable by echocardiography at as early as 22 weeks gestation. Cardiac rhabdomyomas often but do not always spontaneously decrease in size postpartum. While many are not hemodynamically significant, some rhabdomyomas may cause arrhythmias, obstruction of flow, or heart failure. Fetal cardiac rhabdomyomas are usually discovered as small, solitary masses and may be the earliest sign of tuberous sclerosis, especially in cases of multifocality. This case report presents a rather rare finding of multiple large intracardiac rhabdomyomas during the prenatal period. A patient presenting at 36 weeks gestation was referred for a fetal echocardiogram due to concern for fetal tuberous sclerosis given maternal history. Transabdominal fetal echocardiogram was notable for 2 nodular masses, one in the interventricular septum and one near the mitral valve apparatus. Despite the unusually large size of the multiple rhabdomyomas, bilateral ventricular inflow and outflow was unobstructed. An additional 2 masses were also noted near the moderator band. Cardiac rhythm was notable for repeated premature beats likely classified as premature atrial contractions. Postnatal echocardiography confirmed the prenatal findings but also revealed an additional two masses. The multifocal cardiac rhabdomyomas served to confirm the likelihood of tuberous sclerosis in the child. For one, the case illustrates how fetal echocardiography can serve as a cost-effective and non-invasive method of detecting tuberous sclerosis. However, as displayed in this case, prenatal echocardiography may be somewhat limited and can miss even large masses in significant regions such as the moderator band. As such, longitudinal postnatal followup of cardiac masses and function is essential. Moreover, the case emphasizes the importance of early prenatal echocardiography especially in instances of known maternal tuberous sclerosis. While the ubiquitous multifocality of cardiac tumors in this case were not hemodynamically significant, the early application of fetal echocardiography can allow early detection and

treatment in cases where the tumor burden does affect cardiac function. In sum, this report presents an unusual instance of heavily multifocal cardiac rhabdomyomas without hemodynamic effect and highlights the utility and limitation of echocardiography in the prenatal workup of tuberous sclerosis.

Leukoclastic Vasculitis: Beyond the Autoimmune Causes

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Leukocytoclastic vasculitis is a hallmark of cutaneous vasculitis. However, severe bacterial infections can mimic autoimmune diseases. A high index of suspicion needs to be maintained to differentiate between infectious vs non-infectious autoimmune vasculitis. We introduce a young female who initially came with a picture of leukocytoclastic vasculitis due to underlying infective endocarditis.

Clinical Case:
29-year-old female, her past medical history is notable for complex congenital heart disease, status post-Ross procedure, COVID-19 infection, pulmonary embolism. Complaints of lower extremity purpuric lesions and low-grade fevers in the last 2 months. Physical exam: 4/6 diastolic murmur with thrill in the left sternal border, ecchymosis bilaterally until lower back. Labs Microcytic anemia, decreased GFR, Gram-positive cocci were growing in anaerobic bottles. Cryoglobulins, Rheumatoid factor, Sed rate, CRP, and complement levels were abnormal, additional autoimmune workup was negative. TEE showed a new severe regurgitation of the aortic valve. Granulicatella ellegans, isolated in blood cultures. Completed IV penicillin for 6 weeks.

Discussion:
Endocarditis with cutaneous vasculitis has been well reported. In a study by Gonzalez-Juanatey et al. [1] Endocarditis was accompanied in 41.8% by rheumatic manifestations. In patients with a high risk for endocarditis, vasculitis should arouse suspicion for infectious diseases. In another case, published in the Journal of The American Society of Nephrology [3], the patient presented with a vasculitic rash and renal failure, was diagnosed with essential type III cryoglobulinemia. Further workup led to the diagnosis of bacterial endocarditis. Similarly, our patient tested positive for cryoglobulins, had renal involvement, and a vasculitic rash

Research Poster

Determining a role for CMR3 in regulating gene expression due to stress responses caused by the pgm2Δ mutation

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Transcriptional elongation factors play an important role in regulating gene expression. Spt4 is a transcriptional elongation factor involved in transcriptional pausing in mammalian cells and regulation of transcription in Saccharomyces cerevisiae. Previous work in the lab identified the loss of SPT4 as a suppressor of pgm2Δ defects through an EMS mutagenesis screen (5). Yeast which lack PGM2, the major isoform of phosphoglucomutase, lose the ability to interconvert glucose-1-phosphate (G1P) and glucose-6-phosphate (G6P), and exhibit a variety of growth defects when grown in galactose-containing media, including carbohydrate metabolism defects and calcium homeostasis defects. Using bioinformatics tools analyzing our RNASeq data, we have identified various target genes, and transcription factors predicted to coordinately regulate subsets of these genes, that are hypothesized to be essential for viability in pgm2Δ mutants. Many of these genes are increased in the pgm2Δ mutant compared to wild type and/or pgm2Δspt4Δ strains. Current work in the lab shows that loss of CMR3, a

transcription factor identified from RNASeq data, exacerbates the slow-growth phenotype of pgm2Δ mutants, implicating a role promoting its survival. The goal of this project is to determine a role for CMR3 in regulating gene expression due to stress responses caused by the pgm2Δ mutation. We hypothesize that these stress-induced genes are increased in the pgm2Δ mutant and promote their survival. qPCR experiments were performed to measure levels of Cmr3 regulated target genes: ADI1, PDE1, SIP18, SSE2.

Association of Agricultural, Occupational, and Military Inhalants With Autoantibodies and Disease Features in US Veterans With Rheumatoid Arthritis

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Objective: To determine the association of inhalant exposures with rheumatoid arthritis (RA)- related autoantibodies and severity in US veterans. Methods: Participants in the VARA* registry were mailed surveys assessing occupational, agricultural, and military inhalant exposures. Demographics, disease activity, functional status, and extraarticular features were obtained from the registry, while HLA-DRB1 shared epitope (SE) status, anti-cyclic citrullinated peptide (anti-CCP) antibodies, and rheumatoid factor (RF) were obtained via banked DNA/serum from enrollment. Associations between inhalant exposures and RA-related factors (autoantibodies, severity, and extraarticular features) were assessed using multivariable linear and logistic regression models adjusted for age, sex, race, and tobacco use and stratified by SE status. Results: Questionnaires response rate was 50.9%. Survey respondents were older, more often White or male, and less frequently smokers, with lower disease activity compared to nonrespondents. Anti-CCP positivity was more common among veterans exposed to burn pits (OR 1.66 [95% CI 1.02, 2.69]) and military waste disposal (OR 1.74 [95%

CI 1.04, 2.93]). Participants who were positive for SE alleles, burn pit exposure (OR 5.69 [95% CI 2.73, 11.87]) and military waste disposal exposure (OR 5.05 [95% CI 2.42, 10.54]) were numerically more strongly associated with anti-CCP positivity. Several inhalant exposures were associated with the presence of chronic lung disease, but not with the presence of RF or the level of disease activity. Conclusion: Military burn pit exposure and waste disposal exposure were independently associated with the presence of anti-CCP antibodies in RA patients. These findings are consistent with emerging evidence that inhalant exposures influence autoantibody expression and RA risk.

Education

Passing the Baton: Preschool Teachers' Prioritized Information at the Kindergarten Transition

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Preschool teachers get to thoroughly learn about the children in their care and their impressions of children can meaningfully impact both children's perceptions of themselves and other adults' beliefs about children's abilities and characteristics. These impressions are particularly important during the kindergarten transition but little research has explicitly studied the factors associated with how impressions are shared between child care and formal school settings. Forty-four teachers each completed surveys about themselves and children in their classrooms who were participating in a larger study (N=239). Teachers' free-responses to the prompt "As you think about this child moving on next year to another classroom with different teachers, what are three things, you would want those teachers to know?" were qualitatively coded. Inductive themes emerged around children's temperament, social competence, emotional competence, learning behavior, and change over the course of the school year. Quantitative analyses tested whether types of information shared by teachers varied by child demographics (e.g., race, ethnicity, gender, age, and language spoken at home) and/or teacher characteristics (e.g., years of experience). Future studies conducted may include more survey questions to better understand the information teachers find relevant about children that should be passed on to their future educators.

The Impact of COVID-19 on Breast Cancer Health Outcomes

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The treatment and diagnosis for many cancers has been delayed due to the COVID-19 pandemic, thus increasing the staging of diagnosed cancer patients and exacerbating the disparities in health outcomes. Significant delays in screening for breast cancer, especially during the peak months of the COVID-19 pandemic, have been observed. As a result of the delay, many patients were ultimately diagnosed with a more advanced breast cancer stage. However, there was a significant increase in available screening tests and subsequent diagnoses of breast cancer following peak months of the pandemic that reflected rates before the start of the COVID-19 pandemic. Moreover, even though many screenings for breast cancer were interrupted during the peak of the COVID-19 pandemic, initiatives to begin treatment for established cases of breast cancer were not delayed. One often overlooked aspect of disease is the psychological component, and the effects that delayed diagnoses, treatment, and reconstruction of breast cancer have on the overall well-being of breast cancer patients. It must be emphasized that many women had to change their course of treatment and even forgo reconstruction completely due to the resource limitations caused by COVID-19 restrictions. This has further contributed to the already life-changing disease of breast cancer.